Administrative Record of Lahontan RWQCB's 2001-2002 Section 303(d) List Update Process Resolution R6T-2002-0002

California Regional Water Quality Control Board

Lahontan Region

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

MEMORANDUM

TO: Craig J. Wilson

FROM: Chuck Curtis, Supervising WRCE Manager, Planning & Toxics Division

DATE: February 27, 2002

SUBJECT: **TRANSMITTAL OF LAHONTAN REGIONAL BOARD RECOMMENDATIONS FOR UPDATE OF THE SECTION 303(D) LIST AND PRIORITIES FOR DEVELOPING TMDLS**

On January 9, 2002 the Lahontan Regional Board adopted a resolution containing recommendations to the State Water Resources Control Board for update of the Clean Water Act Section 303(d) list of impaired water bodies and for updated priorities for development of Total Maximum Daily Loads (TMDLs) for listed waters. Enclosed is a copy of Resolution R6T-2002-0002 with a table including recommendations for specific water body-pollutant combinations. The administrative record for the Regional Board's action has been assembled and indexed, and is being transmitted separately to Diane Beaulaurier of your staff. It includes an audiotape of the January 9 Board hearing. Copies of reference material for specific watersheds will also be sent to Ms. Beaulaurier. Data entry into the GeoWBS database has been completed for the waters affected by Regional Board recommendations, and electronic copies of updated GeoWBS files have been sent to Nancy Richard of State Board staff.

Please contact Judith Unsicker of Regional Board staff if you have any questions about the recommendations or Region 6's Section 303(d) list update process. Ms. Unsicker's telephone number is (530) 542-5462; her email address is JUnsicker@rb6s.swrcb.ca.gov.

Enclosure: Resolution R6T-2002-0002 with attached Table 1

cc: (w/enclosure): Debra Denton, c/o Div. of Water Quality, SWRCB

JEU/carT:303(d)/rectransmit

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

RESOLUTION NO. R6T-2002-0002

APPROVING RECOMMENDATIONS TO THE STATE WATER RESOURCES CONTROL BOARD FOR UPDATE OF THE SECTION 303(D) LIST AND TOTAL MAXIMUM DAILY LOADS PRIORITY LIST FOR THE LAHONTAN REGION

WHEREAS, the California Regional Water Quality Control Board, Lahontan Region, Finds:

1. Section 303(d) of the federal Clean Water Act requires states to identify surface waters that are not meeting standards and are not expected to meet standards, even with the application of technology based effluent limitations or other pollution controls such as Best Management Practices, and

2. Section 303(d) also requires states to develop Total Maximum Daily Loads (TMDLs) to ensure attainment of standards, and

3. California's list of impaired waters and its priorities for developing TMDLs are generally updated every two years, and

4. The California State Water Resources Control Board (State Board) has requested that Regional Boards develop recommendations for update of the Section 303(d) list and TMDL priorities in 2002, and

5. The State Board will conduct its own public participation process before adopting a statewide Section 303(d) list and TMDL priorities for submission to the U.S. Environmental Protection Agency, and

6. Lahontan Regional Board staff developed draft recommendations and made them available for public review between November 27 and December 28, 2001. The rationale for proposed changes was discussed in a staff report and water body fact sheets, and

7. The Regional Board heard and considered all public comments made during its January 9 and 10, 2002 meeting in South Lake Tahoe.

NOW THEREFORE BE IT RESOLVED:

1. The Regional Board approves staff's recommendations for changes in the Section 303(d) list and TMDL priorities, summarized in Table 1.

2. Copies of this resolution, and of the administrative record for the Section 303(d) list/TMDL priority update process, shall be transmitted to the State Board.

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Lahontan Region, on January 9, 2002.

Harold J. Singer

HAROLD J. SINGER
EXECUTIVE OFFICER

JEU/cgT: 303D Resolution 2002

Table 1. Recommendations for Update of the Section 303(d) List for the Lahontan Region

Waterbody Name	Proposed Action	Pollutant(s)/Stressor(s)	TMDL Priority Ranking[1]	TMDL End Date[2]	Comments
Surprise Valley HU 641.00[3]					
Upper Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Middle Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Lower Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Mill Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2011	Needs study to verify need for TMDL
Susanville HU 637.00					
Eagle Lake	Retain on 303(d) List[4]	Nitrogen	High	2008	
Eagle Lake	Retain on 303(d) List[4]	Phosphorus	High	2008	
Pine Creek	Retain on 303(d) List	Sedimentation/Siltation [actual problem: Fish Habitat Alterations]	High	2011[5]	TMDL probably not needed[5]
Lassen Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Susan River	Retain on 303(d) List	Unknown Toxicity	High	2007	Listed for toxic bioassay results
Top Spring	Remove from 303(d) List	Radiation	NA	NA	Impairment is natural; no "pollutants"
Amedee Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Wendel Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Honey Lake	Retain on 303(d) List	Arsenic	Medium	2005	Natural sources plus geothermal discharges
Honey Lake	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2005	Natural sources plus geothermal discharges
Honey Lake Area Wetlands	Retain on 303(d) List	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Flow Alterations	Low	2007[5]	TMDL probably not needed[5]
Honey Lake Wildfowl Mgmt Ponds	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Trace Elements	Medium	2007	Natural sources plus geothermal discharges
Skedaddle Creek	Retain on 303(d) List	High Coliform Count	Low	2006	Further study may lead to delisting
Little Truckee River HU 636.00					
Stampede Reservoir	Remove from 303(d) List	Pesticides [Lindane][6]	NA	NA	TSMP- insufficient data for listing[8]
Truckee River HU 635.00					
Donner Lake	Remove from 303(d) List	Priority Organics [PCBs, Chlordane][6]	NA	NA	TSMP- insufficient data for listing[8]
Truckee River	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Bear Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Bronco Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Gray Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Squaw Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2003	TMDL development in progress
Cinder Cone Springs	Retain on 303(d) List	Nutrients	Medium	2007	Further study may lead to delisting
Cinder Cone Springs	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2007	Further study may lead to delisting
Lake Tahoe HU 634.00					
Snow Creek	Remove from 303(d) List	Habitat Alterations	NA	NA	Restoration program implemented
Lake Tahoe	Retain on 303(d) List[4]	Phosphorus	High	2007	TMDL development in progress
Lake Tahoe	Retain on 303(d) List[4]	Nitrogen	High	2007	TMDL development in progress
Lake Tahoe	Retain on 303(d) List	Sedimentation/Siltation	High	2007	TMDL development in progress

Upper Truckee River	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Upper Truckee River	*Add to 303(d) List*	*Phosphorus*	*High*	*After 2015*	*To be coordinated with Lake Tahoe TMDL*

Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant(s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
Lake Tahoe HU 634.00 continued					
Upper Truckee River above Christmas Valley	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Big Meadow Creek	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Heavenly Valley Creek above USFS property line	Retain on 303(d) List	Sediment	High	2001	TMDL completed 2001, awaiting final approvals
Heavenly Valley Creek below USFS property line	Add to 303(d) List	Sediment	Medium	After 2015	Restoration progam may eliminate need for TMDL
Heavenly Valley Creek	Add to 303(d) list	Chloride	Low	After 2015	Standard needs revision
Heavenly Valley Creek above USFS property line	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Add to 303(d) List	Chloride	Low	After 2015	Standard needs revision
Trout Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Trout Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek below Hwy 50 in S. Lake Tahoe	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Tallac Creek below Hwy 89	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Ward Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2007	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
General Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
General Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Blackwood Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2007	TMDL development in progress
Blackwood Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
West Fork Carson River HU 633.00					
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Phosphorus	High	After 2015	
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to Paynesville	Add to 303(d) List	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., Woodfords to Paynesville	Add to 303(d) List	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to State Line	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Fork Carson River HU 632.00					
East Fork Carson River	Remove from 303(d) List	Nutrients	NA	NA	Incorrect assumption led to listing
Indian Creek Reservoir	Retain on 303(d) List	Nutrients	High	2002[7]	
Indian Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Indian Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Monitor Creek	Retain on 303(d) List[4]	Iron	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Silver	High	2011	TMDL to be coordinated with CERCLA remediation

Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant(s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
East Fork Carson River HU 632.00, continued					
Monitor Creek	Retain on 303(d) List[4]	Aluminum	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Manganese	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Add to 303(d) List	Sulfate	High	After 2015	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Add to 303(d) List	Total Dissolved Solids	High	After 2015	TMDL to be coordinated with CERCLA remediation
Wolf Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2011	
Aspen Creek	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Bryant Creek	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Leviathan Creek, at and below Leviathan Mine	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
West Walker River HU 631.00					
Topaz Lake	Retain on 303(d) list	Sedimentation/Siltation	High	2007	
West Walker River	Retain on 303(d) List	Sedimentation/Siltation	High	2009	
Fales Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Hot Creek	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
East Walker River HU 630.00					
Bridgeport Reservoir	Retain on 303(d) List[4]	Nitrogen	High	2005	TMDL development in progress
Bridgeport Reservoir	Retain on 303(d) List[4]	Phosphorus	High	2005	TMDL development in progress
Bridgeport Reservoir	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
East Walker River above Bridgeport Reservoir	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Walker River below Bridgeport Reservoir	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
East Walker River below Bridgeport Reservoir	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
East Walker River below Bridgeport Reservoir	Remove from 303(d) List	Metals	NA	NA	TSMP- insufficient data for listing[8]
East Walker River below Bridgeport Reservoir	Retain on 303(d) List	Sedimentation/Siltation	High	2009	
Robinson Creek, Hwy 395 to Bridgeport Res.	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Robinson Creek, Twin Lakes to Bridgeport Res.	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Buckeye Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Buckeye Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Virginia Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Green Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Rough Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Aurora Canyon Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Hot Springs Canyon Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Clark Canyon Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Clearwater Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Bodie Creek	Retain on 303(d) List	Metals	High	2004	Impairment probably related to past mining activity

Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant (s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
Mono HU 601.00					
Lee Vining Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Mill Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Grant Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Mono Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Owens HU 603.00					
Haiwee Reservoir	Retain on 303(d) List	Copper	Low	2003	TMDL development in progress
Mammoth Creek	Retain on 303(d) List	Metals	High	2008	Needs study to verify need for TMDL
Hot Creek	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Little Hot Creek	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Twin Lakes (Mammoth)	Retain on 303(d) List[4]	Nitrogen	Low	2008	Needs study to verify need for TMDL
Twin Lakes (Mammoth)	Retain on 303(d) List[4]	Phosphorus	Low	2008	Needs study to verify need for TMDL
Little Alkali Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Big Springs	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Owens River	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Owens River (Long HA)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens River (Upper)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens River (Lower)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Crowley Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Crowley Lake	Retain on 303(d) List[4]	Nitrogen	High	2005	Nutrient loading currently under study
Crowley Lake	Retain on 303(d) List[4]	Phosphorus	High	2005	Nutrient loading currently under study
Keough Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Tinemaha Reservoir	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Tinemaha Reservoir	Retain on 303(d) List	Metals [Copper]	Low	2004	Copper from algicide application
Pleasant Valley Reservoir	Retain on 303(d) List	Nitrogen	High	2006	
Pleasant Valley Reservoir	Retain on 303(d) List[4]	Phosphorus	High	2006	
Tuttle Creek	Retain on 303(d) List[4]	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Goodale Creek	Retain on 303(d) List	Sedimentation/Siltation	Low	2009	Further study may lead to delisting
Owens Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Cottonwood Creek below LADWP diversion	Retain on 303(d) List	Water/Flow Variability	Low	2011[5]	TMDL probably not needed[5]
Deep Springs HU 605.00					
Deep Springs Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Deep Springs Lake	Remove from 303(d) List	Trace Elements	NA	NA	Impairment is natural; no "pollutants"

Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant (s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
Amargosa HU 609.00					
Amargosa River	Remove from 303(d) List	Salinity/TDS/chlorides	NA	NA	Impairment is natural; no "pollutants"
Trona HU 621.00					
Searles Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Searles Lake	Add to 303(d) List	Petroleum Hydrocarbons	Low	After 2015	Documented bird kills from industrial pollutants
Mojave HU 628.00					
Mojave River near Barstow	Remove from 303(d) List	Priority Organics	NA	NA	Ground water, not surface water impairment
Horseshoe Lake	Retain on 303(d) List	Sedimentation/Siltation	Low	2007	Further study may lead to delisting
Green Valley Lake Creek	Retain on 303(d) List	Priority Organics	Low	2006	Further study may lead to delisting

[1]TMDL priority rankings and end dates are shown only for water bodies recommended for inclusion in the 2002 list. The entry "NA" means "not applicable."

[2] TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments. Plan amendments incorporating TMDLs will not take effect unless and until they receive further approvals from the California State Water Resources Control Board, the California Office of Administrative Law, and the U.S. Environmental Protection Agency.

[3] Water bodies are grouped by watersheds in north-to-south order. Watershed (Hydrologic Unit or HU) numbers are Department of Water Resources numbers used in the maps in the Lahontan Basin Plan, and do not run in north-to-south order.

[4] The entry "Retain on 303(d) List" in the "Proposed Action" column means that this water body/pollutant combination is on the 1998 Section 303(d) list and is proposed to remain on the 2002 list. In some cases the nature of the pollutants or the extent of the impaired segment has been clarified. For example, earlier listings for "nutrients" or "organic enrichment/Low D.O." may now be changed to separate listings for individual pollutants (nitrogen and phosphorus), and an earlier single entry for habitat alterations in the Owens River has been changed to three separate entries to reflect different segments of the river. Changes are recommended in priority rankings and TMDL end dates for many of the water body/pollutant combinations from the 1998 list.

[5] Pending revisions to federal regulations for the implementation of Section 303(d) of the Clean Water Act would clarify that TMDLs are not required for waters impaired by flow alterations, water/flow variability and habitat alterations, unless specific "pollutants" are also involved. (Load calculations are not feasible in cases where there are no pollutants.) Under the proposed new regulations, waters impaired by habitat or flow alterations, or by flow variability, would be placed on a separate list of impaired waters to highlight the need for control strategies other than TMDLs.

[6]Clarification of the nature of the pollutants has been added in brackets for some water bodies recommended for removal from the Section 303(d) list. See the fact sheets for these water bodies for further information.

[7]Regional Board staff completed draft Basin Plan amendments incorporating a phosphorus TMDL for Indian Creek Reservoir in November 2000. The Regional Board has been unable to act on these amendments due to lack of a quorum for a vote.

[8]Some waters were listed based on Toxic Substances Monitoring Program (TSMP) fish tissue data. Because sample numbers were small, TSMP data alone are not considered sufficient grounds for listing.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

February 2002

INDEX TO ADMINISTRATIVE RECORD FOR LAHONTAN REGIONAL BOARD'S 2001-2002 SECTION 303(D) LIST UPDATE PROCESS

Notes: Except for information and data provided in response to the March-May 2001 solicitation process, and information in written public comments on the November 2001 draft recommendations, the reference material (information and data) used in formulation of Regional Board recommendations has been provided to State Water Resources Control Board staff separately from this administrative record.

Copies of public comment letters and emails received in December 2001 were sent to Regional Board members as they arrived. This resulted in some duplicate materials being included in the agenda packet. Regional Board staff sent written responses to some written comments. Copies of these responses, and responses to the remainder of the written comments are included in a single "Response to Comments" document. For clarity, public comment letters and staff responses are indexed chronologically by the date on the letter or email. However, page numbers in the index are not necessarily in chronological order. Duplicate locations are shown in the page number columns as appropriate.

THE BOARD OF SUPERVISORS
ALPINE COUNTY, CALIFORNIA

P. O. BOX 158
MARKLEEVILLE, CALIFORNIA 96120

TELEPHONE
530-694-2281
FAX
530-694-2491

May 8, 2000

Dr. Judith Unsicker, Environmental Specialist IV
California Regional Water Quality Control Board
Lahonton Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

RE: ALPINE COUNTY COMMENTS ON REVISED NOTICE OF PREPERATION OF A DRAFT ENVIRONMENTAL DOCUMENT FOR PROPOSED BASIN PLAN AMENDMENTS: TMDLs AND IMPLEMENTATION PLAN FOR INDIAN CREEK RESERVOIR

Dear Dr. Unsicker,

The purpose of this letter is to provide comments on the scope of the environmental evaluation to be performed relative to the above referenced NOP. Indian Creek Reservoir represents a significant recreation resource to Alpine County. Recreational resources and agriculture are an important component of Alpine County's economy. As such, the environmental evaluation of the potential impact of setting TMDL's and the implementation plan to achieve proposed TMDL levels should include an analysis of the recreation and agricultural resource issues and the potential for socio-economic impacts at a high level of expertise. Additionally, alternatives evaluated should include the possibility for extreme modification of the reservoir operating procedures, including return to approximately the preexisting natural state prior to construction of the reservoir in the dry basin, which may be considered by S.T.P.U.D., if inappropriate TMDLs are substantiated.

Sincerely,

Katherine Rakow
Chair, Alpine County Board of Supervisors

CC: H. Singer, Lahonton RWQCB
A. Miller, Carson/Walker River Watershed Units
S.T.P.U.D., Board of Directors

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ALPINE COUNTY

Department of Public Works
Hwy 89 & Diamond Valley Road
Woodfords, California
(916) 694-2255

Mailing Address:
50 Diamond Valley Road
Markleeville, California 96120

Director of Transportation
Road Department
Engineer — Surveyor
Building Department
Planning Department
Building & Grounds
Airport

May 10, 2000

Alan Miller, Chief
Carson/ Walker River Watershed Units
California Regional Water Quality Control Board
Lahonton Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

RE: TECHNICAL COMMENTS ON INDIAN CREEK RESERVOIR REVISED NOP OF DRAFT ENVIRONMENTAL DOCUMENTS FOR PROPOSED BASIN PLAN AMENDMENTS: TMDL's AND IMPLEMENTATION PLAN

Alan Miller,

I would like to thank you for extending the period to provide comments relative to the above referenced NOP. The purpose of this letter is to provide my technical opinion relative to significant issues related to the above referenced project. It is my understanding that some of the criteria utilized in prioritizing the Indian Creek Reservoir project include the perceived relatively uncomplicated nature of the euthrophication "problem", the likelihood of being able to implement a relatively straightforward solution, and the Lahonton Regional Water Quality Control Board's (RWQCB) need to deliver projects under increasing federal and environmental organization pressure.

My limited review of the information provided indicates the poorly understood nature of the release/ recycling phenomenon associated with the potential largest source of phosphorus loading problem in the reservoir, nutrient rich sediments, particularly for a system which may have significant amounts of alum present. Additionally, most lake eutrophic indices use log 10 scales for nutrient concentration. It is doubtful that even the difficult to achieve goal of a reduction of loading by a factor of 3 will have much positive effect in reducing the nutrients to the point that a significant effect on the predominant lake eutrophic condition will occur. The sheer magnitude of this reservoir and the potential cost and impacts of management efforts justifies the need to make decisions based on sound scientific information in a collaborative setting. It is my opinion that the above issues are representative of some of the current scientific informational gaps necessary to determine the technical feasibility for success, and provide justification for a sound cost/benefit analysis, of any project aimed at improving Indian Creek Reservoir water quality.

I empathize with the RWCQB's need to perform projects to demonstrate compliance with the law. I would like to suggest that a technical advisory team sensitive to the interests of the various stakeholders be promptly developed to assist the RWQCB in developing and analyzing future technical data needs in the light of the need for project prioritization and implementation both within Alpine County and the Lahonton RWQCB's areas of interest. I believe this will be particularly important in light of some of the new water bond funds that will be made available. I would be happy to assist in the development and possibly serve on such a team, pending authorization from the Alpine County Board of Supervisor to do so. Certainly, the County and the RWQCB share the common interest of maintaining and expanding the range of beneficial uses that can be served by Alpine County's water resources. To that end I hope we can continue to expand on the interest based professional relationship I have tried to develop between you, other RWQCB personnel, and myself to date.

Please do not hesitate to contact me to further discuss the issues presented above.

Sincerely,

Mark DeMaio
County Engineer

CC: Leonard Turnbeaugh, Public Works Director
Alan Turner, County Counsel
Judith Unsicker, Lahonton RWQCB
Harold Singer, RWQCB
S.T.P.U.D Board of Directors
Alpine County Board of Supervisors
David McGraw, Desert Research Institute
Hal Byrd, S.T.P.U.D

Please check the appropriate box and provide updated information where appropriate.

SAME AS LABEL ☑ REVISED ☐ NEW ADDRESSEE ☐

Please print information below:

NAME Carol Sims

ORGANIZATION Environmentally concerned

ADDRESS 5406 E. Kaibab Blvd.

CITY Williams STATE AZ ZIP CODE 86046

303d Mail List Update.doc

Have you ever considered the possibility of pesticides, insecticides, herbicides and feterlizer that are effecting our waters? What about the BT that you apply to our Streams and Beaches? Poisons [redacted] No matter how to apply it.

Lahontan Regional Water Quality Control Board

California Water News

FOR IMMEDIATE RELEASE

Contact: Judith Unsicker
(530) 542-5462

RWB 01-

Lahontan Water Board Requests Public Input for Water Quality Assessment

SOUTH LAKE TAHOE- The Lahontan Regional Water Quality Control Board is the state agency responsible for protecting water quality in the eastern Sierra and the northern Mojave desert. On behalf of the State Water Resources Control Board, the Regional Board is asking the public to contribute information and data collected since 1997 about the quality of specific lakes, streams, and wetlands in the Lahontan Region for use in statewide water quality assessment and reporting activities. The federal Clean Water Act requires states to report to Congress every two years on the quality of their surface waters. The state assessment process is also used to identify surface waters which require special cleanup strategies under Section 303(d) of the Clean Water Act.

The Lahontan Regional Board is requesting input on water quality and support of human, wildlife, and aquatic life uses of water from other agencies, university researchers, citizen monitoring and watershed groups, and the public. Information and data should be submitted by May 15, 2001 to be considered in development of Regional Board recommendations to the State Water Board for update of the statewide water quality assessment. Draft recommendations will be released for public review during the summer of 2001. For further information on how to contribute to the assessment process, see the Regional Board's Internet webpage at <http://www.swrcb.ca.gov/rwqcb6>, or call Judith Unsicker at (530) 542-5462.

The Lahontan Regional Water Quality Control Board is part of the California Environmental Protection Agency.

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NEWSPAPER LISTINGS:

SOUTH LAKE TAHOE

TEL./FAX	NAME/ADDRESS	DEADLINE	PRINT
(530)257-5321/ (530)257-0408	Lassen Co. Times 800 Main Street Susanville, CA 96130 (Lassen, Plumas Co.)	Thur., 3:00 p.m.	Tues.
(530)233-2632/ (530)233-5113	Modoc Co. Record 209 W. Carlos St. Alturas, CA 96101	Tues., 5:00 p.m.	Thurs.
(775)782-5121/ (775)782-6152 [775]782-6132	Record Courier 1503 Hwy 395 Gardnerville, NV 89702 (Alpine Co.)	Mon., 12:00 noon Thur., 12:00 noon	Wed. Sat.
(530)587-6061/ (530)587-3763	Sierra Sun P.O. Box 2973 Truckee, CA 96160 (Placer, NV Co.)	Fri, 5:00 p.m.	Thurs.
(530)541-3880/ (530)541-0373 541 8238	Tahoe Daily Tribune 3079 Harrison Ave. South Lake Tahoe, CA 96150	Fri, 5:00 p.m. Mon, 5:00 p.m. Tues, 5:00 p.m. Wed, 5:00 p.m. Thurs, 4:30 p.m.	Mon Tues Wed Thurs Fri
(530)583-3487/ (530)583-7109	Tahoe World P.O. Box 138 Tahoe City, CA 96145	Fri, 12:00 noon.	Thurs.
(775)885-5561/ (775)885-5565	Reno Gazette Journal Jeff Delong (Tahoe Issues)	Daily	Daily
(530)587-2608/ (530)582-5433	Sacramento Bee Barbara Osburn	Daily	Daily

VICTORVILLE

/(760)244-6609	Adelanto Bulletin 16925 Main Street Hesperia, CA 92345	Mon., 5:00 p.m.	Thurs.

(661)273-2700/ (661)947-4870	Antelope Valley Press 37404 Sierra Hwy. Palm Dale, CA 93550 (LA Co., Kern Co.)	2 days prior	Daily
(760)242-1930/ (760)244-6609	Apple Valley News 16925 Main Street Hesperia, CA 92345	Mon., 5:00 p.m.	Thurs.

TEL./FAX	NAME/ADDRESS	DEADLINE	PRINT
(760)242-1930/ (760)244-6609	Hesperia Resorter 16925 Main Street Hesperia, CA 92345	Mon., 5:00 p.m.	Fri.
(760)873-3535/ (760)873-3591	Inyo Register 450 E. Line St. Bishop, CA 93514 (Inyo Co.)	Thurs., 3:00 p.m. Mon., 3:00 p.m. Wed., 3:00 p.m.	Tues. Thurs. Sun.
(760)248-2042/ ~~(760)248-7878~~ 760 248 2042	Lucerne Valley Leader 32776 Old Woman Springs Lucerne Valley, CA 92356	Fri., 5:00 p.m.	
(760)934-3929/ (760)934-3951	Mammoth Times P.O. Box 3929 Mammoth Lakes, CA 93546	Mon., 2:00 p.m.	Thurs.
(661)824-9602/ (760)373-2941	Mojave Desert News P.O. Box 937 Mojave, CA 93502	Fri., 5:00 p.m.	Thurs.
(909)336-3555/ (909)337-5275	Mountain News & Crestline Courier P.O. Box 2410 Lake Arrowhead, CA 92352	Mon., 5:00 p.m.	Thurs.
(760)249-3245/ (760)249-4021	Mountaineer-Progress 1300 Evergreen St. Wrightwood, CA 92397	Fri., 3:00 p.m.	Thurs.
(760)249-3245/ (760)241-7145	Victorville Daily Press & Desert Dispatch P.O. Box 1389 Victorville, CA 92392	4 days prior	
(800)788-7840/ (800)540-4089	San Bernardino Sun c/o CA Newspaper Svc. P.O. Box 54026 L.A., CA 90054-0026 (San Bernardino Co.)	3 days prior	Daily

California R gional Water Quality ontrol Board
Lahontan Region

Winston H. Hickox
Secretary for
ironmental
rotection

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

March 2, 2001

Dear Legal Advertising Coordinator:

REQUEST TO PUBLISH NOTICE ON PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

Please publish the enclosed Notice one (1) time, **on or before March 17, 2001.** Send your invoice to the attention of Pamela Walker at the address above. Please contact Judith Unsicker at (530) 542-5462 if you have any questions about the content of the notice, or Ms. Walker at (530) 542-5406 if you have questions about payment.

Sincerely,

Robert S. Dodds
Assistant Executive Officer

Enclosure

JEU/shT:303dadv.doc
[Basin Plan, Water Quality Assessment]

8

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The Lahontan Regional Water Quality Control Board (Regional Board) is contacting the public on behalf of the State Water Resources Control Board (SWRCB) to solicit data and information regarding water quality conditions in surface waters in this Region for use in the State's 2001-2002 water quality assessment and reporting processes.

The information and data will be used to update the State's list of impaired water bodies, which is required under Section 303(d) of the federal Clean Water Act. Proposed revisions to the Section 303(d) list will be considered by the SWRCB in a public process to be conducted next winter. Opportunities for review of the proposed submission and public comment on the submission will be announced at a later date.

Anyone, including but not limited to, private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses, possessing information or data regarding the quality of the Lahontan Region's waters may provide it to the Regional Board. We are seeking to obtain all readily available data and assessment information generated since July 1997. All data and information must be received **by 5:00 p.m. on May 15, 2001** in order to be considered in the Regional Board's recommendations to the SWRCB. The SWRCB has requested that all information and data be submitted in both electronic and "hard copy" format, and that they conform to certain other considerations. For details, see the Regional Board's webpage at: <http://www.swrcb.ca.gov/rwqcb6>.

The contact person for the assessment process is Judith Unsicker, Lahontan RWQCB, 2501 Lake Tahoe Boulevard, South Lake Tahoe CA 96150. Ms. Unsicker's email address is <unsij@rb6s.swrcb.ca.gov>; her telephone number is (530) 542-5462.

NEWSPAPER LIST FOR SECTION 303(D) SOLICITATION ADVERTISING

	FAX
Lassen County Times	**(530) 257-0408**
Modoc County Record	**(530) 233-5113**
Record Courier	**(775) 782-6132**
Sierra Sun	**(530) 587-3763**
Tahoe Daily Tribune	**(530) 541-8238**
Antelope Valley Press	**(661) 947-4870**
Inyo Register	**(760) 873-3591**
Mammoth Times	**(760) 934-3951**
Victorville Daily Press & Desert Dispatch	**(760) 241-7145**

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA,
COUNTY OF INYO

I am a citizen of the United States and a resident of the County aforesaid. I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of the

The Inyo Register

a newspaper of general circulation, published in

Bishop, ca

County of Inyo, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Inyo, State of California, under date of Oct. 5, 1953, Case number 5414; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

Mar. 6

all in the year ~~19~~ 2001

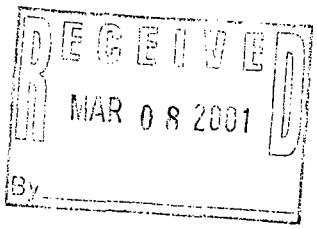
I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Bishop, California,

this 6 day of March 20 01

Signature

This space is for County clerk's Filing Stamp



Proof of Publication of

public solicitation of

Paste Clipping of Notice SECURELY in the Space

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The Lahontan Regional Water Quality Control Board (Regional Board) is contacting the public on behalf of the State Water Resources Control Board (SWRCB) to solicit data and information regarding water quality conditions in surface waters in this Region for use in the State's 2001-2002 water quality assessment and reporting processes. The information and data will be used to update the State's list of impaired water bodies, which is required under Section 303(d) of the federal Clean Water Act. Proposed revisions to the Section 303(d) list will be considered by the SWRCB in a public process to be conducted next winter. Opportunities for review of the proposed submission and public comment on the submission will be announced at a later date.

Anyone, including but not limited to, private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses, possessing information or data regarding the quality of the Lahontan Region's waters may provide it to the Regional Board. We are seeking to obtain all readily available data and assessment information generated since July, 1997. All data and information must be received by 5:00 p.m. on May 15, 2001 in order to be considered in the Regional Board's recommendations to the SWRCB. The SWRCB has requested that all information and data be submitted in both electronic and "hard copy" format, and that they conform to certain other considerations. For details, see the Regional Board's web page at: <http://www.swrcb.ca.gov/rwqcb6> The contact person for the assessment process is Judith Unsicker, Lahontan RWQCB, 2501 Lake Ta-

12

The Record-Courier
Gardnerville, NV

Affidavit of Publication
Record Courier

Attn: Kathie Mowlem
Calif Reg Water Quality Board
Lahontan Region
2501 Lake Tahoe Blvd
So Lake Tahoe CA 96150

REFERENCE: r-cregwa
505438 #508 Public Solicita

Nevada
Douglas County

Barbara Gerber, being duly sworn, says that she is the Legal Clerk of THE RECORD-COURIER, a bi-weekly newspaper printed and published in Gardnerville, State of Nevada, and that the annexed is a full, true and correct copy of attached advertisement.

The attached advertisement was published in said newspaper once/twice a week for designated dates on advertisement, and that the notice was published in the regular and entire edition of every number of the paper during the time and period of publication in the newspaper proper and not in a supplement.

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The Lahontan Regional Water Quality Control Board (Regional Board) is contacting the public on behalf of the State Water Resources Control Board (SWRCB) to solicit data and information regarding water quality conditions in surface waters in this Region for use in the State's 2001-2002 water quality assessment and reporting processes. The information and data will be used to update the State's list of impaired water bodies which is required under Section 303(d) of the federal Clean Water Act. Proposed revisions to the Section 303(d) list will be considered by the SWRCB in a public [illegible] for review of the proposed [illegible] and public [illegible] at a later date.

Anyone, including but not limited to, private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses, possessing information or data regarding the quality of the Lahontan Region's waters may provide it to the Regional Board. We are seeking to obtain all readily available data and assessment information generated since July 1997. All data and information must be received **by 5:00 p.m. on May 18, 2001** in order to be considered in the Regional Board's recommendations to the SWRCB. The SWRCB has requested that all information and data be submitted in both electronic and "hard" copy format, and that they conform to certain other considerations. For details, see the Regional Board's webpage at <http://www.swrcb.ca.gov/rwqcb6>.

The contact person for the assessment process is Judith Unsicker, Lahontan RWQCB, 2501 Lake Tahoe Boulevard, South Lake Tahoe CA 96150. Ms. Unsicker's email address is <unsij@rb6s.swrcb.ca.gov>, her telephone number is (530) [illegible]

(3/7/01) (508)

PUBLISHED ON: 03/07

PHYLLIS A. ZINK
Notary Public - Nevada
Douglas County
97-2087-5
My Appointment Expires May 15, 2001

FILED ON: 03/07/01

Subscribed and sworn to before me on the day and year aforesaid:

Clerk: Barbara Gerber

Notary: Phyllis A. Zink My Commission Expires: May 15, 2001
Phyllis A. Zink

PROOF OF PUBLICATION

(2015.5 C.C.P.)

This space is the County Clerk's Filing Stamp

STATE OF CALIFORNIA,
County of San Bernardino

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the publisher of the DAILY PRESS, a newspaper of general circulation, published in the City of Victorville, County of San Bernardino, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Bernardino, State of California, under the date of November 21, 1938, Case Number 43096, that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

March 7

all in the year 20 01 .

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated this 7th **day**

of March , **20** 01 .

Leslie Jacobs

Signature
Leslie Jacobs

Proof of Publication of

PUBLIC SOLICITATION OF

WATER QUALITY

INFORMATION

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The Lahontan Regional Water Quality Control Board (Regional Board) is contacting the public on behalf of the State Water Resources Control Board (SWRCB) to solicit data and information regarding water quality conditions in surface waters in this Region for use in the State's 2001-2002 water quality assessment and reporting processes.

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Anyone, including but not limited to, private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses, possessing information or data regarding the quality of the Lahontan Region's waters may provide it to the Regional Board. We are seeking to obtain all readily available data and assessment information generated since July 1997. All data and information must be received by 5:00 p.m. on May 15, 2001 in order to be considered in the Regional Board's recommendations to the SWRCB. The SWRCB has requested that all information and data be submitted in both electronic and "hard copy" format, and that they conform to certain other considerations. For details, see the Regional Board's webpage at: <http://www.swrcb.ca.gov/rwqcb6>.

The contact person for the assessment process is Judith Unsicker, Lahontan RWQCB, 2501 Lake Tahoe Boulevard, South Lake Tahoe CA 96150. Ms. Unsicker's email address is <unsij@rb6s.swrcb.ca.gov>; her telephone number is (530) 542-5462.

Published in the Daily Press
Mar 7, 2001
(W-24)

14

LGL 202 (12/99)

PROOF OF PUBLICATION

(2015.5 C.C.P.)

This space is the County Clerk's Filing Stamp

STATE OF CALIFORNIA,
County of San Bernardino

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the publisher of the DESERT DISPATCH, a newspaper of general circulation, published in the City of Barstow, County of San Bernardino, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Bernardino, State of California, under the date of February 27, 1996, Case Number BVC02359, that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

March 7

all in the year 20 01 .

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated this 7th **day**

of March , **20** 01 .

Leslie Jacobs
Signature

BLGL 202 (12/99)

Proof of Publication of

PUBLIC SOLICITATION OF

WATER QUALITY

INFORMATION

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The Lahontan Regional Water Quality Control Board (Regional Board) is contacting the public on behalf of the State Water Resources Control Board (SWRCB) to solicit data and information regarding water quality conditions in surface waters in this Region for use in the State's 2001-2002 water quality assessment and reporting processes.

The information and data will be used to update the State's list of impaired water bodies, which is required under Section 303(d) of the federal Clean Water Act. Proposed revisions to the Section 303(d) list will be considered by the SWRCB in a public process to be conducted next winter. Opportunities for review of the proposed submission and public comment on the submission will be announced at a later date.

Anyone, including but not limited to, private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses, possessing information or data regarding the quality of the Lahontan Region's waters may provide it to the Regional Board. We are seeking to obtain all readily available data and assessment information generated since July 1997. All data and information must be received **by 5:00 p.m. on May 15, 2001** in order to be considered in the Regional Board's recommendations to the SWRCB. The SWRCB has requested that all information and data be submitted in both electronic and "hard copy" format, and that they conform to certain other considerations. For details, see the Regional Board's webpage at: <http://www.swrcb.ca.gov/rwqcb6>.

The contact person for the assessment process is Judith Unsicker, Lahontan RWQCB, 2501 Lake Tahoe Boulevard, South Lake Tahoe CA 96150. Ms. Unsicker's email address is <unsij@rb6s.swrcb.ca.gov>; her telephone number is (530) 542-5462.

Published in the Desert Dispatch
Mar 7, 2001
(W-94)

15

PROOF OF PUBLICATION

The Modoc County Record
P.O. Box 531
Alturas, California 96101

State of California
County of Modoc

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years; I am not a party to or interested in the notice published. I am the Publisher of the Modoc County Record, a newspaper of general circulation, printed and published weekly in the City of Alturas, County of Modoc. The Modoc County Record has been adjudged a newspaper of general circulation by the Superior Court of the County of Modoc, State of California, under the date of July 30, 1958, case Number 6356. The notice, of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

March 8

all in the year 2001

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Dated at Alturas, California, this

March 8 day of, 2001

Signature

LEGAL NOTICE
PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The Lahontan Regional Water Quality Control Board (Regional Board) is contacting the public on behalf of the State Water Resources Control Board (SWRCB) to solicit data and information regarding water quality conditions in surface waters in the Region for use in the State's 2001-2002 water quality assessment and reporting processes.

The information and data will be used to update the State's list of impaired water bodies, which is required to the Section 303 (d) list will be considered by the SWRCB in public process to be conducted next winter. Opportunities for review of the proposed submission and public comment on the submission will be announced at a later date.

Anyone, including but not limited to, private citizens, public agencies, state and federal government agencies, non-profit organizations, and businesses possessing information or data regarding the quality of the Lahontan Region's waters may provide it to the Regional Board. We are seeking to obtain all readily available data and assessment information generated since July 1997. All data and information must be received **by 5:00 p.m. on May 15, 2001** in order to be considered in the Regional Board's recommendations to the SWRCB. The SWRCB has requested that all information and data be submitted in both electronic and "hard copy" format, and that they conform to certain other considerations. For details see the Regional Board's webpage at <http://www.swrcb.ca.gov/rwqcb6/>.

The contact person for the assessment prices is Judith Unsicker, Lahontan RWQCB, 2501 Lake Tahoe Boulevard, South Lake Tahoe CA 96150. Ms. Unsicker's email address is <unsij@rb6s.swrcb.ca.gov.>; her telephone number is (530) 542-5462.

Published in the *Modoc County Record* on March 8 2001.

16

PROOF OF PUBLICATION
(2015.SC. C.P.)

This space is for the County Filing Stamp

STATE OF CALIFORNIA,
County of Nevada

NOTICE OF PUBLICATION

TITLE: HEARING/Water Quality Cond.

I am a citizen of the United States and a resident of the County aforsaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of THE SIERRA SUN, a newspaper of general circulation and which newspaper has been adjudged a newspaper of County of Nevada, State of California, under date April 4, 1952, Case Number 10101: that the notice, of which the annexed is a printed copy [set in type not smaller than nonpareil] has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

Run Dates: MARCH 8,

all in the year 2001

I certify [or declare] under penaly of perjury that the foregoing is true and correct.

P. Leonard

Signature

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The Lahontan Regional Water Quality Control Board (Regional Board) is contacting the public on behalf of the State Water Resource Control Board (SWRCB) to solicit data and information regarding water quality conditions in surface waters in this Region for use in the States 2001-2002 water quality assessment and reporting processes. The information and data will be used to update the State's list of impaired water bodies, which is required under Section 303(d) of the federal Clean Water Act. Proposed revisions to the Section 303(d) list will be considered by the SWRCB in a public process to be conducted next winter. Opportunities for review of the proposed submission and public comment on the submission will be announced at a later date.

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The contact person for the assessment process is Judith Unsicker, Lahontan RWQCB, 2501 Lake Tahoe Boulevard, South Lake Tahoe CA 96150. Ms. Unsicker's email address is <unsij@rb6s.swrcb.ca.gov>; her telephone number is (530) 542-5462.

3/8/2001
SS#2178

PROOF OF PUBLICATION

SIERRA SUN NEWSPAPER
P.O. BOX 2973
TRUCKEE, CA 96160

17

Public asked for water data

Antelope Valley Press 3/12/01

By BRENDA ZAHN
Valley Press Staff Writer

PALMDALE — The regional water board needs public input to help assess the health of the region's various water bodies.

The State Water Quality Control Board, Lahontan Region wants to hear from private citizens, public agencies, state and federal governmental agencies, nonprofit organizations and businesses that have information regarding the quality of the region's waters, said Judith Unsicker, an environmental specialist with the board.

The Lahontan region spans from the Oregon border, along the eastern Sierra and through the northern Mojave Desert and the eastern San Bernardino Mountains.

Water board staff members are contacting the public on behalf of the board to solicit information for use in the state's 2001-02 water quality assessment and reporting processes.

The information will be used to update the state's list of impaired bodies of water, which the federal Clean Air Act requires to be updated every two years. Proposed revisions to the list will be considered by the state water board in a public process next winter.

Putting a water body on the list of impaired water bodies means the water board and the Environmental Protection Agency have to develop a strategy to address the pollution problems in that body.

Opportunities for review of the proposed submission and for public comment on the submission will be announced at a later date.

With thousands of water bodies in the region, the staff doesn't have funding to monitor all of them on a regular basis, Unsicker said.

After gathering public information, the staff will put together a report with recommendations it will take to the regional board in October. The regional board will then take its recommendations to the state water quality board.

If it finds new problems with certain bodies of water, the staff could recommend that they be added to the list of impaired water bodies, Unsicker said.

The board wants to see all readily available data and assessment information that has been generated since July 1997. All information must be received by 5 p.m. Tuesday, May 15.

For details, see the regional board's Web page at: www.swrcb.ca.gov/rwqcb6.

California Regional Water Quality Control Board
Lahontan Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

March 13, 2001

To Interested Parties:

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The Lahontan Regional Water Quality Control Board (Regional Board) is contacting the public on behalf of the State Water Resources Control Board (SWRCB) to solicit data and information regarding water quality conditions in surface waters in this Region. The information gathered will be used in various assessments of the State's waters including the development of a submission to the U.S. Environmental Protection Agency (US EPA) required by the federal Clean Water Act (Section 303(d)). This submission will be developed by the SWRCB and will provide the US EPA with a revised list of waters considered by the State to be impaired (not attaining water quality standards) after certain required technology-based water quality controls are in place. It is anticipated that this submission will be provided to the US EPA by April 2002, as required by federal regulations. The submission will be based on information and data available to the SWRCB and the Regional Water Quality Control Boards. The information gathered in this solicitation will also contribute to the preparation of the 2002 federal Clean Water Act Section 305(b) Report on Water Quality.

Anyone, including but not limited to, private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses, possessing information regarding the quality of the Region's waters may provide information.

We are seeking to obtain all readily available data and assessment information generated since July 1997. All data and information you wish to provide must be received by the Regional Board **by 5:00 p.m. on May 15, 2001**. For purposes of this solicitation, "information" is any documentation describing the current or anticipated water quality condition of a surface water body. We consider "data" to be a subset of "information" that consists of reports of measurements of specific environmental characteristics. The data and information may pertain to physical, chemical, and/or biological conditions of the region's waters or watersheds.

Information provided should conform to the following considerations:

- The name of the entity or person providing the information.
- Mailing address, phone number, and email address for a contact person able to answer questions about any of the information provided.
- Two hard copies and an electronic copy of all information provided. For reports Microsoft Word is the preferred software. Please specify the software used to format the information and provide definitions for any codes or abbreviations used.
- Bibliographic citations for all information provided.
- If computer model outputs are included in the information, please provide bibliographic citations and specify any calibration and quality assurance information available.

Any data provided should conform to the following considerations:

- Data in electronic form, in a spreadsheet, database or ASCII format. Please specify the format and define any codes or abbreviations used in your database.
- A description of, and reference for your quality assurance procedures.
- Metadata for the field data, i.e., when measurements where taken, locations, number of samples, detection limits, etc.
- If possible, **two** hard copies of the data, so that we can verify that we have accurately transferred the data to our database.
- In addition, for data from citizen volunteer water quality monitoring efforts:

➢ The name of your group;
➢ Indication of any training in water quality assessment completed by members of your group;

We would like to receive data and information as soon as possible and no later than **May 15, 2001.** Data or information received after May 15, 2001 will not be considered in developing the April 2002 submission to US EPA required by Clean Water Act Section 303(d).

Please send any information and data you wish to provide to:

Judith Unsicker
Lahontan RWQCB
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

Email address: <unsij@rb6s.swrcb.ca.gov> .

If you have questions regarding information or data you wish to submit, please contact Judith Unsicker at the mailing or email addresses above, or by telephone at (530) 542-5462).

The Regional Boards have been requested to provide recommendations to the SWRCB in Fall 2001 on the condition of Regional waters. The SWRCB will consider all Regional Boards' recommendations regarding the conditions of the Region's waters when formulating the 303(d) submission. The State's submission revising the list of impaired waters will be considered by the SWRCB in a public process to be conducted next winter. Opportunities for review of the proposed submission and public comment on the submission will be announced at a later date.

Sincerely,

Robert S. Dodds
Assistant Executive Officer

Enclosure:

JEU/shT:303dsolic.doc".
[Basin Plan-Water Quality Assessment" general file]

MAILING LIST NOTICE

Your name is on our mailing list to receive water quality information of the Lahontan Regional Water Quality Control Board.

If you wish to continue receiving information, please complete the form below (indicating any necessary corrections), and return this notice to **Shirley Harada**.

UNLESS THIS FORM IS RETURNED BY MAY 15, 2001, YOUR NAME WILL BE REMOVED FROM OUR MAILING LIST.

Please return this notice to:

California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

Please check the appropriate box and provide updated information where appropriate.

SAME AS LABEL ☐ **REVISED** ☐ **NEW ADDRESSEE** ☐

Please print information below:

NAME_____

ORGANIZATION_____

ADDRESS_____

CITY_____**STATE**_____**ZIP CODE**_____

303d Mail List Update.doc

DEV 303d MAILING LIST 3/13/01

ALPINE COUNTY - RCD
1702 COUNTY RD
[redacted]NDEN, NV 89423

ALPINE COUNTY - AGRIC COMMISSION
PO BOX 158
MARKLEEVILLE, CA 96120

AMERICAN LAND TRUST
1388 SUTTER ST, STE 810
SAN FRANCISCO, CA 94109

ARROWHEAD LAKE ASSOCIATION
PO BOX 1119
LAKE ARROWHEAD, CA 92352

ASSOC OF CA WATER AGENCIES
910 K ST, STE 250
SACRAMENTO, CA 95814-

BODIE STATE PARK
PO BOX 515
BRIDGEPORT, CA 93517

CA DEPT OF BOATING & WATERWAYS
2000 EVERGREEN, STE 100
SACRAMENTO, CA 95815

CA DEPT OF FORESTRY
1416 NINTH ST.
SACRAMENTO, CA 95814

CA DEPT OF FORESTRY
1416 9TH ST., RM 1516
MESSENGER, CA

CA DEPT OF PARKS & REC
PO BOX 2117
OLYMPIC VALLEY, CA 96145

CA DEPT OF TRANS - DISTRICT 7
120 SO SPRING ST
LOS ANGELES, CA 90012

CA DEPT OF TRANS - DISTRICT 2
PO BOX 496073
REDDING, CA 96049-6073

CA DFG
PO BOX 336
MARKLEEVILLE, CA 96120

CA DFG - HABITAT CONS PLNG
1416 NINTH ST
SACRAMENTO, CA 95814

CA DHS
714 P ST, RM 1253
SACRAMENTO, CA 94273

CA DHS
714 "P" ST, RM 1253
SACRAMENTO, CA 94273

CA DHS - WATER & SANITATION
2151 BERKELEY WY
BERKELEY, CA 94704

CA DHS - DIV OF DRINKING WATER
464 W 4TH ST, #437
SAN BERNARDINO, CA 92401

[redacted]A DHS - DIV OF DRINKING WATER
415 KNOLLCREST DR, STE 110
REDDING, CA 96002

CA DIV OF MINES AND GEOLOGY
1416 NINTH ST
SACRAMENTO, CA 95814

CA DIV OF OIL AND GAS
1416 NINTH ST, ROOM 1310
SACRAMENTO, CA 95814

CA FORESTRY ASSOCIATION
300 CAPITOL MALL, STE 360
SACRAMENTO, CA 95814

CA HYDROPWR REFORM COALITION
114 SANSOME ST STE 1200
SAN FRANCISCO, CA 94104

CA INTEG WASTE MGMT BD
PO BOX 4025
SACRAMENTO, CA 95812-4025

CA LAKE MANAGEMENT SOCIETY
6441 REDWOOD RD
OAKLAND, CA 95619

CA NATIVE PLANT SOCIETY
1722 J ST, STE 17
SACRAMENTO, CA 95814-

CA OFFICE OF ENVL HLTH HZRD ASSESSMT
PO BOX 4010
SACRAMENTO, CA 95812-4010

CA OFFROAD VEHICLES ASSOC
842 LUCILLE
LIVERMORE, CA 94550

CA RESOURCES AGENCY
1416 NINTH ST STE 1311
SACRAMENTO, CA 95814

CA RWQCB - SAN DIEGO REGION
9771 CLAIREMONT MESA BLVD, STE A
SAN DIEGO, CA 92124-

CA RWQCB - CENTRAL VALLEY REGION
3614 E ASHLAN AVE
FRESNO, CA 93726-

CA RWQCB - CENTRAL VALLEY REGION
415 KNOLLCREST DR
REDDING, CA 96002-

CA RWQCB - CENTRAL VALLEY REGION
3443 ROUTIER RD
SACRAMENTO, CA 95827-3098

CA RWQCB - LOS ANGELES REGION
320 W. 4TH ST
LOS ANGELES, CA 90013

CA RWQCB - CENTRAL COAST REGION
81 HIGUERA ST, STE 200
SAN LUIS OBISPO, CA 93401-5427

CA RWQCB - SAN FRANCISCO BAY REGION
1515 CLAY ST, STE 1400
OAKLAND, CA 94612-

CA RWQCB - COLORADO RIVER BASIN REGION
73-720 FRED WARING DR, STE 100
PALM DESERT, CA 92260-

CA RWQCB - SANTA ANA REGION
3737 MAIN ST, STE 500
RIVERSIDE, CA 92501-3339

CA SAVE OUR STREAMS COUNCIL
616 W LAMONA
FRESNO, CA 93728

CA SPORTFISHING PROT ALLIANCE
PO BOX 1790
GRAEGLE, CA 96103

CA STATE PARK RANGERS ASSOC
PO BOX 292010
SACRAMENTO, CA 95829-2010

CA WILDERNESS COALITION
2655 PORTAGE BAY EAST #5
DAVIS, CA 95616

CALIFORNIA CATTEMAN'S ASSOC.
1221 "H" ST
SACRAMENTO, CA 95814

CALIFORNIA TROUT
870 MARKET ST, STE 1185
SAN FRANCISCO, CA 94102

CARSON FLY FISHING CLUB
PO BOX 3163
CARSON CITY, NV 89702-3163

CARSON RVR BASIN COUNCIL OF GOV
PO BOX 1927
CARSON CITY, NV 89701

CARSON WATER SUBCONSERV DIST
777 WILLIAM ST, STE 110
CARSON CITY, NV 89710

CENTRAL MODOC RCD
1030 N. MAIN ST
ALTURAS, CA 96101

CLEAN WATER ACTION
23 GRANT ST, FL 3
SAN FRANCISCO, CA 94108-5828

CNPS - BRISTLECONE CHAPTER
3000 E LINE ST
BISHOP, CA 93514

CNPS - REDBUD CHAPTER
18629 BAMBI CT
GRASS VALLEY, CA 95949

DESERT FISHES COUNCIL
PO BOX 337
BISHOP, CA 93515

DUCKS UNLIMITED
9823 OLD WINERY PL, STE 16
SACRAMENTO, CA 95827

EAGLE LAKE RANGER DISTRICT
55 S SACRAMENTO
SUSANVILLE, CA 96130

EASTERN SIERRA AUDUBON SOCIETY
PO BOX 624
BISHOP, CA 93515

EASTERN SIERRA CSD
301 WEST LINE, STE D
BISHOP, CA 93514

ECHO LAKES ENVIRONMENTAL FUND
4271 BOLES RD
PLACERVILLE, CA 95667

EL DORADO COUNTY - AGRICULTURE COMM
330 FAIR LN
PLACERVILLE, CA 95667

DORADO COUNTY - RCD
870 EMERALD BAY RD, STE 108
SO LAKE TAHOE, CA 96150

FEDERAL WATER MASTER
290 S. ARLINGTON ST
RENO, NV 89501

FOREST ISSUES GROUP
10197 EAST DR
[redacted]ASS VALLEY, CA 95945

FORT BIDWELL TRIBAL COUNCIL
FORT BIDWELL, CA 96112

FRIENDS OF BURKE CREEK
PO BOX 1208
ZEPHYR COVE, NV 89448

FRIENDS OF DONNER SUMMIT
1267 DOWNS LN
MINDEN, NV 89423

FRIENDS OF HOPE VALLEY
PO BOX 431
MARKLEEVILLE, CA 96120

FRIENDS OF PLACER CO COMMUNITIES
11768 ATWOOD RD S-104
AUBURN, CA 95603

FRIENDS OF THE INYO
PO BOX 64
LEE VINING, CA 93541

FRIENDS OF THE RIVER
915 20TH ST
SACRAMENTO, CA 95814-2207

GLENSHIRE MUTUAL WATER
14630 GLENSHIRE DR
TRUCKEE, CA 96161

GREAT BASIN BIRD OBSERVATORY
443 MARSH AVE
RENO, NV 89509

HIGH SIERRA FLY CASTERS
PO BOX 3121
GARDNERVILLE, NV 89410

HIGH SIERRA HIKERS ASSOC
PO BOX 8920
SO LAKE TAHOE, CA 96158

HONEY LAKE VALLEY RCD
170 RUSSELL AVE, STE 1
SUSANVILLE, CA 96130

INDIAN HEALTH SERVICE
1395 GREG ST, STE 101
SPARKS, NV 89431

INYO COUNTY - FISH & GAME COMM
PO DRAWER F
INDEPENDENCE, CA 93526

INYO COUNTY - RCD
270 N SEEVEE LN
BISHOP, CA 93514-8067

INYO-MONO RCD
ROUTE 4, BOX 17
BISHOP, CA 93514

INYOKERN CSD
PO BOX 542
INYOKERN, CA 93527

[redacted]UMPING FROG RESEARCH INSTITUTE
PO BOX 1416
ANGELS CAMP, CA 95222

KEELER CSD
PO BOX 63
KEELER, CA 93530

KERN COUNTY - RCD
1601 NEW STINE RD STE 270
BAKERSFIELD, CA 93309

KERN COUNTY - AGRICULTURE COMM
1415 TRUXTON AVE
BAKERSFIELD, CA 93301

KERNCREST AUDUBON SOCIETY
PO BOX 984
RIDGECREST, CA 93556

LAHONTAN AUDUBON SOCIETY
PO BOX 2304
RENO, NV 89505

LAKE TAHOE AREA COUNCIL
PO BOX 14287
SO LAKE TAHOE, CA 96151

LAKE TAHOE TROUT UNLIMITED
PO BOX 11698
SO LAKE TAHOE, CA 96155

LAKESIDE MUTUAL WATER COMPANY
4077 PINE BLVD
SO LAKE TAHOE, CA 96150

LANCASTER RCD
4481 N DALE AVE STE G
LANCASTER, CA 93534

LASSEN COUNTY - RCD
170 RUSSELL AVE STE 1
SUSANVILLE, CA 96130

LASSEN COUNTY - FISH & GAME COMM
707 NEVADA ST
SUSANVILLE, CA 96130

LASSEN COUNTY - AGRICULTURE COMM
707 NEVADA ST
SUSANVILLE, CA 96130

LASSEN LAND AND TRAILS TRUST
PO BOX 1461
SUSANVILLE, CA 96130

DIRECTOR
LEAGUE TO SAVE LAKE TAHOE
955 EMERALD BAY RD
SO LAKE TAHOE, CA 96150

LEAGUE TO SAVE SIERRA LAKES
2608 NEWLANDS
BELMONT, CA 94002

LEAVITT LAKE CSD
471-830 BUFFUM LANE
SUSANVILLE, CA 96130

LONE PINE TELEVISION
301 N JACKSON LN
LONE PINE, CA 93545

LOS ANGELES CO - AGRIC COMM
500 W TEMPLE ST, STE 869
LOS ANGELES, CA 90012

LUKIN BROTHERS WATER COMPANY
2031 WEST WY
SO LAKE TAHOE, CA 96150

MODOC COUNTY - RCD
802 WEST 12TH ST
ALTURAS, CA 96101

MODOC COUNTY - FISH AND GAME COMM
202 WEST 4TH ST
ALTURAS, CA 96101

MODOC COUNTY - AGRICULTURE COMMISSION
202 WEST 4TH ST
[redacted]URAS, CA 96101

MOJAVE DESERT RCD
18484 HWY 18 #195
APPLE VALLEY, CA 92307

MOJAVE WATER AGENCY
16849 "D" ST
VICTORVILLE, CA 92391

MONO COUNTY - RCD
1702 COUNTY RD
MINDEN, NV 89426

MONO COUNTY MINING COMMITTEE
PO BOX 1441
MAMMOTH LAKES, CA 93546

MONO LAKE COMMITTEE
PO BOX 29
LEE VINING, CA 93541

NEVADA COUNTY - RCD
113 PRESLEY WY STE 1
GRASS VALLEY, CA 95945

NEVADA COUNTY - FISH AND GAME COMM
201 CHURCH ST
NEVADA CITY, CA 95959

NRDC
6310 SAN VICENTE BLVD, STE 250
LOS ANGELES, CA 90048

NV DEPT OF WILDLIFE
PO BOX 10678
RENO, NV 89510

NV DIV OF WATER RESOURCES
123 W NYE LN
CARSON CITY, NV 89710

NV TAHOE CONSERVATION DIST
PO BOX 3575
INCLINE VILLAGE, NV 89450

PESTER
PO BOX 3511
MAMMOTH LAKES, CA 93546

PLACER COUNTY - AGRICULTURE COMM
1477 E. AVE WEST
AUBURN, CA 95603

PLACER COUNTY WATER AGENCY
PO BOX 6570
AUBURN, CA 95604

PLANNING AND CONSERVATION LEAGUE
926 "J" ST
SACRAMENTO, CA 95814

RANGE WATCH
PO BOX 450
POSEY, CA 93260

SAN BERNARDINO CO - AGRIC COMM
14477 AMARGOSA RD
VICTORVILLE, CA 92392

[redacted]HIEF
SAN BERNARDINO CO EPWA
825 E THIRD ST, RM 142
SAN BERNARDINO, CA 92415-0835

SIERRA ARMY DEPOT
ENVIRONMENTAL DIV
HERLONG, CA 96113

SIERRA CLUB - ANGELES CHAPTER
3435 WILSHIRE BLVD #320
LOS ANGELES, CA 90010-1816

SIERRA CLUB - TOIYABE CHAPTER
PO BOX 8096
RENO, NV 89507

SIERRA CLUB - MOTHER LODE CHAP
1414 "K" ST, STE 300
SACRAMENTO, CA 95814

SIERRA CLUB - SIERRA NEVADA GROUP
PO BOX 1346
NEVADA CITY, CA 95959

SIERRA CLUB - KERN-KAHWEAH CHAP
PO BOX 3357
BAKERSFIELD, CA 93385-3357

SIERRA CLUB LEGAL DEFENSE
180 MONTGOMERY ST, STE 1400
SAN FRANCISCO, CA 94104-4209

SIERRA COUNTY - AGRICULTURE COMM
PO BOX 98
DOWNIEVILLE, CA

SIERRA NEVADA ALLIANCE
PO BOX 7989
SO LAKE TAHOE, CA 96158

SIERRA NEVADA ALLIANCE
PO BOX 2118
MAMMOTH LAKES, CA 93546

SO. CALIF. LAB/DEPT HEALTH SVCS
1449 TEMPLE ST
LOS ANGELES, CA 90026

SQUAW VALLEY MUTUAL WATER CO
PO BOX 2276
OLYMPIC VALLEY, CA 96146

STONES-BENGARD CSD
509-695 STONE RD
SUSANVILLE, CA 96130

TAHOE-TRUCKEE FLYFISHERS
PO BOX 5704
TAHOE CITY, CA 96145

THE NATURE CONSERVANCY
201 MISSION ST, 4TH FL
SAN FRANCISCO, CA 94105

TROUT UNLIMITED OF CA
28 MARINERO CIR, #31
TIBURON, CA 94920

TROUT UNLIMITED OF CA
829 SAN PABLO AVE STE 244
ALBANY, CA 94706

TROUT UNLTD OF NV - SAGEBRUSH CHAP
PO BOX 8244
RENO, NV 89507

TRUCKEE DONNER LAND TRUST
PO BOX 8816
TRUCKEE, CA 96162

TRUCKEE RIVER ASSOCIATION
PO BOX 2044
TRUCKEE, CA 96160

TRUCKEE RIVER FLYFISHERS
2785 N TOWNE
RENO, NV 89512-2060

U.S. ARMY CORPS OF ENGINEERS
PO BOX 2711
LOS ANGELES, CA 90053

U.S. BLM
1340 FINANCIAL BLVD
RENO, NV 89502

U.S. BLM - RIDGECREST RES
300 S RICHMOND RD
RIDGECREST, CA 93555

U.S. BLM
63 NATOMA ST
FOLSOM, CA 95630

U.S. BLM
5565 MORGAN MILL RD
CARSON CITY, NV 89701-1448

U.S. BLM - BISHOP RES
873 N MAIN ST, RM 201
BISHOP, CA 93514

U.S. BLM
2545 RIVERSIDE DR
SUSANVILLE, CA 96130

U.S. BLM
1340 FINANCIAL WY
RENO, NV 89502

U.S.A.F. - GEORGE AIR FORCE BASE
HQ 35TH COMBAT SUP GRP
GEORGE AFB, CA 92392

U.S.D.A. - NTRL RES CONS SERV
2121 2ND ST #C
DAVIS, CA 95616-5472

U.S.D.A. - NTRL RES CONS SERV
806 W 12TH ST
ALTURAS, CA 96101

U.S.F.S. - BRIDGEPORT RANGER DISTRICT
PO BOX 595
BRIDGEPORT, CA 93517

U.S.F.S. - TAHOE NATL FOREST
HWY 49 & COYOTE ST
NEVADA CITY, CA 95959

U.S.F.S. - MILFORD RANGER DISTRICT
PO BOX 369
MILFORD, CA 96121

U.S.F.S. - PLUMAS NATL FOREST
PO BOX 1500
QUINCY, CA 95971

U.S.F.S. - INYO NATL FOREST
873 N MAIN ST
BISHOP, CA 93514

U.S.F.S. - TOIYABE NATL FOREST
PO BOX 595
BRIDGEPORT, CA 93517

U.S.F.S. - TOIYABE NATL FOREST
1536 S CARSON ST
CARSON CITY, NV 89701

UNIV OF CA - TAHOE RESEARCH GROUP
PO BOX 633
TAHOE CITY, CA 96145

UNIV OF NEVADA - RENEWABLE NATURAL RES
1000 VALLEY RD
RENO, NV 89502

WALKER LAKE WORKING GROUP
PO BOX 867
[redacted]WTHORNE, NV 89415

WASHOE COUNTY - HEALTH DEPT
PO BOX 11130
RENO, NV 89520

WILDLIFE CONSERVATION BOARD
1416 NINTH ST
SACRAMENTO, CA 95814

WOODFORDS INDIAN COMMUNITY
96 WASHOE BLVD
MARKLEEVILLE, CA 96120

YOSEMITE GUARDIAN
15 GARDEN GROVE DR
DALY CITY, CA 94015

SHAUNA ADAMS
SIERRA PACIFIC POWER COMPANY
PO BOX 10100
RENO, NV 89520-0026

BRIAN ADKINS
BISHOP PIUTE TRIBE
50 TUSU LN
BISHOP, CA 93514

RICK AGUAYO
U.S.D.A. - NTRL RES CONS SERV
18484 HIGHWAY 18, #195
APPLE VALLEY, CA 92307-2306

LAUREL AMES
PO BOX 7443
SO LAKE TAHOE, CA 96158

DOUG AMES
LASSEN COUNTY - HEALTH DEPT
555 HOSPITAL LN
SUSANVILLE, CA 96130

[redacted]

KEN ANDERSON
CA DEPT OF PARKS & REC - SIERRA DISTRICT
PO BOX 16
TAHOE CITY, CA 96145

KEITH ANDERSON
CA DFG
330 GOLDEN SHORE, STE 50
LONG BEACH, CA 90802

ROBERT ANDREWS
U.S.F.S. - LASSEN NATL FOREST
477-050 EAGLE LAKE RD
SUSANVILLE, CA 96130

LEONARD ATENCIO
U.S.F.S. - LASSEN NATL FOREST
55 S. SACRAMENTO ST.
SUSANVILLE, CA 96130

DON BANTA
LEE VINING PUD
PO BOX 345
LEE VINING, CA 93541

DIANA BARICH
CA DHS - OFFICE OF DRINKING WTR
464 W 4TH ST
SAN BERNARDINO, CA 92401

ADELE BASHAM
NV DEPT OF ENV PROTECTION
333 W NYE LN, RM 138
CARSON CITY, NV 89706

JEFFREY BATES
SO CALIF WATER COMPANY
630 E FOOTHILL BLVD
SAN DIMAS, CA 91773

[redacted]GUDRUN BAXTER
CA DEPT OF PARKS & REC
PO BOX 942896
SACRAMENTO, CA 94296-0001

SUE BECKER
U.S.F.S. - MODOC NATL FOREST
800 WEST 12TH ST
ALTURAS, CA 96101

LANA BECKETT
ENVIRONMENTAL AFFAIRS GROUP
[redacted] CALIFORNIA ST #603
[redacted]N FRANCISCO, CA 94111-4301

LANA BECKETT
ENVIRONMENTAL AFFAIRS GROUP
119 "D" ST, SE APT 2
WASHINGTON, DC 20003-1820

MERLYNN BENDER
U.S. BUREAU OF RECLAMATION
PO BOX 25007
DENVER, CO 80225

STAN BERGEN
UNIV OF CA - SHAFTER RES & EXT CTR
17053 N SHAFTER AVE
SHAFTER, CA 93263-9773

JAMES A. BERGMAN
U.S.F.S. - TAHOE NATL FOREST
10342 HWY 89N
TRUCKEE, CA 96161

BEN BIAGGINI
SAN FRANCISCO FLY CASTING CLUB
1170 SACRAMENTO ST
SAN FRANCISCO, CA 94108

DAVE BISCHEL
CA FORESTRY ASSOC
300 CAPITOL MALL, STE 350
SACRAMENTO, CA 95814

STEPHEN BISHOP
U.S.F.S. - TAHOE NATL FOREST
PO BOX 95
SIERRAVILLE, CA 96126-

BISHOP-DAIRY FARM AD
UC COOP EXTENSION
21150 BOX SPRINGS RD
RIVERSIDE, CA 92507

PAT BLACKLOCK
CA CATTLEMAN'S ASSOCIATION
1221 "H" ST
SACRAMENTO, CA 95814

MARK BLAKESLEE
U.S. BLM
2800 COTTAGE WY, RM W1834
SACRAMENTO, CA 95825-1886

STEVEN J. BOGGS
CA DFG
1701 NIMBUS RD, STE A
RANCHO CORDOVA, CA 95670

RAYMOND J. BOGIATTO, DIRECTOR
CA STATE UNIV - EAGLE LAKE BIO. FIELD STA
DEPT OF BIOLOGICAL SCIENCE
CHICO, CA 95929-0515

JERRY BOLES
CA DEPT OF WATER RESOURCES
2440 MAIN ST
RED BLUFF, CA 96080

JOHN BOLLINGER
DONNER LAKE PROPERTY OWNERS ASSOC.
PO BOX 8387
TRUCKEE, CA 96162

BRAD BONES
LITTLEROCK CREEK IRRIGATION DIST
35141 N 87TH ST E
LITTLEROCK, CA 93543

JOHN F. BOSTA
5735 W. BROOKDALE DR
RENO, NV 89523

CAROL BOUGHTON
U.S. BLM
PO BOX 640
CARSON CITY, NV 89702

[redacted]OLLY BRADY
U.S. BLM
6221 BOX SPRINGS BLVD
RIVERSIDE, CA 92507-2497

JIM BRAMHAM
CA ASSOC OF 4WD CLUB
7940 LORIN AVE
SACRAMENTO, CA 95828

CLAY BRANDON
U.S.F.S. - FRAP
1920 20TH ST
SACRAMENTO, CA 95814

PEGGY BREEDEN
INDIAN WELLS VALLEY WELL OWNERS
PO BOX 352
INYOKERN, CA 93527

GWEN BRELAND
U.S. BLM
2800 COTTAGE WY, RM W219
SACRAMENTO, CA 95825-

JUDY BROWN
CA STATE LANDS COMMISSION
100 HOWE AVE STE 100 SOUTH
SACRAMENTO, CA 95825-8202

BOB BURTON
CA DEPT OF TRANS
12257 BUSINESS PARK DR
TRUCKEE, CA 96161

TOM CABLE
SUSANVILLE AREA SPORTS COUNCIL
695 MONTE VISTAWY
SUSANVILLE, CA 96130

NORMAN T. CAOUETTE
MOJAVE WATER AGENCY
PO BOX 1089
APPLE VALLEY, CA 92307-1089

PAUL CHAPPELL
CA DFG - HONEY LAKE WILDLIFE AREA
528-600 FISH AND GAME RD
WENDEL, CA 96136

DISTRICT CHIEF
U.S.G.S.
333 W NYE LN, ROOM 228
CARSON CITY, NV 89706

KAREN CHRISTIANSON
USA MEDIA
201 EAST LINE ST
BISHOP, CA 93514

JACK L. CLARKE
APPLE VALLEY RANCHOS WATER CO.
PO BOX 7005
APPLE VALLEY, CA 92307

AGRICULTURAL COMMISSIONER
NEVADA COUNTY - AGRICULTURE COMMISSION
255 S AUBURN ST
GRASS VALLEY, CA 95945-

AGRICULTRAL COMMISSIONER'S OFFICE
INYO & MONO COUNTIES
207 W SOUTH ST
BISHOP, CA 93514

PHIL CORBIN
CA DEPT OF TRANS
PO BOX 579
TRUCKEE, CA 96160

BILL CRAVEN
FALLEN LEAF LAKE PROTECTIVE ASSOC.
PO BOX 9389
SO LAKE TAHOE, CA 96158

SAGEHEN CREEK FIELD STATION
UNIV OF CA
PO BOX 939
TRUCKEE, CA 96160

PAUL DABBS
CA DEPT OF WATER RESOURCES
3251 "S" ST
SACRAMENTO, CA 95816

PERRY DAHLSTROM
SOUTHERN CALIFORNIA WATER CO
13608 HITT RD
APPLE VALLEY, CA 92308

SAN DAMRON
LOS ANGELES DWP
111 N HOPE ST, RM 1121
LOS ANGELES, CA 90012

RICHARD DANIELSON
CA DHS - SANIT AND RADIATION LAB
2151 BERKELEY WY, RM 119
BERKELEY, CA 94704-1011

DONNA S. DAVIS
CA DFG
[redacted]BOX 501602
[redacted]SPERIA, CA 92340

MARK DAVIS
U.S.D.A. - NTRL RES CONS SERV
270 NORTH SE VEE LANE
BISHOP, CA 93514

DAN DAWSON
VALENTINE RESERVE/SNARL
ROUTE 1, BOX 198
MAMMOTH LAKES, CA 93546

MERV DE HAAS
EL DORADO COUNTY WATER AGENCY
333 FAIR LN
PLACERVILLE, CA 95667

MARGUERITE DIAZ
CA DFG - OFC OF OIL SPILL PREVENTION
1700 K ST, STE 250
SACRAMENTO, CA 95814

WAYNE K. DREYER
SIERRA ARMY DEPOT - ENVIRON OFFICE
BUILDING 79
HERLONG, CA 96113-

KATHLEEN EAGAN
TRUCKEE R HABITAT REST GROUP
PO BOX 8428
TRUCKEE, CA 96162

ERNEST G. EATON
SURPRISE VALLEY RCD
PO BOX 777
CEDARVILLE, CA 96104

PAT ECKHARDT
PACIFIC GAS & ELECTRIC
PO BOX 7640
[redacted]AN FRANCISCO, CA 94120

STAN ELLER
MONO COUNTY - DISTRICT ATTORNEY
BRIDGEPORT, CA 93517

ALBERT ELLSWORTH
CA DHS - OFFICE OF DRINKING WTR
8455 JACKSON RD, STE 120
SACRAMENTO, CA 95826

BRETT EMERY
10349 EMPIRE GRADE RD
SANTA CRUZ, CA 95060

GEORGE ERBECK
WILSON CIRCLE MUTUAL WATER CO.
2321 STONE CIR
BISHOP, CA 93514

DENNIS A. ERDMAN
MAMMOTH COMMUNITY WATER DISTRICT
PO BOX 597
MAMMOTH LAKES, CA 93546

PAULINE ESTEVES, CHAIR
TIMBISHA SHOSHONE TRIBE
DEATH VALLEY, CA 92328

CHARLES D. FAHIE
SAN BERNARDINO CO - FLOOD CNTRL
825 EAST THIRD ST
SAN BERNARDINO, CA 92415-0835

GARY FAULCONER
CA DEPT OF WATER RESOURCES
31849 N LAKE HUGHES RD
CASTAIC, CA 91384

BRIAN J. FINLAYSON
CA DFG - PESTICIDES INVESTIG UNIT
1701 NIMBUS RD, STE F
RANCHO CORDOVA, CA 95670

[redacted]ILLIAM FOGARTY
LONE PINE CSD
PO BOX 36
LONE PINE, CA 93545

JOHN FORDHAM
DESERT RESEARCH INSTITUTE
2215 RAGGIO PKWY
RENO, NV 89512-1095

TED FRANTZ
NV DEPT OF WILDLIFE
[redacted] BOX 50
[redacted]TH, NV 89430

RUSSELL FULLER
AVEK WATER AGENCY
6500 WEST AVE NO
PALMDALE, CA 93551

JOHN FULTON
FULTON WATER COMPANY
PO BOX W
TAHOE CITY, CA 96145

KATHY GAGGINI
CA DIV OF MINES AND GEOLOGY
801 "K" ST, MS 1232
SACRAMENTO, CA 95814

ROBERT GATES
LOS ANGELES CO - HEALTH DEPT
313 N FIGUEROA ST
LOS ANGELES, CA 90012

GENERAL MANAGER
BIG PINE CSD
PO BOX 652
BIG PINE, CA 93513

GENERAL MANAGER
CEDARVILLE CO. WATER DISTRICT
CEDARVILLE, CA 96014

GENERAL MANAGER
JUNE LAKE PUD
PO BOX 82
JUNE LAKE, CA 93529

GARY GIACOMI
INYO MONO CATTLEMAN'S ASSOC.
100 WARM SPRINGS RD
[redacted]ISHOP, CA 93514

DR. G. FRED GIFFORD
UNIV OF NEVADA - DEPT OF ENV AND RES SCI
1000 VALLEY RD
RENO, NV 89512

FRANK GODDARD
CA DEPT OF FORESTRY
HIGHWAY 36
SUSANVILLE, CA 96130

DR. CHARLES GOLDMAN
UNIV OF CA - TAHOE RESEARCH GROUP
DIV. OF ENVR. STUDIES
DAVIS, CA 95616

NORM GREENBERG
NEVADA COUNTY - ENV HEALTH
950 MAIDU
NEVADA CITY, CA 95959

DAN GREENLEE
U.S.D.A. - NTRL RES CONS SERV
5301 LONGLEY LN, BLDG F, #201
RENO, NV 89511

RICH GRESHAM
PLACER COUNTY - RCD
251 AUBURN RAVINE RD STE 201
AUBURN, CA 95603

CARL GUSTAFSON
PO BOX 2349
OLYMPIC VALLEY, CA 96146

JACK HANSON
LASSEN CO CATTLEMEN'S ASSOC
490-800 HORSE LAKE RD
SUSANVILLE, CA 96130

STEVE HARCOURT
CA DEPT OF FORESTRY
PO BOX 9956
SO LAKE TAHOE, CA 96158

[redacted]D HARD, PH.D
GREAT BASIN UNIFIED APCD
157 SHORT ST
BISHOP, CA 93514

DAVID L. HARLOW, FIELD SUPERVISOR
U.S. FISH & WILDLIFE SERV - NEVADA STATE OFC
1340 FINANCIAL BLVD, STE 234
RENO, NV 89502

LEE HAYES
BAKER CSD
[redacted]BOX 590
[redacted]KER, CA 92309

CLIFF HEITZ
U.S.D.A. - NTRL RES CONS SERV
251 AUBURN RAVINE RD, STE 201
AUBURN, CA 95603

EDWARD HENEVELD
SQUAW VALLEY MUN ADVISORY COUNC
PO BOX 2488
OLYMPIC VALLEY, CA 96146-

DAVE HERBST
SIERRA NEVADA AQUATIC RES. LAB
RTE 1 BOX 198
MAMMOTH LAKES, CA 93546

PAUL HERMAN
LONG VALLEY GRNDWTR MGMT DIST
STAR RTE
DOYLE, CA 96109

MARVIN HESS, CHAIR
BISHOP TRIBAL COUNCIL
PO BOX 548
BISHOP, CA 93515

RANDY HILL
VICTOR VALLEY WATER DIST
17185 YUMA ST
VICTORVILLE, CA 92392

RAY HOFFMAN
U.S.G.S. - WATER RES DIV
333 W NYE LN
CARSON CITY, NV 89706

ERIC HONG
CA DEPT OF TOXIC SUB CNTRL - REGION 1
10151 CROYDON WY, STE 3
[redacted]SACRAMENTO, CA 95814

ROBIN HOOK
MONO COUNTY - HEALTH DEPT
PO BOX 476
BRIDGEPORT, CA 93517

ALEX HORNE, PH.D.
UC BERKELEY
DEPT CIVIL/ENV ENGINEERING
BERKELEY, CA 94720-1710

MARK HOUSTON
FALLEN LEAF LAKE PROTECTIVE ASSOC
4215 MONTGOMERY AVE
DAVIS, CA 95616

ENVIRONMENTAL INFO CTR
HELLER, EHRMAN, WHITE & MACAULIF
601 SO. FIGUEROA, 40TH FL
LOS ANGELES, CA 90017

RICK IWATSUBO
U.S.G.S.
6000 "J" ST
SACRAMENTO, CA 95819-6129

SANDRA JEFFERSON, CHAIR
LONE PINE PAIUTE/SHOSHONE RESRV
PO BOX 747
LONE PINE, CA 93545

ELIZABETH JOHNSON
CA DIV OF OIL, GAS, & GEOTHERMAL
801 "K" ST, MS 20-21
SACRAMENTO, CA 95814

DENISE JONES
CALIFORNIA MINING ASSOC
ONE CAPITAL MALL, STE 220
SACRAMENTO, CA 95814

MAUREEN JOPLIN
U.S.F.S. - TOIYABE NATL FOREST
1200 FRANKLIN WY
SPARKS, NV 89431

[redacted]ADINE KANIM
U.S. FISH & WILDLIFE SERV - ECOL SRVCS
2800 COTTAGE WY
SACRAMENTO, CA 95825-1888

BOB KARRASCH
ALPINE COUNTY - HEALTH DEPT
PO BOX 545
MARKLEEVILLE, CA 96120

RICHARD KATTELMANN
UNIV OF CA - SNARL
STAR ROUTE 1, BOX 198
MAMMOTH LAKES, CA 93546

DAVID KAY
SOUTHERN CALIFORNIA EDISON CO.
PO BOX 800, RM 4596
ROSEMEAD, CA 91770

KEN KEATON
CA DEPT OF TRANS - ENVIRON PROG MS 27
PO BOX 942874
SACRAMENTO, CA 94274

JIM KEMP
CA DEPT OF TRANS - DISTRICT 9
500 S MAIN ST
BISHOP, CA 93514

ROBERT KENNEDY
INYO COUNTY - ENV HEALTH DEPT
PO BOX 427
INDEPENDENCE, CA 93526

LEAH KIRK
INYO COUNTY - WATER DEPT
163 MAY ST
BISHOP, CA 93514

JOHN KRAMER
CA DEPT OF WATER RESOURCES
1416 NINTH ST
SACRAMENTO, CA 95814

DENNIS LAMOREAUX
PALMDALE WATER DISTRICT
2029 EAST AVE "Q"
PALMDALE, CA 93550

DR. G. FRED LEE
G. FRED LEE & ASSOCIATES
27298 E EL MACERO DR
EL MACERO, CA 95618-1005

CHERYL LEVINE, CHAIR
BIG PINE PAIUTE TRIBE
PO BOX 700
BIG PINE, CA 93513

RICHARD LIERMAN, GEN. MANAGER
SQUAW VALLEY COUNTY WATER DIST
PO BOX 2026
OLYMPIC VALLEY, CA 96146

DON LOLLOCK
CA DFG
1700 "K" ST, #250
SACRAMENTO, CA 95814

MARQIE LOPEZ
EL DORADO IRRIGATION DISTRICT
2890 MOSQUITO RD
PLACERVILLE, CA 95667

SCOTT MAASS
SAN BERNARDINO CO - ENV HEALTH
385 N ARROWHEAD AVE
SAN BERNARDINO, CA 92415-0160

DENNIS T. MACHIDA, EXECUTIVE OFFICER
CA TAHOE CONSERVANCY
PO BOX 7758
SO LAKE TAHOE, CA 96158

ROBERT MACOMBER
CA DEPT OF PARKS & REC
PO BOX 266
TAHOMA, CA 96142-0266

RICHARD MALACOFF
CA DEPT OF TRANS - DISTRICT 8
247 WEST THIRD ST
SAN BERNARDINO, CA 92402

MANAGEMENT TEAM
WATER ASSOCIATION OF KERN COUNTY
2724 "L" ST
BAKERSFIELD, CA 93302

BOB MANNING
MONO WILDLIFE COUNCIL
PO BOX 268
COLEVILLE, CA 96107

DR. WERNER MARTI, PRESIDENT
MUSTANG MESA CSD
PO BOX 221
BISHOP, CA 93514-

DAVE MATTERN
U.S. BLM
[redacted] W 12TH ST
[redacted]URAS, CA 96101

LYMAN MCCONNELL
TRUCKEE CARSON IRRIGATION
PO BOX 1356
FALLON, NV 89407

MIKE MCCORISON
U.S.F.S. - ANGELES NATL FOREST
701 NORTH SANTA ANITA
ARCADIA, CA 91006

ROBERT MCDOWELL
U.S.F.S. - LAKE TAHOE BMU
870 EMERALD BAY RD
SO LAKE TAHOE, CA 96150

THOMAS MCGILL
U.S. NAVY - NWC-ENV. PROJ OFFICE
CHINA LAKE
RIDGECREST, CA 93555-6001

TIM MCLAUGHLIN
U.S. BUREAU OF RECLAMATION
2800 COTTAGE WY
SACRAMENTO, CA 95825

JOHN MELACK
UNIV OF CA - BIOLOGY DEPT.
SANTA BARBARA, CA 93106-

CARLYN MEYER
WATER QUALITY ASSOC
2124 MAIN ST, STE 110
HUNTINGTON BEACH, CA 92648

DONALD E. MISCHKA
ROSAMOND CSD
2700 20TH ST WEST
ROSAMOND, CA 93560

JON MORGAN
EL DORADO COUNTY - DEPT OF ENV HEALTH
2850 FAIR LN CT
PLACERVILLE, CA 95667

ELIZABETH MORGAN
SIERRA COUNTY - HEALTH DEPT
PO BOX 7
LOYALTON, CA 96118

MICHAEL MULLIGAN
CA DFG
1234 E SHAW AVE
FRESNO, CA 93710

GLENN NADER
UNIV OF CA
MEMORIAL BLDG, 1205 MAIN ST
SUSANVILLE, CA 96130

ERIC NICHOL
CA DEPT OF WATER RESOURCES
3251 "S" ST
SACRAMENTO, CA 95816

JAMES NICHOLOS
SO CALIF WATER COMPANY
1521 E MAIN ST
BARSTOW, CA 92311-3229

NORTH REG NPDES COORD
CA DEPT OF TRANS - DIST 3, PLANNING BR
PO BOX 911
MARYSVILLE, CA 95901

PUBLIC WORKS OFFICER
U.S. MARINE CORPS - MTN WARFARE TRAINING CNTR
BRIDGEPORT, CA 93517

DAVE OLDENBURG
INDIAN CREEK CSD
PO BOX 952
BISHOP, CA 93515

[redacted]OGAN OLDS
SUSANVILLE CSD
PO BOX 152
SUSANVILLE, CA 96130

LYNN H. ORPHAN
KENNEDY/JENKS CONSULTANTS
5190 NEIL RD, STE 300
RENO, NV 89502

JUAN PALMA
TAHOE REGIONAL PLANNING AGENCY
PO BOX 1038
[redacted]HYR COVE, NV 89448

GUY PENCE
U.S.F.S. - CARSON RANGER DISTRICT
1536 S. CARSON ST.
CARSON CITY, NV 89701

RON PERRAULT
CA DFG
PO BOX 8159 1701 Nimbus Rd.
TRUCKEE, CA 96162 Rancho Cordova, CA 95670

JACK PETRALIA
LOS ANGELES CO - HEALTH SERVICES
2525 CORPORATE PL, #150
MONTEREY PARK, CA 91754-

IVAR PLESCOV
CA DEPT OF BOATING & WATERWAYS
1629 S ST
SACRAMENTO, CA 95814

JAMES S. POMPY
CA DEPT OF CONSRVTN - OFFICE OF MINE RECL
801 "K" ST MS 09-06
SACRAMENTO, CA 95814-3529

JAMES PORTER
NEVADA COUNTY - ENVIRON COUNCIL
PO BOX 802
NEVADA CITY, CA 95959

ASSIST BASIN PROJECT MNGR.
U.S. BLM
PO BOX 640
CARSON CITY, NV 89702

PAUL PUGSLEY
UPPER CARSON RVR CRMP
1528 HWY 395, STE 100
GARDNERVILLE, NV 89410

DIRECTOR: RANGE & WATERSHED
U.S.F.S. - REGIONAL OFFICE
630 SANSOME ST
SAN FRANCISCO, CA 94111

CHARLES RAY
EAGLE LAKE CSD
502-200 STONE RD
SUSANVILLE, CA 96130

CHARLES RAY
SPALDING CSD
502-905 MAHOGANY WY
SUSANVILLE, CA 96130

WENDELL REEVES
CA DEPT OF FORESTRY
6105 AIRPORT RD
REDDING, CA 96002

CHRISTOPHER REEVES
U.S. BIA
2800 COTTAGE WY
SACRAMENTO, CA 95825

JIM REICHLE
PIUTE CREEK PLANNING GROUP
35 MEADOWOOD WY
SUSANVILLE, CA 96130

TOM REMINGTON
U.S. BIA
1677 HOT SPRINGS RD
CARSON CITY, NV 89706

KATHLEEN RENER
WEST VALLEY COUNTY WATER DISTRICT
25315 WEST IDEAL AVE
LANCASTER, CA 93536

JOHN REUTER
ECOLOGICAL RESEARCH ASSOC
71 BROKEN CIR
DAVIS, CA 95616

[redacted]OBERT RHEINER
U.S. BLM
3801 PEGASUS DR
BAKERSFIELD, CA 93308

MELINDA RHO
LOS ANGELES DWP - WTR QUALITY DIV
111 N HOPE ST, RM A-18
LOS ANGELES, CA 90012

DR. R. RHONDA
UC COOP EXTENSION
[redacted] W SOUTH ST
[redacted]HOP, CA 93514

GERALD ROCKWELL
U.S.G.S.
PO BOX 1360
CARNELIAN BAY, CA 96140

KEVIN ROUKEY
U.S. ARMY CORPS OF ENGINEERS
300 BOOTH ST RM 2103
RENO, NV 89503

TERRY RUSSI
U.S. BLM
785 N MAIN ST #E
BISHOP, CA 93514-2471

JANE SCHMIDT
U.S.D.A. - NTRL RES CONS SERV
1528 HWY 395, STE 100
GARDNERVILLE, NV 89410

EDYTHE SEEHAFER
U.S. BLM
2601 BARSTOW RD
BARSTOW, CA 92311

KAREN SHIMAMOTO
U.S.F.S. - MODOC NATL FOREST
PO BOX 220
CEDARVILLE, CA 96104-

DAVE SMITH
U.S. EPA
75 HAWTHORNE ST
SAN FRANCISCO, CA 94105

KENNETH SPOONER
WALKER RIVER IRRIGATION DISTRICT
PO BOX 820
YERINGTON, NV 89447

[redacted]ALE STEELE
CA DEPT OF TRANS
1976 E CHARTER WY
STOCKTON, CA 95201

LEE RICHARDSON
QUARTZ HILL WATER DIST
PO BOX 3218
QUARTZ HILL, CA 93586

EDWIN ROTHFUSS, SUPERINTENDENT
U.S. NPS - DEATH VALLEY NATL MON
PO BOX 579
DEATH VALLEY, CA 92328

DAVID RULLY
TRUCKEE-DONNER PUD
PO BOX 309
TRUCKEE, CA 96160-

DWIGHT E. SANDERS
CA STATE LANDS COMMISSION
100 HOWE AVE STE 100 SOUTH
SACRAMENTO, CA 95825

DEPT OF BIOL SCIENCES
EAGLE LAKE BIOL FLD STATION
CA STATE UNIV CHICO
CHICO, CA 9592-0515

MARTHA SHELK
U.S. ARMY - FORT IRWIN- PUBLIC WORKS
ATTN:AFZJ-PW-EN
FORT IRWIN, CA 92310-5000

THOMAS G. SKJELSTAD
ALPINE SPRINGS CWD
PO DRAWER E
TAHOE CITY, CA 96145

WALLACE SPINARSKI
AVEK WATER AGENCY
PO BOX 3176
QUARTZ HILL, CA 93586-0176

NICK SPRAGUE
OWENS VALLEY INDIAN WATER COMM
101 S. BARLOW LN
BISHOP, CA 93514

WENDY STINE, CHAIR
FT INDEPENDENCE TRIABL OFFICE
PO BOX 67
INDEPENDENCE, CA 93526

JIM STITES
CA DHS
[redacted]0 E HERNDON AVE, STE 205
[redacted]ESNO, CA 93720

PETER STODDARD
CA DEPT OF FOOD AND AGRICULTURE
1220 N ST, ROOM A-149
SACRAMENTO, CA 94814

JACK STOECKER
3916 CORAL PL
CALABASAS, CA 91302

DAVID SUPKOFF
CA DEPT OF PESTICIDE REGULATION
PO BOX 4015
SACRAMENTO, CA 95812-4015

THOMAS L. SUTTON, MANAGER
CRESTLINE SANITATION DISTRICT
PO BOX 3395
CRESTLINE, CA 92325-3395

RICK SWENSON
PLACER COUNTY - ENV HEALTH
11454 "B" AVE.
AUBURN, CA 95603

BILL TEMPLIN
U.S.G.S.
2800 COTTAGE WY, RM 2234
SACRAMENTO, CA 95825

HELLER THOM
U.S.F.S. - INYO NATL FOREST
PO BOX 148
MAMMOTH LAKES, CA 93546

RICHARD THOMAS
CA DEPT OF CONS - DIV OF OIL, GAS & GEO RES
801 K ST MS 21
[redacted]ACRAMENTO, CA 95814-3530

CRAIG THOMAS
SIERRA NEV FOREST PROTECT CAMPAIGN
6221 SHOO FLY RD
KELSEY, CA 95643

LARRY THOMPSON
U.S. FISH & WILDLIFE SERV
2800 COTTAGE WY #W2605
SACRAMENTO, CA 95825-1888

JOSEPH THOMPSON
U.S.D.A. - NTRL RES CONS SERV
PO BOX 10529
SO LAKE TAHOE, CA 96158

EVELYN TOMPKINS
CA DEPT OF WATER RESOURCES
770 FAIRMONT ST, STE 102
GLENDALE, CA 91203-1035

TRIBAL CHAIRMAN
BRIDGEPORT INDIAN RESERVATION
PO BOX 37
BRIDGEPORT, CA 93517

BECKY TUDEN, WTR-8
U.S. EPA
75 HAWTHORNE ST
SAN FRANCISCO, CA 94105

ALAN UCHIDA
U.S. BLM
PO BOX 460
CEDARVILLE, CA 96104-460

JOHN VEST
ORGANIZED SPORTSMEN - LASSEN CO
PO BOX 1552
SUSANVILLE, CA 96130

LARRY VINSANT
U.S. ARMY CORPS OF ENGINEERS
1325 "J" ST, ROOM 1480
SACRAMENTO, CA 95814-2922

[redacted]ANE VORPAGEL
CA DFG
601 LOCUST ST
REDDING, CA 96001

BELINDA WALKER
U.S.F.S. - SAN BRNDO NATL FOREST
1824 S COMMERCENTER CIR
SAN BERNARDINO, CA 92408-

BRIAN A. WALLACE
WASHOE TRIBE OF CALIF/NEVADA
[redacted]UTE 2, BOX 68
[redacted]RDNERVILLE, NV 89410

ARDEN WALLUM
INDIAN WELLS VALLEY WATER DIST
PO BOX 1329
RIDGECREST, CA 93556-1329

KEN WEAVER
U.S.D.A. - NTRL RES CONS SERV
170 RUSSELL AVE, STE I
SUSANVILLE, CA 96130

LLOYD WEESE
KERN COUNTY - DEPT OF ENV HEALTH
2700 "M" ST STE 300
BAKERSFIELD, CA 93301

TIFFANY WELCH
U.S. ARMY CORPS OF ENGINEERS
2151 ALESANDRO DR, STE 100
VENTURA, CA 93001

STEPHANIE WILSON
U.S. EPA
333 W NYE LN, PO BOX 11
CARSON CITY, NV 89702

JEFF WINNER
LAKE ARROWHEAD CSD
PO BOX 789
LAKE ARROWHEAD, CA 92352

JEFF WITHROE
U.S.F.S. - PLUMAS NATL FOREST
MILFORD RANGER DIST
MILFORD, CA 96121-

GARY WOLINSKY
U.S. EPA
75 HAWTHORNE ST
[redacted]SAN FRANCISCO, CA 94105

DARRELL WONG
CA DFG
407 W LINE ST
BISHOP, CA 93514

JAMES R. WOODY
MARIANA RANCHOS CO WATER DIST
9600 MANZANITA ST
APPLE VALLEY, CA 92308

ABRAHAM WUBISHET
UC COOP EXTENSION
777 E RIALTO AVE
SAN BERNARDINO, CA 92415-0730

GARY YAMAMOTO
CA DHS
1449 W TEMPLE ST, RM 202
LOS ANGELES, CA 90026

FRANCIS YARNALL
MUNICIPAL ADVISORY COMMITTEE
1462 STONEWOOD CT
SAN PEDRO, CA 90732-1542

RON ZINKE
U.S.D.A. - NTRL RES CONS SERV
113 PRESLEY WY, STE 1
GRASS VALLEY, CA 95945

File: Basin Plan - Water Quality Assessment -

Newspaper Clippings 3/28/01

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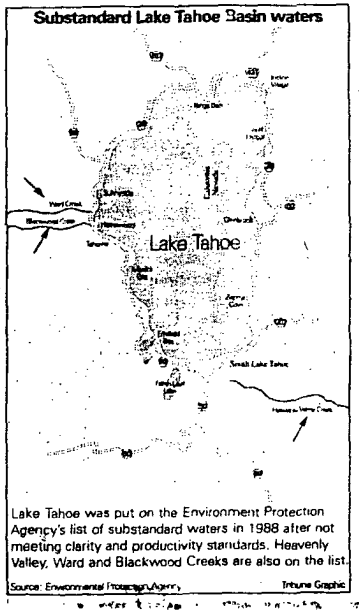

Lake Tahoe was put on the Environment Protection Agency's list of substandard waters in 1988 after not meeting clarity and productivity standards. Heavenly Valley, Ward and Blackwood Creeks are also on the list.

Basin streams, lakes review up

By Emily Aughinbaugh
Tribune staff writer

Lake Tahoe Basin lakes, streams and wetlands are once again up for review.

The Lahontan Regional Water Quality Control Board is asking for quantitative data about the quality of Tahoe's surface waters as part of a two-year assessment required by the federal Clean Water Act.

Heavenly Valley, Blackwood and Ward creeks have all been considered substandard by the Environmental Protection Agency. Lake Tahoe itself made the EPA's substandard list in 1988 for failing to meet clarity and productivity criterion, said Judith Unsicker, Lahontan environmental specialist.

Unsicker said Lahontan will take complaints by the general public on lack of clarity or smell of surface waters or damage to stream beds. However, she said Lahontan is mainly seeking scientific information the organization usually gains from environmental groups.

Unsicker said Lahontan will receive data from the Tahoe Regional Planning Agency as the bistate agency reevaluates its thresholds this year.

She said the EPA's listing process started in early 1970 to identify points of discharge that were polluting the nation's waters.

Since Tahoe's clarity problems usually stem from discharges that aren't specific like sewage systems, Unsicker said the problem is harder to treat.

Once a body of water is put on the list, a cleanup strategy is devised and local agencies usually discuss implementation options.

Although many cleanup strategies have been devised by TRPA, like the Environmental Improvement Plan, Lahontan has yet to develop a grand plan.

Unsicker said she hoped the water quality agency would create cleanup strategies by 2005, coordinating efforts with TRPA's revision of its 20-year regional plan.

Tahoe Tribune 3/26/01

April 2, 2001

Dear Laurie Kemper,

I am writing this letter in response to the article in the Tahoe Tribune on March 26th about the basin streams. I am a teacher at Kingsbury Middle School. I teach fifth grade and part of my curriculum is teaching about the native trees, shrubs, and wildlife of the Tahoe Basin. I also teach my students about ways to protect our environment here in Lake Tahoe. I am a certified streamkeeper and over the past six years my classes and the sixth graders have adopted Burke Creek. We have raised and released trout into Burke Creek and we have been studying the water quality and macroinvertebrates in our stream.

I have included our data from the fall of 2000 when we tested Burke Creek in October. I would like to note to you the trends that we are seeing. The test results show that things aren't great. There has been a marked increase of worms in the past few years and a decrease in mayflies. Also the algae is being found further up the stream. In years past when we were doing our inventories in the fall and spring we were counting a lot more trout and now we are hardly seeing any.

I appreciate your time in looking at our data. I know Burke Creek is not a California stream, but it does feed into the lake. My hope is that we can help the clarity of Lake Tahoe whether it is a Nevada stream or California stream that is having problems.

Thank you,

Cathy Ricioli
Kingsbury Middle School
P.O. Box 648
Zephyr Cove, NV 89448

Sample	Mayflies	Stoneflies	Caddisflies	Beetles	Crustaceans	Worms	Casemakers	Leeches	Craneflies	Dobsonflies	Scuds	Other
5th 1	0	0	0	0	0	4	0	0	0	0	0	1
5th 2	0	0	1	0	0	1	0	0	0	0	0	1
5th 3	0	1	0	0	0	1	0	0	0	0	0	5
5th 4	1	1	0	0	0	2	0	0	0	0	0	5
6th C1	0	0	1	0	0	2	2	2	2	0	0	0
6th C2	2	0	0	0	0	3	0	3	0	0	0	0
6th C3	0	1	0	0	0	1	0	1	0	1	1	0
6th B1	1	0	3	0	0	0	0	0	2	0	0	0
6th B2	6	2	3	0	0	0	0	0	0	0	0	0
6th A1	0	0	1	0	0	2	2	2	2	0	0	0
6th A2	2	0	0	0	0	3	0	3	0	0	0	0
6th A3	0	1	0	0	0	1	0	1	0	1	1	0

Sample	PH	DO	Velocity	Turbity	Air Temp °C	Water Temp°C
5th 1	7	85.00%	4.79=.45'sec	10 Jtu	26	11
5th 2	7.5	100.00%	5.06=.40'sec	6.5 Jtu		12.5
5th 3	7	85.00%	5.05=40'sec	7.5 Jtu	21	10.5
5th 4	7.5	80.00%	5.02=.40'sec	7.5Jtu		11.5
6th A 1	7.3	78.00%	10'-10.7 sec		0	5
6th A 2	7.5	78.00%	10'-10.33 sec		0	7
6th A 3	7.5	88.00%	10'-9.8 sec		13	7
6th B 1	9.5	80.00%	10'-9.7 sec		0	6
6th B 2	7.5	56.00%	10'-10 sec		0	6
6th B 3	7.5	80.00%	10'-7.53 sec		0	6
6th B 4	7.2	79.00%	10'-9.47 sec		0	6
6th C 1	10	95.00%	10'-9.7 sec		23	7
6th C 2	7.5	90.00%	10'-10.5 sec		22	6
6th C 3	7.5	95.00%	10'-9.96 sec		0	0

dpr

Department of Pesticide Regulation

Paul E. Helliker
Director

Gray Davis
Governor

Winston H. Hickox
Secretary, California Environmental Protection Agency

MEMORANDUM

TO: Harold J. Singer, Executive Officer
Lahontan Regional
Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe, California 95150-7704

FROM: Paul E. Helliker Paul Helliker
Director
(916) 445-4000

DATE: April 5, 2001

SUBJECT: PUBLIC SOLICITATION OF WATER QUALITY INFORMATION FOR 303(d) LIST PREPARATION

Regional Water Quality Control Boards are, or will soon be, requesting information that may assist in the development of lists of impaired water bodies as required by section 303(d) of the Clean Water Act. The Department of Pesticide Regulation (DPR) would like to notify you of data that may be useful in developing the lists.

DPR's surface water database contains reports of sampling of surface waters for pesticides. It includes studies conducted by both DPR and other entities in the public and private sectors. A CD ROM containing the database was sent to each regional board. Updated information is available on DPR's Web site at <http://www.cdpr.ca.gov/docs/surfwatr/surfdata.htm>. The Web site also provides a contact for further information.

In addition, DPR has conducted and reported on a number of studies that may be of interest to you. Reports have been provided to appropriate regional boards and can also be found on DPR's Web site. These include:

- Studies conducted by DPR's Environmental Hazards Assessment Program <http://www.cdpr.ca.gov/docs/empm/pubs/ehapreps.htm>
- DPR reports published in refereed publications <http://www.cdpr.ca.gov/docs/empm/pubs/ehapref.htm>
- Monitoring for the Glassy-Winged Sharpshooter Project <http://www.cdpr.ca.gov/docs/gwss>
- Monitoring for Red Imported Fire Ant Project <http://www.cdpr.ca.gov/docs/rifa>

- National Forest Herbicide Monitoring Project
  <http://www.cdpr.ca.gov/docs/empm/pubs/forest/forstprj.htm>

- Northwestern California Tribal Territories Herbicide Monitoring Project
  <http://www.cdpr.ca.gov/docs/empm/pubs/tribal/tribproj.htm>

If you would like further information about any of these resources, please feel free to call Kathy Brunetti, DPR's Management Agency Agreement Coordinator, at (916) 324-4100 or e-mail her at <brunetti@empm.cdpr.ca.gov>.

cc: Walt Shannon, Management Agency Agreement Coordinator
State Water Resources Control Board
Stefan Lorenzato, Total Maximum Daily Load Coordinator
State Water Resources Control Board
Cindy Wise, Designated Pesticide Contact
Lahontan Regional Water Quality Control Board
Kathy Brunetti

From: "Patricia A Shiffer" <pshiffer@usgs.gov>
To: <Unsij@rb6s.swrcb.ca.gov>
Date: 4/12/01 11:13AM
Subject: Lahontan Region Water Quality data- July 1997 forward

Judith Unsicker,

We have retrieved the water quality data for your region from
our database for July 1997 and forward. The data is in ascii text
files called lr.txt, lr.txt.parnames and lrtbl.txt
The lr.txt file is the data in a format which can be placed
in another software program such as EXCEL. The file lr.txt.parnames
are the parameter names associated with the data in lr.txt.
The file lrtbl.txt is the same data in a table format. This data
can be printed. We will not be sending hard copy.

To get the files with FTP software:

ftp ftpdcascr.wr.usgs.gov
login as anonymous
cd data
get filename
quit

To get the files with a Netscape browser:

Type in where the http etc is ftp://ftpdcascr.wr.usgs.gov/data/
(try clicking on the ftp:// etc above and you should go directly
to the ftp directory and then choose your file.)
put the filename of the file you want after that last / and you
will go directly to the file.
(the one you are trying to get from the directory.
EX: ftp://ftpdcascr.wr.usgs.gov/data/sm92

Please let me know when you have successfully downloaded the file or
files so I can erase them.

Thanks.

If you have questions, let me know.

WATER YEAR 2000 and 2001 DATA IS SUBJECT TO REVISION!

Pat Shiffer "SAFETY FIRST, EVERY JOB, EVERY TIME"
U.S. Geological Survey
6000 J. St, Placer Hall
Sacramento, CA 95819-6129
(916) 278-3100
pshiffer@usgs.gov http://ca.water.usgs.gov

California Regional Water Quality Control Board
Lahontan Region

Vinston H. Hickox
...etary for ...mental ...ction

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

JEU

April 20, 2001

Carol Sims
Environmentally Concerned
5406 E. Kaibab Blvd.
Williams, AZ 86046

PESTICIDE AND FERTILIZER ISSUES IN THE LAHONTAN REGION

You recently returned one of the Lahontan Regional Board's mailing list update forms with several questions about the Board's role in controlling the impacts of pesticides and fertilizers on water quality. The following are responses prepared by Dr. Judith Unsicker, the Board's "lead person" for planning and water quality assessment. Your questions have been paraphrased for clarity.

Question: *Has the Regional Board ever considered the possibility that pesticides, insecticides, herbicides and fertilizer affect our waters?*

Response: The Lahontan Regional Board is a California state agency with jurisdiction over the waters in eastern California. It implements the federal Clean Water Act and the California Water Code, and its responsibilities include setting and enforcing water quality standards. The Board's "Constitution" is the *Water Quality Control Plan for the Lahontan Region* or "Basin Plan", which is available on the Internet at: <http://www.swrcb.ca.gov/rwqcb6>. The Basin Plan includes standards and controls for pesticides which are summarized below; controls for agricultural pollutants are summarized in Section 4.10. The Board also implements the statewide *Plan for California's Nonpoint Source Pollution Control Program* which requires the use of "Best Management Practices" for control of water pollutants including pesticides and fertilizer, to be implemented by all landowners by 2013.

The Basin Plan recognizes potential impacts on water quality from pesticides and fertilizers, and includes water quality standards and waste discharge prohibitions which help to prevent and control such impacts. Direct discharges of all types of wastes (including pesticides and fertilizers) to surface waters are prohibited in much of the Lahontan Region, including discharges to sensitive lakes and streams in the eastern Sierra Nevada. Water quality standards for nutrients are generally set at natural background levels, and no increases in nutrient levels as a result of human activities can be allowed without special findings by the Regional Board.

The regionwide standards for pesticides (which date from 1975 and apply to both surface waters and ground water) state:

"Pesticide concentrations, individually or collectively, shall not exceed the lowest detectable levels, using the most recent detection procedures available. There shall not be an increase in pesticide concentrations found in bottom sediments. There shall be no detectable increase in bioaccumulation of pesticides in aquatic life".

For certain kinds of pesticides (most of which are not used in the Lahontan Region), specific numerical limits established by California drinking water standards, and federal aquatic life protection criteria may also apply. In most cases, these numbers are likely to be higher than detection levels, so that the Regional Board standards are more stringent.

Very limited exceptions to the regionwide limits above are allowed for the California Department of Fish and Game, which sometimes uses rotenone to kill "exotic" fish before reintroducing the Lahontan cutthroat trout into its original habitat. (The trout is on the federal Threatened and Endangered Species List.)

The Lahontan Region has relatively little agricultural pesticide and fertilizer use compared to other parts of California, since agriculture in the Region is mostly irrigated pasture rather than row crops, orchards, or vineyards. Board staff review plans and proposals for forest and range management activities, and submit comments which point out the need to comply with our Basin Plan. We also work with golf courses to ensure that fertilizer and pesticides are used in compliance with water quality standards. Urban fertilizer use, and the potential for fertilizer runoff or percolation through groundwater, are of special concern in protecting Lake Tahoe. The Board has the authority to issue permits for pesticide and fertilizer use, and to take enforcement action if water quality standards are violated. However, the Board generally works to educate the public and to encourage voluntary limitation of pesticide and fertilizer use before considering the need for permitting and enforcement.

Question: *What about the B.T. that you apply to our streams and beaches. Poison is poison no matter how [you] apply it.*

Response: The Lahontan Regional Board is not a pest control agency and does not apply "B.T." (we assume that you mean *Bacillus thuringensis)* to any waters or beaches. "B.T." is not a poison, but a species of bacteria used as a "biological control". Different strains of B.T. attack specific kinds of insects. "B.T." strains which attack mosquitoes are sometimes applied to surface waters by mosquito control agencies as a safer alternative to chemical pesticides. ("B.T." is still considered a pesticide and in the Lahontan Region is subject to the Basin Plan provisions summarized above.)

If you have further questions about the Lahontan Region or our water quality plan, please contact Dr. Unsicker at (530) 542-5462 (email address: unsij@rb6s.swrcb.ca.gov). If you have questions about Arizona's pesticide standards and control programs, or pesticide and fertilizer impacts on specific waters near your home, we suggest that you contact your county health department, the Arizona Department of Environmental Quality, or the U.S.

Natural Resources Conservation Service office nearest to you. The USNRCS sponsors a "Backyard Conservation Program" which helps individual homeowners to implement measures to prevent or limit water pollution from their property. See the following Internet address for more information: <http://www.nhq.nrcs.usda.gov/CCS/Backyard.html>.

Sincerely,

Robert S. Dodds
Assistant Executive Officer

JEU/arT:simsresponse
[Basin Plan, General]

From: "Hideki Miyashita" <hideki@usgs.gov>
To: <Unsij@rb6s.swrcb.ca.gov>
Date: 4/25/01 10:40AM
Subject: Re: Lahontan Region Water Quality data- July 1997 forward

Judith Unsicker,

Pat Shiffer, the information officer is currently out of the office. In her absence she had asked me to respond to as many of her emails I can.

This is in response to your email in which you stated:

(I left you a voice mail on this but haven't heard from you- I assume that your voicemail box could be full.) Thank you for the offer of information. I don't currently have enough computer memory to download a large amount of data- I'm supposed to get an upgrade but I don't know when. The State Water Board has just made network space available for Section 303(d) data. Could you give me a ballpark estimate of the size of the Lahontan Region files? Thanks!

Here is what I found out about the size of the files.

lr.txt 37.7 KB
lr.txt.parnames 3.11 KB
lrtbl.txt 177 KB

I am forwarding a copy of this response to Pat Shiffer for any supplementary comments.

Henry Miyashita
Hydrologic Clerk
US Geological Survey
TEL: (916) 278-3112
EMAIL: hideki@usgs.gov
FAX: (916) 278-3190

From: "Patricia A Shiffer" <pshiffer@usgs.gov>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 4/26/01 11:40AM
Subject: Re: Lahontan Region Water Quality data- July 1997 forward

Here is the answer to your voice mail. I saw no reason to call
I figured you did not want to copy down by hand the file sizes.
WATER YEAR 2000 and 2001 DATA IS SUBJECT TO REVISION!

Pat Shiffer "SAFETY FIRST, EVERY JOB, EVERY TIME"
U.S. Geological Survey
6000 J. St, Placer Hall
Sacramento, CA 95819-6129
(916) 278-3100
pshiffer@usgs.gov http://ca.water.usgs.gov
----- Forwarded by Patricia A Shiffer/WRD/USGS/DOI on 04/26/01 11:41 AM

Patricia A Shiffer
04/16/01 01:17 PM

To: "Nancy Richard" <RICHN@dwq.swrcb.ca.gov>
cc:
Subject: Re: Lahontan Region Water Quality data- July 1997 forward(Document link: Patricia A Shiffer)

I received a voice mail from some one (name not understandable) in
you office saying you want the size of all the files I sent to
the Regional Boards. They are:

```
-rw-rw-r--  1 pshiffer cache    249664 Mar 30 13:52 ccr.txt
-rw-rw-r--  1 pshiffer cache     13750 Mar 30 13:52 ccr.txt.parnames
-rw-rw-r--  1 pshiffer cache    574622 Mar 30 13:54 ccrtbl.txt
-rwxrwxrwx  1 pshiffer ftpadmin    764 Oct  7  1999 codesgw
-rw-rw-r--  1 pshiffer ftpadmin  19704 Apr 12 11:55 crbr.txt
-rw-rw-r--  1 pshiffer ftpadmin   4910 Apr 12 11:55 crbr.txt.parnames
-rw-rw-r--  1 pshiffer ftpadmin 118478 Apr 12 11:58 crbrtbl.txt
-rw-rw-r--  1 pshiffer cache   1120255 Mar 30 14:17 cvr.txt
-rw-rw-r--  1 pshiffer cache     20750 Mar 30 14:17 cvr.txt.parnames
-rw-rw-r--  1 pshiffer cache   3486370 Mar 30 14:35 cvrtbl.txt
-rw-rw-r--  1 pshiffer cache      6074 Mar 30 13:58 lar.txt
-rw-rw-r--  1 pshiffer cache      1950 Mar 30 13:58 lar.txt.parnames
-rw-rw-r--  1 pshiffer cache     28716 Mar 30 13:59 lartbl.txt
-rw-rw-r--  1 pshiffer cache     38418 Mar 30 15:40 lr.txt
-rw-rw-r--  1 pshiffer cache      2790 Mar 30 15:40 lr.txt.parnames
-rw-rw-r--  1 pshiffer cache    179812 Mar 30 15:41 lrtbl.txt
-rw-rw-r--  1 pshiffer cache     46665 Mar 30 08:59 ncr.txt
-rw-rw-r--  1 pshiffer cache      3030 Mar 30 08:59 ncr.txt.parnames
-rw-rw-r--  1 pshiffer cache    250264 Mar 30 13:10 ncrtbl.txt
-rw-rw-r--  1 pshiffer cache    998350 Apr 11 15:33 sar.txt
-rw-rw-r--  1 pshiffer cache     24910 Apr 11 15:33 sar.txt.parnames
-rw-rw-r--  1 pshiffer cache   5068721 Apr 11 15:19 sartbl.txt
-rw-rw-r--  1 pshiffer cache     14597 Apr 11 15:47 sdr.txt
```

-rw-rw-r-- 1 pshiffer cache 12230 Apr 11 15:47 sdr.txt.parnames
-rw-rw-r-- 1 pshiffer cache 122346 Apr 11 15:48 sdrtbl.txt
-rw-rw-r-- 1 pshiffer cache 84692 Mar 30 13:32 sfbr.txt
-rw-rw-r-- 1 pshiffer cache 4470 Mar 30 13:32 sfbr.txt.parnames
-rw-rw-r-- 1 pshiffer cache 417544 Mar 30 13:37 sfbrtbl.txt
WATER YEAR 2000 and 2001 DATA IS SUBJECT TO REVISION!

Pat Shiffer "SAFETY FIRST, EVERY JOB, EVERY TIME"
U.S. Geological Survey
6000 J. St, Placer Hall
Sacramento, CA 95819-6129
(916) 278-3100
pshiffer@usgs.gov http://ca.water.usgs.gov

"Nancy Richard" <RICHN@dwq.swr cb.ca.gov>
To: <pshiffer@usgs.gov>
cc:
Subject: Re: Lahontan Region Water Quality data- July 1997 forward
04/12/01 05:26 PM

What is this data for? 303d listing? Since they already have it at an FTP site, all you need to do is download it on a computer that you want to store the data in. They had to do that because it would not be able to get to you thru email, cuz it is so big.

Call me, it is easier to talk about this on a phone.

Nancy
>>> "Patricia A Shiffer" <pshiffer@usgs.gov> 04/12/01 11:13AM >>>
Judith Unsicker,

We have retrieved the water quality data for your region from our database for July 1997 and forward. The data is in ascii text files called lr.txt, lr.txt.parnames and lrtbl.txt
The lr.txt file is the data in a format which can be placed in another software program such as EXCEL. The file lr.txt.parnames are the parameter names associated with the data in lr.txt.
The file lrtbl.txt is the same data in a table format. This data can be printed. We will not be sending hard copy.

To get the files with FTP software:

ftp ftpdcascr.wr.usgs.gov
login as anonymous
cd data
get filename

quit

To get the files with a Netscape browser:

Type in where the http etc is ftp://ftpdcascr.wr.usgs.gov/data/
(try clicking on the ftp:// etc above and you should go directly
to the ftp directory and then choose your file.)
put the filename of the file you want after that last / and you
will go directly to the file.
(the one you are trying to get from the directory.
EX: ftp://ftpdcascr.wr.usgs.gov/data/sm92

Please let me know when you have successfully downloaded the file or files so I can erase them.

Thanks.

If you have questions, let me know.

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Sacramento, CA 95819-6129
(916) 278-3100
pshiffer@usgs.gov http://ca.water.usgs.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at http://www.swrcb.ca.gov
Nancy Richard
Environmental Specialist
SWRCB

1

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE
10265150	HOT C A FLUME NR MAMMOTH L	37 40 08 N	118 49 00 W

10289000 VIRGINIA C NR BRIDGEPORT C 38 11 30 N 119 12 30 W

10289500 GREEN C NR BRIDGEPORT CA 38 10 25 N 119 14 00 W

1

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	GAGE HEIGHT (FEET) (00065)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)
10265150	07-16-97	--	78	--	--	7.4
	10-22-97	--	54	--	--	7.7
	11-19-97	--	50	--	--	7.8
	12-18-97	--	50	--	--	--
	01-16-98	--	58	--	--	7.7
	02-12-98	--	50	--	--	--
	03-19-98	--	53	--	--	--
	04-17-98	--	54	--	--	--
	05-13-98	--	63	--	--	--
	06-25-98	--	179	--	--	--
	07-22-98	--	206	--	--	7.2
	08-25-98	--	93	--	--	--
	09-16-98	--	82	--	--	--
	10-16-98	--	66	--	--	--
	11-18-98	--	66	--	--	--
	12-17-98	--	61	--	--	--
	01-13-99	--	51	--	--	7.5
	02-18-99	--	55	--	--	--

57

	03-17-99	--	53	--	--	--
	04-15-99	--	50	--	--	--
	05-13-99	--	62	--	--	7.5
	06-16-99	--	144	--	--	--
	07-08-99	--	84	--	--	7.4
	08-17-99	--	60	--	--	--
	09-23-99	--	53	--	--	--
	10-14-99	--	50	--	--	7.4
	11-17-99	--	--	--	--	--
	12-15-99	--	--	--	--	--
	01-19-00	--	52	--	--	--
	02-16-00	1.24	54	--	--	--
	03-22-00	1.12	48	--	--	--
	04-20-00	1.13	47	--	--	--
	05-23-00	2.00	117	--	--	--
	06-20-00	1.92	109	--	--	--
	07-20-00	1.28	56	--	--	--
	08-19-00	--	53	--	--	--
	09-29-00	--	--	--	--	--
	10-26-00	1.16	47	--	--	--
	11-29-00	1.14	46	--	--	--
	12-15-00	1.14	45	--	--	--
	01-24-01	1.10	44	--	--	--
	02-26-01	1.10	45	--	--	--
	03-21-01	1.25	54	--	--	--
10289000	04-12-00	--	20	605	8.6	8.3
	05-10-00	--	23	595	8.6	8.0
	06-05-00	--	30	597	7.2	7.9
	07-12-00	--	7.7	605	7.5	8.1
	08-09-00	--	5.3	597	--	--
	09-13-00	--	7.2	597	7.6	7.9
	10-10-00	--	5.2	587	8.4	8.0
	11-13-00	--	9.5	591	10.9	7.8
	12-13-00	--	15	592	10.4	8.0
	01-10-01	--	8.4	588	10.8	8.0
	02-15-01	--	14	606	9.2	8.2
	03-12-01	--	12	597	8.9	8.2
10289500	06-06-00	2.52	125	593	8.3	7.1
	07-12-00	2.05	48	605	8.3	7.4
	08-09-00	--	20	593	--	--
	09-13-00	--	8.3	595	7.6	7.1
	10-10-00	--	6.4	584	8.4	7.4
	11-13-00	--	7.2	588	11.0	7.6
	12-12-00	--	5.3	587	10.6	7.9
	01-10-01	--	6.1	585	10.3	7.9
	02-14-01	--	10	601	10.4	8.1
	03-14-01	--	7.2	--	--	7.7

1

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

		MAGNE-	POTAS-		ANC UNFLTRD

58

STATION NUMBER	DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	TIT 4.5 LAB (MG/L AS CACO3) (90410)
10265150	07-16-97	--	--	--	--	--
	10-22-97	--	--	--	--	--
	11-19-97	13.1	6.32	7.7	85.0	171
	12-18-97	--	--	--	--	--
	01-16-98	--	--	--	--	--
	02-12-98	--	--	--	--	--
	03-19-98	--	--	--	--	--
	04-17-98	--	--	--	--	--
	05-13-98	--	--	--	--	--
	06-25-98	--	--	--	--	--
	07-22-98	--	--	--	--	--
	08-25-98	--	--	--	--	--
	09-16-98	--	--	--	--	--
	10-16-98	--	--	--	--	--
	11-18-98	--	--	--	--	--
	12-17-98	--	--	--	--	--
	01-13-99	--	--	--	--	--
	02-18-99	--	--	--	--	--
	03-17-99	--	--	--	--	--
	04-15-99	--	--	--	--	--
	05-13-99	--	--	--	--	--
	06-16-99	--	--	--	--	--
	07-08-99	--	--	--	--	--
	08-17-99	--	--	--	--	--
	09-23-99	--	--	--	--	--
	10-14-99	--	--	--	--	--
	11-17-99	--	--	--	--	--
	12-15-99	--	--	--	--	--
	01-19-00	--	--	--	--	--
	02-16-00	--	--	--	--	--
	03-22-00	--	--	--	--	--
	04-20-00	--	--	--	--	--
	05-23-00	--	--	--	--	--
	06-20-00	--	--	--	--	--
	07-20-00	--	--	--	--	--
	08-19-00	--	--	--	--	--
	09-29-00	--	--	--	--	--
	10-26-00	--	--	--	--	--
	11-29-00	--	--	--	--	--
	12-15-00	--	--	--	--	--
	01-24-01	--	--	--	--	--
	02-26-01	--	--	--	--	--
	03-21-01	--	--	--	--	--
10289000	04-12-00	--	--	--	--	--
	05-10-00	9.95	1.58	1.6	5.1	--
	06-05-00	--	--	--	--	--
	07-12-00	--	--	--	--	--
	08-09-00	--	--	--	--	--
	09-13-00	11.6	1.90	1.6	6.6	--

	10-10-00	--	--	--	--	--
	11-13-00	--	--	--	--	--
	12-13-00	--	--	--	--	--
	01-10-01	--	--	--	--	--
	02-15-01	--	--	--	--	--
	03-12-01	--	--	--	--	--
10289500	06-06-00	--	--	--	--	--
	07-12-00	--	--	--	--	--
	08-09-00	--	--	--	--	--
	09-13-00	7.46	.46	.7	1.9	--
	10-10-00	--	--	--	--	--
	11-13-00	--	--	--	--	--
	12-12-00	--	--	--	--	--
	01-10-01	--	--	--	--	--
	02-14-01	--	--	--	--	--
	03-14-01	--	--	--	--	--

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
10265150	07-16-97	1.3	--	--	--	--
	10-22-97	--	--	--	--	--
	11-19-97	2.0	58.8	24.1	--	--
	12-18-97	--	--	--	--	--
	01-16-98	--	--	--	--	--
	02-12-98	--	--	--	--	--
	03-19-98	--	--	--	--	--
	04-17-98	--	--	--	--	--
	05-13-98	--	--	--	--	--
	06-25-98	--	--	--	--	--
	07-22-98	--	--	--	--	--
	08-25-98	--	--	--	--	--
	09-16-98	--	--	--	--	--
	10-16-98	--	--	--	--	--
	11-18-98	--	--	--	--	--
	12-17-98	--	--	--	--	--
	01-13-99	--	--	--	--	--
	02-18-99	--	--	--	--	--
	03-17-99	--	--	--	--	--
	04-15-99	--	--	--	--	--
	05-13-99	--	--	--	--	--
	06-16-99	--	--	--	--	--
	07-08-99	--	--	--	--	--
	08-17-99	--	--	--	--	--
	09-23-99	--	--	--	--	--

60

	10-14-99	--	--	--	--	--
	11-17-99	--	--	--	--	--
	12-15-99	--	--	--	--	--
	01-19-00	--	--	--	--	--
	02-16-00	--	--	--	--	--
	03-22-00	--	--	--	--	--
	04-20-00	--	--	--	--	--
	05-23-00	--	--	--	--	--
	06-20-00	--	--	--	--	--
	07-20-00	--	--	--	--	--
	08-19-00	--	--	--	--	--
	09-29-00	--	--	--	--	--
	10-26-00	--	--	--	--	--
	11-29-00	--	--	--	--	--
	12-15-00	--	--	--	--	--
	01-24-01	--	--	--	--	--
	02-26-01	--	--	--	--	--
	03-21-01	--	--	--	--	--
10289000	04-12-00	--	--	--	.17	.27
	05-10-00	<.1	17.0	8.2	.17	.38
	06-05-00	--	--	--	E.10	.25
	07-12-00	--	--	--	.16	.21
	08-09-00	--	--	--	E.10	.10
	09-13-00	<.1	19.1	6.1	E.10	.12
	10-10-00	--	--	--	.11	.22
	11-13-00	--	--	--	.12	.20
	12-13-00	--	--	--	E.10	.19
	01-10-01	--	--	--	E.10	.13
	02-15-01	--	--	--	.14	.20
	03-12-01	--	--	--	--	--
10289500	06-06-00	--	--	--	<.10	E.10
	07-12-00	--	--	--	<.10	<.10
	08-09-00	--	--	--	.15	.18
	09-13-00	<.1	5.2	12.2	E.10	E.10
	10-10-00	--	--	--	<.10	.11
	11-13-00	--	--	--	<.10	E.10
	12-12-00	--	--	--	E.10	E.10
	01-10-01	--	--	--	<.10	E.10
	02-14-01	--	--	--	<.10	E.10
	03-14-01	--	--	--	--	--

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION	NUMBER	DATE	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	DRAIN-AGE AREA (SQ. MI.) (81024)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	TUR-BID-ITY (NTU) (00076)
10265150		07-16-97	--	68.3	6950	--	--
		10-22-97	--	68.3	6950	--	--

	11-19-97	--	68.3	6950	347	--
	12-18-97	--	68.3	6950	--	--
	01-16-98	--	68.3	6950	--	--
	02-12-98	--	68.3	6950	--	--
	03-19-98	--	68.3	6950	--	--
	04-17-98	--	68.3	6950	--	--
	05-13-98	--	68.3	6950	--	--
	06-25-98	--	68.3	6950	--	--
	07-22-98	--	68.3	6950	--	--
	08-25-98	--	68.3	6950	--	--
	09-16-98	--	68.3	6950	--	--
	10-16-98	--	68.3	6950	--	--
	11-18-98	--	68.3	6950	--	--
	12-17-98	--	68.3	6950	--	--
	01-13-99	--	68.3	6950	--	--
	02-18-99	--	68.3	6950	--	--
	03-17-99	--	68.3	6950	--	--
	04-15-99	--	68.3	6950	--	--
	05-13-99	--	68.3	6950	--	--
	06-16-99	--	68.3	6950	--	--
	07-08-99	--	68.3	6950	--	--
	08-17-99	--	68.3	6950	--	--
	09-23-99	--	68.3	6950	--	--
	10-14-99	--	68.3	6950	--	--
	11-17-99	--	68.3	6950	--	--
	12-15-99	--	68.3	6950	--	--
	01-19-00	--	68.3	6950	--	--
	02-16-00	--	68.3	6950	--	--
	03-22-00	--	68.3	6950	--	--
	04-20-00	--	68.3	6950	--	--
	05-23-00	--	68.3	6950	--	--
	06-20-00	--	68.3	6950	--	--
	07-20-00	--	68.3	6950	--	--
	08-19-00	--	68.3	6950	--	--
	09-29-00	--	68.3	6950	--	--
	10-26-00	--	68.3	6950	--	--
	11-29-00	--	68.3	6950	--	--
	12-15-00	--	68.3	6950	--	--
	01-24-01	--	68.3	6950	--	--
	02-26-01	--	68.3	6950	--	--
	03-21-01	--	68.3	6950	--	--
10289000	04-12-00	.033	63.6	6742	--	--
	05-10-00	.025	63.6	6742	70	.9
	06-05-00	.045	63.6	6742	--	3.2
	07-12-00	.032	63.6	6742	--	.8
	08-09-00	E.004	63.6	6742	--	.6
	09-13-00	.032	63.6	6742	83	.5
	10-10-00	.051	63.6	6742	--	1.1
	11-13-00	.036	63.6	6742	--	.9
	12-13-00	.038	63.6	6742	--	2.0
	01-10-01	.030	63.6	6742	--	2.3
	02-15-01	.039	63.6	6742	--	--
	03-12-01	--	63.6	6742	--	1.8
10289500	06-06-00	E.004	19.5	6866	--	.4

07-12-00	E.004	19.5	6866	--	.6
08-09-00	.034	19.5	6866	--	1.1
09-13-00	<.008	19.5	6866	40	<.5
10-10-00	E.003	19.5	6866	--	.3
11-13-00	.004	19.5	6866	--	.3
12-12-00	<.004	19.5	6866	--	.3
01-10-01	E.002	19.5	6866	--	.5
02-14-01	E.003	19.5	6866	--	--
03-14-01	--	19.5	6866	--	.4

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ME S (A (7
10265150	07-16-97	1210	--	--	--	
	10-22-97	1880	--	--	--	
	11-19-97	1940	<10	--	22	
	12-18-97	1910	--	--	--	
	01-16-98	1730	--	--	--	
	02-12-98	--	--	--	--	
	03-19-98	1930	--	--	--	
	04-17-98	1790	--	--	--	
	05-13-98	1560	--	--	--	
	06-25-98	551	--	--	--	
	07-22-98	528	--	--	--	
	08-25-98	1140	--	--	--	
	09-16-98	1260	--	--	--	
	10-16-98	1550	--	--	--	
	11-18-98	1670	--	--	--	
	12-17-98	1610	--	--	--	
	01-13-99	1840	--	--	--	
	02-18-99	1800	--	--	--	
	03-17-99	1830	--	--	--	
	04-15-99	1780	--	--	--	
	05-13-99	1490	--	--	--	
	06-16-99	659	--	--	--	
	07-08-99	1200	--	--	--	
	08-17-99	1690	--	--	--	
	09-23-99	1870	--	--	--	
	10-14-99	1920	--	--	--	
	11-17-99	1940	--	--	--	
	12-15-99	2150	--	--	--	
	01-19-00	1830	--	--	--	
	02-16-00	1740	--	--	--	
	03-22-00	2060	--	--	--	
	04-20-00	1990	--	--	--	
	05-23-00	824	--	--	--	

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	06-20-00	879	--	--	--
	07-20-00	1750	--	--	--
	08-19-00	1790	--	--	--
	09-29-00	1980	--	--	--
	10-26-00	1930	--	--	--
	11-29-00	2030	--	--	--
	12-15-00	2110	--	--	--
	01-24-01	2220	--	--	--
	02-26-01	--	--	--	--
	03-21-01	--	--	--	--
10289000	04-12-00	--	--	--	--
	05-10-00	--	130	580	16
	06-05-00	--	--	--	--
	07-12-00	--	--	--	--
	08-09-00	--	--	--	--
	09-13-00	--	230	400	13
	10-10-00	--	--	--	--
	11-13-00	--	--	--	--
	12-13-00	--	--	--	--
	01-10-01	--	--	--	--
	02-15-01	--	--	--	--
	03-12-01	--	--	--	--
10289500	06-06-00	--	--	--	--
	07-12-00	--	--	--	--
	08-09-00	--	--	--	--
	09-13-00	--	30	60	3
	10-10-00	--	--	--	--
	11-13-00	--	--	--	--
	12-12-00	--	--	--	--
	01-10-01	--	--	--	--
	02-14-01	--	--	--	--
	03-14-01	--	--	--	--

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	PURPOSE SITE VISIT, (CODE) (50280)	QUALITY ASSURANCE DATA INDICATOR CODE (99111)	REPLICATE TYPE (CODE) (99105)	SAMPLE LOCATION, DIST DOWNSTREAM (FEET) (72104)	S A S ((7
10265150	07-16-97	--	--	--	--	
	10-22-97	--	--	--	--	
	11-19-97	--	--	--	--	
	12-18-97	--	--	--	--	
	01-16-98	--	--	--	--	
	02-12-98	--	--	--	--	
	03-19-98	--	--	--	--	
	04-17-98	--	--	--	--	
	05-13-98	--	--	--	--	
	06-25-98	--	--	--	--	

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	07-22-98	--	--	--	--
	08-25-98	--	--	--	--
	09-16-98	--	--	--	--
	10-16-98	--	--	--	--
	11-18-98	--	--	--	--
	12-17-98	--	--	--	--
	01-13-99	--	--	--	--
	02-18-99	--	--	--	--
	03-17-99	--	--	--	--
	04-15-99	--	--	--	--
	05-13-99	--	--	--	--
	06-16-99	--	--	--	--
	07-08-99	--	--	--	--
	08-17-99	--	--	--	--
	09-23-99	--	--	--	--
	10-14-99	--	--	--	--
	11-17-99	--	--	--	--
	12-15-99	--	--	--	--
	01-19-00	--	--	--	--
	02-16-00	1001	--	--	--
	03-22-00	1001	--	--	--
	04-20-00	1001	--	--	--
	05-23-00	1001	--	--	--
	06-20-00	1001	--	--	--
	07-20-00	1001	--	--	--
	08-19-00	--	--	--	--
	09-29-00	--	--	--	--
	10-26-00	1001	--	--	--
	11-29-00	1001	--	--	--
	12-15-00	1001	--	--	--
	01-24-01	1001	--	--	--
	02-26-01	1001	--	--	--
	03-21-01	1001	--	--	--
10289000	04-12-00	1001	--	--	40.0
	05-10-00	1001	--	--	--
	06-05-00	1001	--	--	--
	07-12-00	1001	10	10.00	--
	08-09-00	1001	--	--	--
	09-13-00	1001	10	--	--
	10-10-00	1001	--	--	--
	11-13-00	1001	--	--	--
	12-13-00	1001	--	--	--
	01-10-01	1001	--	--	--
	02-15-01	1001	--	--	--
	03-12-01	1001	--	--	--
10289500	06-06-00	1001	--	--	--
	07-12-00	1001	10	--	--
	08-09-00	1001	--	--	--
	09-13-00	1001	10	--	--
	10-10-00	1001	--	--	--
	11-13-00	1001	--	--	--
	12-12-00	1001	--	--	--
	01-10-01	1001	--	--	--
	02-14-01	1001	--	--	--

03-14-01 1001 -- -- --

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE
10290200	E WALKER R A BRIDGEPORT CA	38 15 30 N	119 13 30 W
10290500	ROBINSON C A TWIN LKS OUTL	38 10 20 N	119 19 25 W
10291100	ROBINSON C A HWY 395 NR BR	38 15 36 N	119 16 20 W
10291200	ROBINSON C A BRIDGEPORT RE	38 16 23 N	119 15 15 W

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10291500 BUCKEYE C NR BRIDGEPORT CA 38 14 20 N 119 19 30 W

10291800 BUCKEYE C A HWY 395 NR BRI 38 15 50 N 119 16 37 W

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)
10290200	04-12-00	34	605	9.4	8.2	--
	05-10-00	71	595	8.5	8.5	7.8
	06-07-00	143	600	8.2	7.8	--
	06-07-00	143	600	7.5	7.7	--
	06-07-00	152	597	5.7	7.4	--
	07-11-00	43	605	7.2	8.3	--
	08-08-00	28	603	9.1	8.4	--
	09-12-00	17	605	9.2	7.6	8.0
	10-11-00	30	597	9.1	7.6	--
	11-13-00	36	598	11.4	7.2	--
	12-11-00	32	598	10.4	8.4	--
	01-11-01	40	591	9.8	8.0	--
	02-13-01	31	608	10.5	7.9	--
	03-12-01	49	603	9.1	8.5	--
10290500	04-12-00	38	605	9.6	8.2	--
	05-10-00	144	595	8.9	8.0	7.6
	06-08-00	214	583	8.2	7.8	--

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	07-13-00	115	592	7.6	7.8	--
	08-10-00	76	590	7.1	7.4	--
	09-14-00	26	590	7.4	7.7	7.8
	10-12-00	21	589	8.3	7.4	--
	11-14-00	12	584	8.7	7.6	--
	12-13-00	10	584	8.6	8.3	--
	01-11-01	5.8	579	9.7	7.5	--
	02-16-01	13	600	9.5	8.0	--
	03-14-01	14	590	10.3	7.9	--
10291100	04-13-00	11	600	8.8	7.6	--
	05-11-00	39	600	9.4	7.6	7.5
	06-06-00	124	602	8.3	7.3	--
	07-12-00	12	605	8.1	7.3	--
	08-09-00	8.8	603	--	--	--
	09-13-00	4.6	605	8.0	7.2	7.5
	10-12-00	5.1	601	8.2	6.8	--
	11-14-00	2.1	596	9.6	7.3	--
	12-12-00	4.5	594	10.1	7.8	--
	01-10-01	2.7	596	9.9	7.3	--
	02-14-01	10	609	10.2	7.9	--
	03-13-01	15	600	8.6	7.8	--
10291200	04-11-00	5.0	605	9.1	8.2	--
	05-09-00	36	600	7.6	8.0	7.6
	06-07-00	123	600	8.3	7.1	--
	06-07-00	123	599	7.4	7.7	--
	06-07-00	123	599	6.7	7.2	--
	07-11-00	15	605	6.6	7.5	--
	08-08-00	12	604	7.3	7.6	--
	09-12-00	3.9	605	7.6	7.1	7.6
	10-11-00	6.7	597	7.8	7.6	--
	11-15-00	4.2	599	9.1	7.4	--
	12-11-00	6.6	599	10.2	8.2	--
	01-12-01	2.9	598	8.9	8.0	--
	02-15-01	3.5	614	8.0	7.7	--
	03-13-01	9.4	605	7.9	7.7	--
10291500	04-12-00	65	--	--	--	--
	05-10-00	137	595	9.7	7.8	7.6
	06-08-00	213	587	10.0	7.7	--
	07-13-00	89	595	9.4	8.0	--
	08-10-00	41	594	8.3	7.8	--
	09-14-00	20	593	8.3	7.9	7.9
	10-12-00	19	590	9.3	7.6	--
	11-14-00	22	587	10.5	7.8	--
	12-13-00	16	588	8.5	8.1	--
	01-11-01	12	582	10.6	7.9	--
	02-16-01	14	605	8.5	8.0	--
	03-14-01	13	--	--	8.2	--
10291800	04-13-00	12	600	8.9	7.7	--

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

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STATION NUMBER	DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
10290200	04-12-00	--	--	--	--	--
	05-10-00	3.80	2.7	10.2	1.0	.2
	06-07-00	--	--	--	--	--
	06-07-00	--	--	--	--	--
	06-07-00	--	--	--	--	--
	07-11-00	--	--	--	--	--
	08-08-00	--	--	--	--	--
	09-12-00	3.99	2.8	11.0	1.5	.2
	10-11-00	--	--	--	--	--
	11-13-00	--	--	--	--	--
	12-11-00	--	--	--	--	--
	01-11-01	--	--	--	--	--
	02-13-01	--	--	--	--	--
	03-12-01	--	--	--	--	--
10290500	04-12-00	--	--	--	--	--
	05-10-00	.84	.7	2.0	E.2	.1
	06-08-00	--	--	--	--	--
	07-13-00	--	--	--	--	--
	08-10-00	--	--	--	--	--
	09-14-00	.66	.5	1.7	E.2	<.1
	10-12-00	--	--	--	--	--
	11-14-00	--	--	--	--	--
	12-13-00	--	--	--	--	--
	01-11-01	--	--	--	--	--
	02-16-01	--	--	--	--	--
	03-14-01	--	--	--	--	--
10291100	04-13-00	--	--	--	--	--
	05-11-00	1.21	.9	2.4	E.3	.1
	06-06-00	--	--	--	--	--
	07-12-00	--	--	--	--	--
	08-09-00	--	--	--	--	--
	09-13-00	1.63	1.3	3.0	.4	.1
	10-12-00	--	--	--	--	--
	11-14-00	--	--	--	--	--
	12-12-00	--	--	--	--	--
	01-10-01	--	--	--	--	--
	02-14-01	--	--	--	--	--
	03-13-01	--	--	--	--	--
10291200	04-11-00	--	--	--	--	--
	05-09-00	2.25	1.2	3.6	.3	.2
	06-07-00	--	--	--	--	--
	06-07-00	--	--	--	--	--
	06-07-00	--	--	--	--	--
	07-11-00	--	--	--	--	--
	08-08-00	--	--	--	--	--
	09-12-00	3.02	2.1	5.4	.7	.1
	10-11-00	--	--	--	--	--
	11-15-00	--	--	--	--	--

	12-11-00	--	--	--	--	--
	01-12-01	--	--	--	--	--
	02-15-01	--	--	--	--	--
	03-13-01	--	--	--	--	--
10291500	04-12-00	--	--	--	--	--
	05-10-00	.91	.7	1.6	E.2	<.1
	06-08-00	--	--	--	--	--
	07-13-00	--	--	--	--	--
	08-10-00	--	--	--	--	--
	09-14-00	2.31	1.6	3.3	.4	<.1
	10-12-00	--	--	--	--	--
	11-14-00	--	--	--	--	--
	12-13-00	--	--	--	--	--
	01-11-01	--	--	--	--	--
	02-16-01	--	--	--	--	--
	03-14-01	--	--	--	--	--
10291800	04-13-00	--	--	--	--	--

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	DRAINAGE AREA (SQ. MI.) (81024)
10290200	04-12-00	<.002	<.005	.023	.051	159
	05-10-00	.012	<.005	.019	.042	159
	06-07-00	.005	.008	.006	.041	159
	06-07-00	.007	.009	.007	.041	159
	06-07-00	.011	.010	.008	.046	159
	07-11-00	.003	<.005	.016	.042	159
	08-08-00	<.002	<.005	.016	.042	159
	09-12-00	.011	<.005	.013	.030	159
	10-11-00	.008	.116	.033	.069	159
	11-13-00	.017	.005	.008	.016	159
	12-11-00	<.002	.005	E.004	.013	159
	01-11-01	<.002	.011	.012	.048	159
	02-13-01	.005	.022	.009	.032	159
	03-12-01	--	--	--	--	159
10290500	04-12-00	<.002	<.005	<.001	E.004	39.1
	05-10-00	<.002	<.005	<.001	<.008	39.1
	06-08-00	.002	.007	<.001	<.008	39.1
	07-13-00	<.002	<.005	.001	E.005	39.1
	08-10-00	<.002	<.005	<.001	E.005	39.1
	09-14-00	.192	.037	.088	<.008	39.1
	10-12-00	.003	<.005	<.007	E.003	39.1
	11-14-00	.002	.006	<.007	.004	39.1
	12-13-00	.004	.053	<.007	.005	39.1
	01-11-01	.002	.005	E.004	.009	39.1

70

	02-16-01	.006	<.005	<.007	.007	39.1
	03-14-01	--	--	--	--	39.1
10291100	04-13-00	.005	.007	.004	.023	47.0
	05-11-00	<.002	<.005	<.001	.012	47.0
	06-06-00	.003	.008	<.001	.016	47.0
	07-12-00	.002	.009	.003	.018	47.0
	08-09-00	.003	<.005	.003	.016	47.0
	09-13-00	.002	.107	.001	E.005	47.0
	10-12-00	.005	<.005	<.007	.006	47.0
	11-14-00	<.002	.016	<.007	E.002	47.0
	12-12-00	<.002	.011	<.007	<.004	47.0
	01-10-01	.002	.033	<.007	.004	47.0
	02-14-01	.003	.021	<.007	.010	47.0
	03-13-01	--	--	--	--	47.0
10291200	04-11-00	<.002	<.005	.006	.014	47.5
	05-09-00	.004	<.005	.002	.018	47.5
	06-07-00	.004	.010	<.001	.021	47.5
	06-07-00	.002	.010	<.001	.027	47.5
	06-07-00	.016	.010	<.001	.025	47.5
	07-11-00	<.002	.008	.003	.026	47.5
	08-08-00	.005	<.005	.003	.026	47.5
	09-12-00	.003	<.005	.007	.016	47.5
	10-11-00	.005	<.005	E.005	.014	47.5
	11-15-00	.008	.009	.009	.009	47.5
	12-11-00	<.002	.010	<.007	.010	47.5
	01-12-01	<.002	.015	E.006	.013	47.5
	02-15-01	.003	.015	E.005	.013	47.5
	03-13-01	--	--	--	--	47.5
10291500	04-12-00	<.002	<.005	.002	.014	44.1
	05-10-00	<.002	.005	.002	.010	44.1
	06-08-00	<.002	.022	<.001	.018	44.1
	07-13-00	<.002	.010	.004	.012	44.1
	08-10-00	<.002	.021	.003	.009	44.1
	09-14-00	.003	<.005	.012	.010	44.1
	10-12-00	.002	<.005	<.007	.006	44.1
	11-14-00	<.002	.009	<.007	.007	44.1
	12-13-00	.018	.006	<.007	.004	44.1
	01-11-01	<.002	.033	.008	.007	44.1
	02-16-01	.005	.055	E.004	.008	44.1
	03-14-01	--	--	--	--	44.1
10291800	04-13-00	.004	<.005	.010	.116	54.8

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION	NUMBER	DATE	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML) (31633)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	I T R E (A (0

71

10290200	04-12-00	--	K3	34	--
	05-10-00	--	82	200	120
	06-07-00	--	K360	300	--
	06-07-00	--	K270	250	--
	06-07-00	--	270	280	--
	07-11-00	--	170	76	--
	08-08-00	--	130	54	--
	09-12-00	--	93	K22	80
	10-11-00	--	210	58	--
	11-13-00	--	K10	K32	--
	12-11-00	--	K4	K2	--
	01-11-01	--	K3	15	--
	02-13-01	--	K2	--	--
	03-12-01	--	K2	60	--
10290500	04-12-00	--	<1	<1	--
	05-10-00	--	<1	<1	<10
	06-08-00	--	--	--	--
	07-13-00	--	K2	K10	--
	08-10-00	--	K14	K6	--
	09-14-00	--	K4	K10	E10
	10-12-00	--	<1	K6	--
	11-14-00	--	K1	K4	--
	12-13-00	--	<1	<1	--
	01-11-01	--	<1	2	--
	02-16-01	--	<1	--	--
	03-14-01	--	<1	1	--
10291100	04-13-00	--	K7	130	--
	05-11-00	--	K7	61	20
	06-06-00	--	K200	140	--
	07-12-00	--	450	100	--
	08-09-00	>800	2100	66	--
	09-13-00	--	3600	88	50
	10-12-00	--	K33	K14	--
	11-14-00	--	K5	K2	--
	12-12-00	--	K2	K1	--
	01-10-01	--	K2	2	--
	02-14-01	--	K6	--	--
	03-13-01	--	K1	2	--
10291200	04-11-00	--	K2	K8	--
	05-09-00	--	K16	88	60
	06-07-00	--	K250	130	--
	06-07-00	--	280	110	--
	06-07-00	--	--	--	--
	07-11-00	--	>600	350	--
	08-08-00	--	K50	K100	--
	09-12-00	--	K670	260	70
	10-11-00	--	69	K18	--
	11-15-00	--	55	K6	--
	12-11-00	--	K5	K4	--
	01-12-01	--	K2	3	--
	02-15-01	--	<1	--	--
	03-13-01	--	K3	59	--
10291500	04-12-00	--	K2	K2	--
	05-10-00	--	K2	K1	30
	06-08-00	--	--	--	--

72

		07-13-00	--	>60	54	--
		08-10-00	--	56	39	--
		09-14-00	--	K11	K13	40
		10-12-00	--	K2	K4	--
		11-14-00	--	<1	K1	--
		12-13-00	--	K1	K1	--
		01-11-01	--	<1	1	--
		02-16-01	--	<1	--	--
		03-14-01	--	<1	2	--
	10291800	04-13-00	--	K15	86	--

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	JULIAN DATE IN-BOTTLE DIGEST-ION DDD (99870)	PURPOSE SITE VISIT, (CODE) (50280)	QUALITY ASSUR-ANCE DATA INDICA-TOR CODE (99111)	SAMPLE LOC-ATION, DIST DOWN-STREAM (FEET) (72104)	S A S ((7
10290200	04-12-00	--	1001	--	--	
	05-10-00	138	1001	--	--	
	06-07-00	--	1005	--	--	
	06-07-00	--	1005	--	--	
	06-07-00	--	1005	--	--	
	07-11-00	--	1001	10	--	
	08-08-00	--	1001	--	--	
	09-12-00	265	1001	10	--	
	10-11-00	--	1001	--	--	
	11-13-00	--	1001	--	--	
	12-11-00	--	1001	--	--	
	01-11-01	--	1001	--	--	
	02-13-01	--	1001	--	--	
	03-12-01	--	1001	--	--	
10290500	04-12-00	--	1001	--	--	1
	05-10-00	138	1001	--	--	
	06-08-00	--	1001	--	--	
	07-13-00	--	1001	10	--	
	08-10-00	--	1001	--	--	
	09-14-00	269	1001	10	--	
	10-12-00	--	1001	--	--	
	11-14-00	--	1001	--	--	
	12-13-00	--	1001	--	--	
	01-11-01	--	1001	--	--	
	02-16-01	--	1001	--	--	
	03-14-01	--	1001	--	--	
10291100	04-13-00	--	1001	--	--	
	05-11-00	138	1001	--	--	
	06-06-00	--	1001	--	--	
	07-12-00	--	1001	10	--	
	08-09-00	--	1001	--	--	

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		09-13-00	265	1001	10	--
		10-12-00	--	1001	--	--
		11-14-00	--	1001	--	--
		12-12-00	--	1001	--	--
		01-10-01	--	1001	--	--
		02-14-01	--	1001	--	--
		03-13-01	--	1001	--	--
	10291200	04-11-00	--	1001	--	--
		05-09-00	138	1001	--	--
		06-07-00	--	1005	--	--
		06-07-00	--	1005	--	--
		06-07-00	--	1005	--	--
		07-11-00	--	1001	10	--
		08-08-00	--	1001	--	--
		09-12-00	265	1001	10	--
		10-11-00	--	1001	--	--
		11-15-00	--	1001	--	--
		12-11-00	--	1001	--	--
		01-12-01	--	1001	--	--
		02-15-01	--	1001	--	--
		03-13-01	--	1001	--	--
	10291500	04-12-00	--	1001	--	25.0
		05-10-00	138	1001	--	130.0
		06-08-00	--	1001	--	--
		07-13-00	--	1001	10	--
		08-10-00	--	1001	--	--
		09-14-00	265	1001	10	--
		10-12-00	--	1001	--	--
		11-14-00	--	1001	--	--
		12-13-00	--	1001	--	--
		01-11-01	--	1001	--	--
		02-16-01	--	1001	--	--
		03-14-01	--	1001	--	--
	10291800	04-13-00	--	1001	--	--

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION	NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	D
	10291800	BUCKEYE C A HWY 395 NR BRI	38 15 50 N	119 16 37 W	05- 06- 07- 08- 09- 10- 11- 12-

74

10292000	SWAUGER C NR BRIDGEPORT CA	38 17 00 N	119 17 55 W	01- 02- 03- 04- 05- 06- 07-
10292100	BUCKEYE C A BRIDGEPORT RES	38 16 37 N	119 15 25 W	08- 09- 10- 11- 12- 01- 02- 03- 04- 05-
10293000	E WALKER R NR BRIDGEPORT C	38 19 40 N	119 12 50 W	06- 06- 06- 07- 08- 09- 10- 11- 12- 01- 01- 02- 03- 04- 05-
10343500	SAGEHEN C NR TRUCKEE CA	39 25 54 N	120 14 13 W	06- 07- 08- 09- 10- 11- 12- 01- 02- 03- 12-
340745116244201	HI DESERT WATER DIST RECHA	34 07 45 N	116 24 42 W	08-
373618119001101	LK MARY NR MAMMOTH LAKES C	37 36 18 N	119 00 11 W	06-
373629119010801	HORSESHOE LAKE NR MAMMOTH	37 36 29 N	119 01 08 W	06- 06-

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

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STATION NUMBER	DATE	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)
10291800	05-11-00	46	600	10.0	7.8	7.7
	06-06-00	150	603	9.4	6.9	--
	07-12-00	45	605	8.8	7.5	--
	08-09-00	9.9	604	--	--	--
	09-13-00	2.8	605	7.6	7.2	7.7
	10-12-00	12	602	9.7	6.8	--
	11-14-00	8.5	596	10.1	7.4	--
	12-12-00	11	594	10.4	7.9	--
	01-10-01	4.4	596	9.9	7.2	--
	02-14-01	14	610	9.5	7.9	--
	03-13-01	10	600	8.6	7.9	--
10292000	04-13-00	20	600	9.1	8.3	--
	05-11-00	13	600	10.9	8.3	8.0
	06-06-00	5.2	598	9.6	8.0	--
	07-12-00	3.0	605	9.1	8.0	--
	08-09-00	2.3	600	--	--	--
	09-13-00	5.1	600	8.5	7.3	7.9
	10-12-00	5.6	597	9.9	7.6	--
	11-14-00	4.4	593	10.1	7.7	--
	12-12-00	6.1	591	10.7	8.5	--
	01-09-01	6.0	591	9.6	8.5	--
	02-14-01	6.6	605	10.9	8.6	--
	03-13-01	7.3	598	9.1	8.4	--
10292100	04-11-00	6.0	605	8.7	7.5	--
	05-09-00	56	600	8.4	7.9	7.7
	06-07-00	118	600	9.3	7.0	--
	06-07-00	112	598	8.2	7.6	--
	06-07-00	91	598	7.7	7.2	--
	07-11-00	22	605	6.8	7.6	--
	08-08-00	2.0	604	7.0	7.5	--
	09-12-00	8.4	605	8.1	7.1	8.1
	10-11-00	20	597	7.6	8.0	--
	11-15-00	25	601	10.5	7.2	--
	12-11-00	27	599	10.3	7.9	--
	01-12-01	17	598	10.2	7.9	--
	01-12-01	--	--	--	--	--
	02-15-01	21	614	9.1	7.6	--
	03-13-01	29	605	9.5	7.8	--
10293000	04-12-00	136	605	8.3	8.3	--
	05-10-00	154	595	8.1	8.5	8.2
	06-07-00	208	600	7.7	8.3	--
	07-11-00	274	--	--	8.3	--
	08-08-00	244	604	6.2	8.8	--
	09-12-00	228	605	6.7	8.3	8.7
	10-11-00	70	597	7.1	7.1	--
	11-13-00	19	598	10.0	7.9	--
	12-12-00	26	596	9.4	9.0	--

	01-11-01	15	593	9.3	8.2	--
	02-13-01	22	609	8.9	7.9	--
	03-12-01	16	604	7.9	7.8	--
10343500	12-06-00	--	--	--	--	--
340745116244201	08-27-97	--	--	4.8	8.7	8.7
373618119001101	06-04-98	--	--	--	6.8	--
	06-04-98	--	--	--	5.9	--
373629119010801	06-02-98	--	--	--	6.8	7.0
	06-04-98	--	--	--	6.9	7.5

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)
10291800	05-11-00	6.47	1.44	.9	2.7	--
	06-06-00	--	--	--	--	--
	07-12-00	--	--	--	--	--
	08-09-00	--	--	--	--	--
	09-13-00	13.4	3.31	2.1	5.8	--
	10-12-00	--	--	--	--	--
	11-14-00	--	--	--	--	--
	12-12-00	--	--	--	--	--
	01-10-01	--	--	--	--	--
	02-14-01	--	--	--	--	--
	03-13-01	--	--	--	--	--
10292000	04-13-00	--	--	--	--	--
	05-11-00	10.8	3.66	2.1	8.7	--
	06-06-00	--	--	--	--	--
	07-12-00	--	--	--	--	--
	08-09-00	--	--	--	--	--
	09-13-00	11.5	3.92	2.7	11.8	--
	10-12-00	--	--	--	--	--
	11-14-00	--	--	--	--	--
	12-12-00	--	--	--	--	--
	01-09-01	--	--	--	--	--
	02-14-01	--	--	--	--	--
	03-13-01	--	--	--	--	--
10292100	04-11-00	--	--	--	--	--
	05-09-00	6.20	1.46	1.1	4.1	--
	06-07-00	--	--	--	--	--
	06-07-00	--	--	--	--	--
	06-07-00	--	--	--	--	--
	07-11-00	--	--	--	--	--
	08-08-00	--	--	--	--	--
	09-12-00	14.5	4.02	4.8	17.1	--
	10-11-00	--	--	--	--	--

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	11-15-00	--	--	--	--	--
	12-11-00	--	--	--	--	--
	01-12-01	--	--	--	--	--
	01-12-01	--	--	--	--	--
	02-15-01	--	--	--	--	--
	03-13-01	--	--	--	--	--
10293000	04-12-00	--	--	--	--	--
	05-10-00	18.5	4.33	3.5	19.1	--
	06-07-00	--	--	--	--	--
	07-11-00	--	--	--	--	--
	08-08-00	--	--	--	--	--
	09-12-00	16.4	3.70	3.0	13.4	--
	10-11-00	--	--	--	--	--
	11-13-00	--	--	--	--	--
	12-12-00	--	--	--	--	--
	01-11-01	--	--	--	--	--
	02-13-01	--	--	--	--	--
	03-12-01	--	--	--	--	--
10343500	12-06-00	--	--	--	--	--
340745116244201	08-27-97	20.5	10.8	2.8	40.5	78
373618119001101	06-04-98	--	--	--	--	--
	06-04-98	--	--	--	--	--
373629119010801	06-02-98	2.95	.49	.4	1.3	13
	06-04-98	3.54	.56	.5	1.4	17

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	ANC BICARBONATE IT FIELD MG/L AS HCO3 (00450)	ANC CARBONATE IT FIELD MG/L AS CO3 (00447)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
10291800	05-11-00	--	--	E.2	<.1	9.9
	06-06-00	--	--	--	--	--
	07-12-00	--	--	--	--	--
	08-09-00	--	--	--	--	--
	09-13-00	--	--	.5	.1	16.8
	10-12-00	--	--	--	--	--
	11-14-00	--	--	--	--	--
	12-12-00	--	--	--	--	--
	01-10-01	--	--	--	--	--
	02-14-01	--	--	--	--	--
	03-13-01	--	--	--	--	--
10292000	04-13-00	--	--	--	--	--
	05-11-00	--	--	1.6	.1	28.3
	06-06-00	--	--	--	--	--
	07-12-00	--	--	--	--	--
	08-09-00	--	--	--	--	--
	09-13-00	--	--	1.3	.2	30.4

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	10-12-00	--	--	--	--	--
	11-14-00	--	--	--	--	--
	12-12-00	--	--	--	--	--
	01-09-01	--	--	--	--	--
	02-14-01	--	--	--	--	--
	03-13-01	--	--	--	--	--
10292100	04-11-00	--	--	--	--	--
	05-09-00	--	--	.5	.1	9.9
	06-07-00	--	--	--	--	--
	06-07-00	--	--	--	--	--
	06-07-00	--	--	--	--	--
	07-11-00	--	--	--	--	--
	08-08-00	--	--	--	--	--
	09-12-00	--	--	2.5	.3	21.3
	10-11-00	--	--	--	--	--
	11-15-00	--	--	--	--	--
	12-11-00	--	--	--	--	--
	01-12-01	--	--	--	--	--
	01-12-01	--	--	--	--	--
	02-15-01	--	--	--	--	--
	03-13-01	--	--	--	--	--
10293000	04-12-00	--	--	--	--	--
	05-10-00	--	--	3.7	.3	15.5
	06-07-00	--	--	--	--	--
	07-11-00	--	--	--	--	--
	08-08-00	--	--	--	--	--
	09-12-00	--	--	1.9	.3	12.5
	10-11-00	--	--	--	--	--
	11-13-00	--	--	--	--	--
	12-12-00	--	--	--	--	--
	01-11-01	--	--	--	--	--
	02-13-01	--	--	--	--	--
	03-12-01	--	--	--	--	--
10343500	12-06-00	--	--	--	--	--
340745116244201	08-27-97	--	--	54.8	.1	11.5
373618119001101	06-04-98	24	0	--	--	--
	06-04-98	14	0	--	--	--
373629119010801	06-02-98	--	--	.2	<.1	6.6
	06-04-98	--	--	.2	.1	7.0

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION	NUMBER	DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
10291800		05-11-00	<.005	--	--	.002	.011
		06-06-00	.013	--	--	<.001	.032

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	07-12-00	<.005	--	--	.006	.029
	08-09-00	<.005	--	--	.011	.036
	09-13-00	.046	--	--	.006	.018
	10-12-00	<.005	--	--	<.007	.013
	11-14-00	.005	--	--	<.007	.008
	12-12-00	.005	--	--	<.007	.004
	01-10-01	.008	--	--	<.007	.008
	02-14-01	.035	--	--	<.007	.009
	03-13-01	--	--	--	--	--
10292000	04-13-00	.037	--	--	.045	.107
	05-11-00	.052	--	--	.038	.044
	06-06-00	.083	--	--	.035	.059
	07-12-00	.180	--	--	.056	.090
	08-09-00	.282	--	--	.060	.100
	09-13-00	.148	--	--	.045	.091
	10-12-00	<.005	--	--	E.006	.023
	11-14-00	.141	--	--	.038	.051
	12-12-00	.102	--	--	.037	.054
	01-09-01	.084	--	--	.030	.047
	02-14-01	.076	--	--	.032	.049
	03-13-01	--	--	--	--	--
10292100	04-11-00	<.005	--	--	.022	.048
	05-09-00	<.005	--	--	.007	.029
	06-07-00	.031	--	--	.005	.045
	06-07-00	.012	--	--	.005	.045
	06-07-00	.013	--	--	.006	.030
	07-11-00	<.005	--	--	.009	.029
	08-08-00	<.005	--	--	.044	.100
	09-12-00	<.005	--	--	.021	.059
	10-11-00	<.005	--	--	.013	.038
	11-15-00	.008	--	--	.008	.051
	12-11-00	.008	--	--	.007	.040
	01-12-01	.027	--	--	.013	.024
	01-12-01	.022	--	--	E.006	.040
	02-15-01	.043	--	--	.007	.023
	03-13-01	--	--	--	--	--
10293000	04-12-00	.005	--	--	.004	.031
	05-10-00	.017	--	--	.014	.038
	06-07-00	.028	--	--	.036	.073
	07-11-00	.019	--	--	.082	.140
	08-08-00	.020	--	--	.127	.180
	09-12-00	.036	--	--	.089	.145
	10-11-00	.007	--	--	E.006	.153
	11-13-00	.006	--	--	E.005	.052
	12-12-00	.015	--	--	.010	.030
	01-11-01	.009	--	--	.008	.035
	02-13-01	.014	--	--	.011	.039
	03-12-01	--	--	--	--	--
10343500	12-06-00	--	--	--	--	--
340745116244201	08-27-97	.145	.010	.066	.056	--
373618119001101	06-04-98	--	--	--	--	--
	06-04-98	--	--	--	--	--
373629119010801	06-02-98	<.005	<.001	--	<.001	--
	06-04-98	<.005	.003	--	.003	--

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	TURBID-ITY LAB HACH 2100AN (NTU) (99872)	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML) (31633)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)
10291800	05-11-00	--	--	73	38	--
	06-06-00	--	--	K180	120	--
	07-12-00	--	--	>600	380	--
	08-09-00	--	>800	K290	560	--
	09-13-00	--	--	530	K40	--
	10-12-00	--	--	100	K58	--
	11-14-00	1.2	--	41	28	--
	12-12-00	.7	--	K11	K2	--
	01-10-01	.9	--	K6	4	--
	02-14-01	--	--	K3	--	--
	03-13-01	1.2	--	K2	11	--
10292000	04-13-00	--	--	K6	55	--
	05-11-00	--	--	K2	K8	--
	06-06-00	--	--	59	91	--
	07-12-00	--	--	50	>1000	--
	08-09-00	--	68	73	K94	--
	09-13-00	--	0	250	310	--
	10-12-00	--	0	K28	160	--
	11-14-00	1.2	--	K8	96	--
	12-12-00	1.4	--	K8	55	--
	01-09-01	2.5	--	K2	88	--
	02-14-01	--	--	K1	--	--
	03-13-01	4.0	--	K1	30	--
10292100	04-11-00	--	--	K2	K4	--
	05-09-00	--	--	K13	23	--
	06-07-00	--	--	>200	300	--
	06-07-00	--	--	>300	160	--
	06-07-00	--	--	190	120	--
	07-11-00	--	--	>600	260	--
	08-08-00	--	--	K55	K71	--
	09-12-00	--	--	>600	520	--
	10-11-00	--	--	110	52	--
	11-15-00	4.6	--	37	38	--
	12-11-00	4.3	--	K7	K20	--
	01-12-01	1.9	--	K2	7	--
	01-12-01	--	--	--	--	--
	02-15-01	--	--	K2	--	--
	03-13-01	3.4	--	K1	6	--
10293000	04-12-00	--	--	<1	K2	--
	05-10-00	--	--	K2	K3	--
	06-07-00	--	--	<1	--	--

	07-11-00	--	--	K2	K13	--
	08-08-00	--	--	<1	<1	--
	09-12-00	--	--	<1	K6	--
	10-11-00	--	--	<1	<1	--
	11-13-00	10	--	<1	K2	--
	12-12-00	3.8	--	<1	<1	--
	01-11-01	5.2	--	<1	1	--
	02-13-01	--	--	<1	--	--
	03-12-01	3.5	--	K1	1	--
10343500	12-06-00	--	--	--	--	--
340745116244201	08-27-97	--	--	--	--	2.2
373618119001101	06-04-98	--	--	--	--	--
	06-04-98	--	--	--	--	--
373629119010801	06-02-98	--	--	--	--	<1.0
	06-04-98	--	--	--	--	<1.0

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UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGI
MULTIPLE STATION ANALYSES

STATION NUMBER	DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)
10291800	05-11-00	60	350	--	19	--
	06-06-00	--	--	--	--	--
	07-12-00	--	--	--	--	--
	08-09-00	--	--	--	--	--
	09-13-00	110	420	--	50	--
	10-12-00	--	--	--	--	--
	11-14-00	--	--	--	--	--
	12-12-00	--	--	--	--	--
	01-10-01	--	--	--	--	--
	02-14-01	--	--	--	--	--
	03-13-01	--	--	--	--	--
10292000	04-13-00	--	--	--	--	--
	05-11-00	60	370	--	17	--
	06-06-00	--	--	--	--	--
	07-12-00	--	--	--	--	--
	08-09-00	--	--	--	--	--
	09-13-00	70	620	--	15	--
	10-12-00	--	--	--	--	--
	11-14-00	--	--	--	--	--
	12-12-00	--	--	--	--	--
	01-09-01	--	--	--	--	--
	02-14-01	--	--	--	--	--
	03-13-01	--	--	--	--	--
10292100	04-11-00	--	--	--	--	--
	05-09-00	60	560	--	14	--
	06-07-00	--	--	--	--	--

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California Regional Water Quality Control Board
Lahontan Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

JEU

May 8, 2001

Cathy Ricioli
Kingsbury Middle School
P.O. Box 648
Zephyr Cove, NV 89448

BURKE CREEK BIOMONITORING DATA

Thank you for your letter to Lauri Kemper of Regional Board staff, including the results of your Kingsbury Middle School class's sampling of invertebrates in Burke Creek. Ms. Kemper has sent the data to me for inclusion in the record of California's 2001-2002 water quality assessment update. The data assembled by the Lahontan Regional Board, including information contributed by the public, will be sent on to the California State Water Resources Control Board in Sacramento. The State Water Board will summarize statewide information in a report to the U.S. Environmental Protection Agency (EPA) in early 2002, and the EPA will eventually summarize information from all states in a report to Congress. "Citizen monitoring" is a very important part of California's water quality assessment process.

Lake Tahoe is an interstate lake with a large number of tributary streams in both California and Nevada. It is important to have monitoring data as many streams as possible in both states, in order to understand impacts on the lake as a whole, and the similarities and differences in the biology and chemistry of individual creeks. Within the next few years, the Lahontan Regional Board will be developing water quality standards which define a "healthy" invertebrate stream community. We will keep your class's data on file for comparison with other biomonitoring data for the Lake Tahoe Basin.

Please contact me at (530) 542-5462 if you have any questions about our water quality assessment update.

Sincerely,

Judith E. Unsicker

Judith E. Unsicker,
Environmental Specialist IV (Specialist)

cc: Larry Benoit, Tahoe Regional Planning Agency

JEU/shT:burkecreek.doc
[Basin Plan, Water Quality Assessment]

United States Department of Agriculture | Forest Service | Angeles National Forest Supervisor's Office | 701 N. Santa Anita Ave. Arcadia, CA 91006-2725 626-574-1613 Voice 626-574-5209 TTY

File Code: 2500

Date: May 9, 2001

Judith Unsicker
Lahontan Regional Water Quality
Control Board (Region 6)
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

Re: Response to Request for Water Quality Information

Dear Ms. Unsicker,

This letter is in response to your March 14, 2001 request for data and information on the quality of surface waters of the State. The Southern California Province, including the Los Padres, Angeles, San Bernardino, and Cleveland National Forests are currently in the process of revising our four Forest Land and Resources Management Plans (FLRMP). During this effort we will be assembling and analyzing available water quality data and watershed condition information to define water resource goals, objectives and, as necessary, develop new standards and guidelines to protect and maintain riparian and water resources.

In addition to our on-going work on the FLRMP revisions, this past year the Forest conducted Watershed Condition Assessments on all 22 of our 5th field watersheds. This effort included a Geographic Information Systems (GIS) assessment of road interactions on the hydrology, soils and geology within each 5th field watershed. The assessment also included professional judgment ratings of indicators of watershed condition such as floodplain connectivity, water quality, water quantity, stream corridor vegetation, channel stability, and aquatic integrity.

We are very interested in working closely with the State Water Resources Control Board (SWRCB) in your efforts to revise the list of waters considered by the State to be impaired (*not attaining water quality standards*) now and during the public process to be conducted during December 2001 through March 2002. We would like to meet with you in the near future to discuss this recent solicitation of water quality information and explain our processes and timelines for completing the FLRMP revisions.

We look forward to working with you in the protection and maintenance of the water resources on the Angeles National Forest. Please contact Vic Andresen, Forest Hydrologist, at (626) 574-5268 for further information.

Sincerely,

JODY COOK
Forest Supervisor

cc: M. Dumpis

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KEEP TAHOE BLUE

League to Save Lake Tahoe
www.KeepTahoeBlue.org

955 Emerald Bay Road
South Lake Tahoe, CA 96150
(530) 541-5388 • Fax (530) 541-5454

P.O. Box 7890 • 600 N. Lake Blvd
Tahoe City, CA 96145
(530) 584-1660 • Fax (530) 584-1663

May 15, 2001

Judith Unsicker
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

RE: Water Quality Information Relative to Federal Clean Water Act Section 303(d)

Dear Ms. Unsicker,

The League to Save Lake Tahoe appreciates the opportunity to submit data and information on the quality of surface waters within the Lake Tahoe Basin. The League to Save Lake Tahoe is a 4,500 member non-profit organization that has been dedicated to the preservation of Lake Tahoe's fabled clarity for more than forty years. We are deeply concerned about the quality of water entering into Lake Tahoe. Despite the existence of the regional Nondegradation Objective, regional BMP requirements, Lake Tahoe's special designation as an Outstanding National Resource Water, and specific mention of the need to "preserve the fragile ecology of Lake Tahoe" in Section 114 of the federal Clean Water Act, the clarity of Lake Tahoe continues to decline.

Clearly, Tahoe's current 303(d) listing is warranted and the League looks forward to assisting in the development of Lake Tahoe's Total Maximum Daily Load (TMDL) Report and Implementation Plan. The development of this program will have great consequence to the future management of Lake Tahoe and will, no doubt, pose a difficult challenge, particularly given the stated objective of completing TMDLs for all 303(d) listed water bodies in the Basin by 2007. However, the League is dismayed by the fact that despite a sizable body of evidence to indicate otherwise, only four creeks are currently 303(d) listed in the Lake Tahoe Basin and one of these creeks is being considered for de-listing.

Given Lake Tahoe's unique status, regulatory framework, and special protection as an ONRW, the League feels very strongly that a specific protocol needs to be developed and presented for the Lake Tahoe TMDL Report. Of specific concern is the allocation of non-point sources of pollutants entering the lake, and the degree of specificity that will be achieved in that allocation process when so few tributaries will themselves

have a TMDL report developed. The League requests that Lahontan provide an interpretation of the "tributary rule" relative to this process and to the Lake Tahoe TMDL Report.

To help clarify this concern, please refer to the most recent Annual Water Quality Report published by the Tahoe Regional Planning Agency in September 1999. This report states, "Reducing the amount of nutrient and sediment loading to the pelagic and littoral zones (of Lake Tahoe) starts with reducing nutrient and sediment contributions in tributaries. Tahoe Research Group conducted bioassays with tributary water, soil water, and precipitation and found that the tributary water stimulated phytoplankton primary productivity to a greater extent than soil water or precipitation. This underscores the need to reduce nutrient and sediment loading to the tributaries before the pelagic and littoral zones of Lake Tahoe can be improved." (Page 22) Without allocating to specific sources within these tributary watersheds, as opposed to allocating a specific load to each of Tahoe's tributaries, it is extremely doubtful that the objective of this process can be accomplished.

Onsite source control is the most effective form of mitigation for increased nutrient and sediment loading into Lake Tahoe and thus the best approach for dealing with the sediment and nutrient impairment of the Lake. Source identification and allocation of nutrient and sediment loading must occur at a fine scale within tributary watersheds. This is particularly true for watersheds that have been disturbed and/or urbanized.

Again referring to the September 1999 Annual Water Quality Report, data collected since 1980 indicate chronic annual violations of state phosphorous and nitrogen standards. This report also identifies numerous additional violations of state standards for biologically available iron and total suspended sediment over the same time period. The data used for this report was collected by the collaborative effort of the Lake Tahoe Interagency Monitoring Program (LTIMP) which includes: Tahoe Research Group from the University of California Davis, U.S. Geological Survey, U.S. Forest Service, California Department of Water Resources, California State Water Resources Control Board, Lahontan Regional Water Quality Control Board, Nevada Division of Environmental Protection, and the Tahoe Regional Planning Agency. All quality assurance procedures were developed by LTIMP and are explained in the Annual Water Quality Report.

The water quality data presented in this report provides more than sufficient justification for 303(d) listing of all five LTIMP streams (Trout Creek, Upper Truckee River, Blackwood Creek, Ward Creek and General Creek) monitored on the California side of the Lake Tahoe Basin for: nutrients (phosphorous and nitrogen), metals (total biologically available iron), and/or total suspended sediment. Recognizing that Blackwood and Ward Creeks are currently 303(d) listed, this sizable body of data will result in the addition of only three water bodies to the 303(d) list on the California side of the Basin. However, the Lake Tahoe Basin has a large collection of water quality data and assessment information that has been generated since July of 1997 and an even greater collection of information predating the cutoff date of July 1997.

Although the League to Save Lake Tahoe does not perform water quality monitoring, we are aware of numerous reports, monitoring data, and assessment information from numerous agencies. These agencies include but are not limited to: Lahontan RWQCB, U.S. Geological Survey, Tahoe Regional Planning Agency, University of California Davis, University of Nevada

Reno, U.S. Forest Service, City of South Lake Tahoe, Placer and El Dorado Counties, U.S. Environmental Protection Agency, and the Nevada Department of Environmental Protection. Unfortunately, this information is not readily available and thus was not included in this letter. If Lahontan RWQCB does not receive a written response to your solicitation of data from these agencies, the League would urge that a specific letter of solicitation be sent to each of these entities. The collective body of this information represents the best science currently available, and as such, should be reflected in an updated 303(d) list.

It is the League's strong belief that the collection and review of this information will result in 303(d) listing of virtually all of Lake Tahoe's sixty-three tributaries. This belief is supported by both data and the regulatory objectives of the Water Quality Control Plan for the Lahontan Region which states: "Achieving water quality objectives for tributary streams will also help to protect Lake Tahoe. Tributary objectives are in addition to, not a substitute for the standards for Lake Tahoe. Despite attainment of the standards for a stream, further reductions in the nutrient concentrations in the stream may be required so that the **total nutrient load from all streams is reduced** enough to prevent deterioration of Lake Tahoe." (Emphasis added, Page 5.1-5) These objectives cannot be met if specificity of source identification and allocations does not, at a minimum, mimic the TMDL process and resulting Implementation Plan for each tributary to Lake Tahoe.

To further clarify this assertion, please reference the Water Body Fact Sheet for Lake Tahoe, developed by the Lahontan RWQCB in November of 1994. This fact sheet outlines twenty-seven concerns related to the impairment of Lake Tahoe. Of these concerns, twenty are related to specific tributaries or wetlands of Lake Tahoe that are identified as threatened or impaired. This one report lists tributary wetlands and nine tributaries to Lake Tahoe as having measured impairment resulting predominantly from more than one source.

Undoubtedly, the collection of all pertinent data and information will add to this list of impaired water bodies. For example, Lahontan RWQCB and the US Forest Service have collected water quality data on the Upper Truckee River for fecal coliform bacteria for several years. These data indicate chronic fecal coliform violations along the Upper Truckee River in addition to the violations of state standards documented in the 1999 Annual Water Quality Report.

Apart from the additional 303(d) listings that will be required as a result of this information and data collection, additional impairments of Lake Tahoe itself should be adopted, which in turn should effect source identification and allocation to each of Lake Tahoe's tributaries. The Water Quality Control Plan for the Lahontan Region identifies additional water quality objectives for the Lake Tahoe Hydrologic Unit (Page5.1-10) apart from the regionwide objectives that currently define Lake Tahoe's impairment.

Again referencing the 1999 Annual Water Quality Report, as well as, the recently completed Lake Tahoe Watershed Assessment, data is currently available to require 303(d) listing of Lake Tahoe for Algal Growth Potential, Biological Indicators, Clarity, Plankton Counts, and Transparency. In essence, a TMDL should be developed for all of the factors and constituents causing the eutrophication of Lake Tahoe, on a watershed basis. This type of broad scale analysis coupled with fine scale source identification and allocation within subwatersheds appears to be

the most plausible approach to meet the Water Quality Objectives of the Water Quality Control Plan, the intent of the TMDL process, and ultimately the assimilative capacity of Lake Tahoe. Without such an analysis, such a large margin of safety will have to be provided that it will be difficult to explain to opponents of this process and will fail to meet the objectives and intent of this process.

Thank you again for the opportunity to provide input at this time. The League looks forward to assisting in this process. It is our sincere hope that this process and the resulting Implementation Plan will provide much needed direction to the development of the next twenty-year Regional Plan for the Lake Tahoe Basin and ultimately the preservation of Lake Tahoe's incredible beauty for generations to come.

Sincerely,

Rochelle Nason
Executive Director

Dave Roberts
Assistant Executive Director

cc: Tahoe Regional Planning Agency, Larry Benoit
U.S. Environmental Protection Agency, Jane Freeman
Nevada Department of Environmental Protection, Tom Porter

REFERENCES

Murphy, Dennis D.; Knopp, Christopher M., editors. 2000. Lake Tahoe Watershed Assessment Volume I. Albany, CA; Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture.

Lahontan Regional Water Quality Control Board. 1994. Water Body Fact Sheet

Tahoe Regional Planning Agency. 1999. Regional Plan for the Lake Tahoe Basin. Annual Water Quality Report.

From: "Pat Eckart" <paeckart@qnet.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: Tue, May 15, 2001 1:52 PM
Subject: Lake Mary and MTBE

To: Judith Unsicker, Lahontan RWQCB (South Lake Tahoe)

From: Pat Eckart (former Mammoth Community Water District Board member, 1994-1998)

Re: Lake Mary and MTBE (1999, 2000)

Dear Judith:

Assuming that MCWD forwards its water quality records to the Lahontan RWQCB, you probably already have the following information. However, if not, I believe it is important enough to pass on to you. I apologize for putting this off until the last-minute.

According to the O&M report in the MCWD Board packet for the October 19, 2000 Board meeting, MTBE was detected in Lake Mary (Mammoth Lakes water supply). Two samples from the lake registered 7.3 and 6.4 ppb while the California primary maximum contaminant level was 13 ppb. It was assumed that motorboats on the lake during the summer were the source of this contamination. MTBE was also detected the prior year in Lake Mary in "small concentrations," as noted in the O&M report for the November 18, 1999 MCWD Board meeting.

I don't recall seeing MTBE included in the annual Water Quality report, but I may have missed it.

Pat Eckart
P.O. Box 7525
Mammoth Lakes, CA 93546
760-934-3726

BISHOP TRIBAL COUNCIL

Post-it® Fax Note 7671	Date 5/14/01	# of pages ▶ 2
To Judith Unsicker	From Brian Adkins	
Co./Dept. Lahontan	Co. Bishop Tribe	
Phone # 530-542-5400	Phone # 760-873-3665	
Fax # 530-544-2271	Fax # 760-873-4614	

Data to follow in mail. Mailed 5/15/01
B.

May 15, 2001

Judith Unsicker
Lahontan RWQCB
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

RE: Water data contribution required by CWA Section 303(d)

Dear Ms. Unsicker,

Per your request please find enclosed two hard copies and one electronic copy of water data collected by the staff of the Environmental Management Office, Bishop Paiute Tribe for their Water Quality Control Program for the period March 8, 2000 to December 19, 2000. Also enclosed, per your request, is a hard copy of quality assurance program plan sans appendices and a table of metadata.

If you have any questions please contact the following for questions:

Brian Adkins
Environmental Specialist
Bishop Paiute Tribe
50-A Tu Su Lane
Bishop, CA 93514

760-873-3665 phone
760-873-4614 fax
bishopemo@telis.org email

We appreciate the sharing of data that you have extended to the Tribe in the past. We look forward to finding ways to work together in the future.

Sincerely,

Brian Adkins
Environmental Specialist

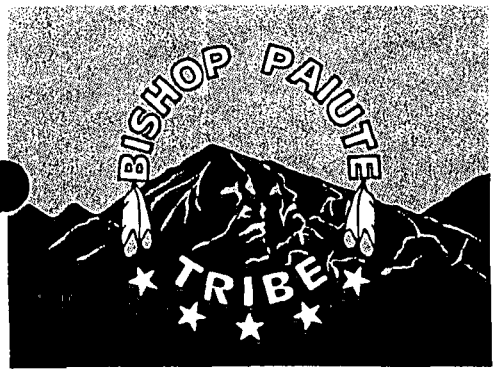
CC: Alan Spoonhunter, Environmental Manager
File

Metadata to accompany Bishop Paiute Tribe Water Quality Control Program Data (time period March 8, 2000 to December 19, 2000)

		Schedule*				
		# of samples	Stream stage	Chemical	Bacteria	Physical/Insitu
Sample Station/Well	Water body					
SW-1	Downstream (eastern) Reservation Boundary, South Fork Bishop Creek	1	bi-daily	quarterly	quarterly	monthly
SW-2	Downstream (northern) Boundary, North Fork, Bishop Creek	1	bi-daily			
SW-3	Upstream (western) Boundary, North Fork Bishop Creek	1	bi-daily			
SW-4	Upstream (western) Boundary, South Fork Bishop Creek	1	bi-daily			
MW-1	100-ft monitoring well, unconfined	1	bi-daily			
MW-2	400-ft monitoring well, artesian	1	bi-daily			

*Note: Data included was collected at this frequency within the timeperiod of March 8, 2000 to December 19, 2000

** Detection limits can be found in Table 5 of the QAPP (July 30, 1999)



BISHOP TRIBAL COUNCIL

May 15, 2001

Judith Unsicker
Lahontan RWQCB
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

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Brian Adkins
Environmental Specialist

CC: Alan Spoonhunter, Environmental Manager
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** Detection limits can be found in Table 5 of the QAPP (July 30, 1999)

BISHOP PAIUTE TRIBE
BISHOP RESERVATION

QUALITY ASSURANCE PROJECT PLAN
Bishop Paiute Tribe
Water Quality Control Program

July 30, 1999

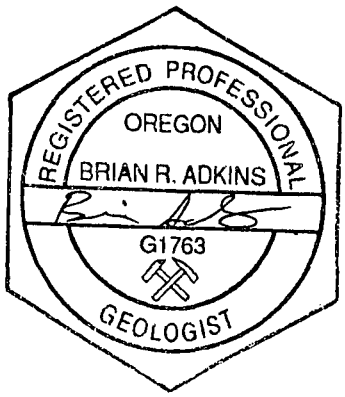
prepared by:

Environmental Management Office
Bishop Paiute Tribe
Paiute Professional Building
50-A Tu Su Lane
Bishop, CA 93514

Phone: 760-873-3076
Fax: 760-873-873-4143

on

July 30, 1999



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APPENDECIES

DISTRIBUTION LIST

Monty Bengochia, Chairman, Bishop Paiute Tribal Council
Bishop Paiute Tribe
Paiute Professional Building
50 Tu Su Lane
Bishop, CA 93514
(760) 873-3584 Office; (760) 873-4143 FAX

Brian Adkins, R.P.G., Project Coordinator
Bishop Paiute Tribe
Environmental Management Office
Paiute Professional Building
50 Tu Su Lane
Bishop, CA 93514
(760) 873-3665 Office; (760) 873-4143 FAX

Vance S. Fong, Chief, Quality Assurance Program, PMD-3
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105-3901
(415) 744-1492 Office; (415) 744-1476 FAX

Kristin ~~Guilette~~ Gullatt, Project Officer, Water Division, ~~WTR-4~~ WTR -10
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105-3901
(415) 744-1945 Office; (415) 744-1078 FAX

INTRODUCTION

The Bishop Tribal Council recognizes that the water resource has cultural, spiritual and economic values that guide the proper use, management, and protection of that resource; and that clean water is vital to the health and welfare of the Bishop Paiute Tribe. They wish to provide the general council with an assurance that their water resource will always be protected. The priority is to obtain the necessary resources to work toward making this assurance. The Council's overall goal is to develop a comprehensive Water Quality Control Program.

A PROJECT MANAGEMENT

A1 TITLE AND APPROVAL SHEET

Please see title and approval sheet

A2 TABLE OF CONTENTS

Please see table of contents

A3 DISTRIBUTION LIST

Please see distribution list

A4 PROJECT TASK ORGANIZATION

An organizational chart indicating project organization is found in Figure 1.

The Environmental Specialist, Brian Adkins will oversee the tribal Water Quality Control Program, perform water sampling and measurement activities, perform QA/QC checks and report to the Environmental Manager, Alan Spoonhunter. The Water Resources Specialist, Robert Robinson will assist in performing water sampling and measurement activities. The Environmental Manager, Alan Spoonhunter, will assist in performing water sampling and measurement activities, and is responsible for making recommendations to the Tribal Environmental Agency (TEPA). The Water Lab Director, Marvin Moskowitz will be the Water Quality Control Program Quality Control Officer (QA/QC Officer) and will conduct periodic audits of field sampling events and data management activities. The Interm TEPA Chair, Monty J. Bengochia reports to the Tribal Chair, Monty J. Bengochia and Tribal Council, who then informs Tribal Members.

Special Note

The Environmental Management Office (EMO) would like to have an independent QA officer. Because of constraints it is unable to designate one person for independent oversight. To remedy this problem the Environmental Specialist will perform a preliminary in-house QA/QC review of the data. This will be given a secondary and final review from the Water Quality Control Program Quality Control Officer (QA/QC Officer) who will be a competent person independent of the EMO.

A5 PROBLEM DEFINITION/BACKGROUND

The Bishop Paiute Tribe is developing a Water Quality Control Program with funding from the EPA Clean Water Act Section 106 program. The purposes of monitoring are to support the following objectives:

- Support the tribes long range goals of developing tribal water quality standards through the collecting of baselevel data.
- Assess the water quality of the reservation

One shallow (100 ft) ground-water monitoring well has been installed (MW-1) and sampled on 2-17-99 (Porter, 1998). This was designed to provide water quality and water level data in the shallow unconfined aquifer underlying the reservation. One deep ground-water monitoring well (400 ft) (MW-2) was installed in May, 1999. This well is providing water quality and water level data in a deep confined aquifer underlying the reservation. Four surface monitoring sites have been located at points where surface water flows onto and off of the reservation. Here physical measurements are taken as well as samples of water chemistry, microbiological organisms and benthic macroinvertebrates.

A6 PROJECT/TASK DESCRIPTION & SCHEDULE

The Bishop Paiute Tribe is located in east-central California in northern Owens Valley on the east side of the Sierra Nevada Mountains (Figure 2). The reservation contains 875 acres of land. Two forks of one stream, Bishop Creek, flow through the reservation. A 35-acre wetland exists in the southwest corner of the reservation (Figure 3). The region is arid and receives an average of 6 inches of precipitation per year.

The reservation is situated on the distal end of an alluvial fan, which emanates from Bishop Creek canyon in the Sierra Mountains. The headwaters of Bishop Creek are in the mountains west of the reservation. After flowing onto the valley floor of Owens Valley, Bishop Creek divides into two distributory channels which both flow in an easterly direction through the reservation ultimately reaching the Owens River. Owens River is a source of drinking water for the City of Los Angeles. The flow of Bishop Creek is regulated mainly by snowmelt runoff and upstream dams and diversions. Some of the primary tribal uses of the stream water include irrigation water, swimming, and fish and wildlife habitat as well as cultural uses. Groundwater serves as the sole source of drinking water for the tribe. The general ground-water flow direction is from west to east.

In summary, this Plan defines the monitoring program on the reservation. Surface water and ground-water will be monitored for measurements outlined in Table 1 at a frequency outlined in a schedule detailed in Table 2 at locations indicated in Figure 3.

Both objectives of the program will be achieved through sampling of surface waters at both upstream and downstream sites of each fork of Bishop Creek- (Figure 3). Ground water monitoring wells will be sampled at the locations shown in Figure 3. New sampling stations may be added to the sampling schedule (Table 2) as the need for data arises.

Any variance of the sampling plan is subject to the approval of such variance by the EPA Quality Assurance Office. Modifications to the approved plan will be documented.

Project self-assessments will be conducted on an annual basis. The procedure for these is outlined in section C1.

A7 QUALITY OBJECTIVES AND CRITERIA FOR MEASUREMENT DATA

A7.1 Purpose/Background

One of the purposes of collecting data is to support the tribe's long-range goals of developing tribal water quality standards. To meet this goal, the first objective of the Quality Assurance Program Plan is to complete baseline water quality data in order to document normal levels of environmental parameters. A second goal of this monitoring is to be able to assess the quality of reservation waters. To meet this goal, the second objective of this Quality Assurance Program Plan is to identify the tribal waters that are impaired with respect to their designated uses. The assurance of data quality indicators is also essential to the program's effectiveness in achieving these goals.

A7.2 Data Quality Objectives

Data quality objectives are outlined in Tables 3-4 for the objectives/problems outlined below:

Objective/Problem A: What are the baseline conditions of selected water quality parameters in the natural navigable tribal surface waters and groundwaters?

Some water quality standards will be developed using baseline (natural) conditions. Using a turbidity criteria as an example: Increases in turbidity shall not exceed natural levels by more than 10 percent. The answer to problem A will be natural turbidity levels measured through the year.

Objective/Problem B: What reaches of the stream of the natural navigable tribal surface waters are impaired with respect to their designated uses. What groundwater is impaired with respect to their designated uses.

To identify impairment of tribal waterbodies water, laboratory analyses will be compared against water quality standards. As of the date of this report there are no water quality standards on the Bishop Reservation. In order to evaluate the health of the streams we therefore will compare the field and laboratory results to downstream standards of the State of California (State of California, 1994).

B MEASUREMENT/DATA ACQUISITION

B1 SAMPLING PROCESS DESIGN (EXPERIMENTAL DESIGN)

Surface water

Surface water will be monitored to 1) establish a set of baseline water quality data for the surface waters of the reservation and 2) monitor and evaluate the water quality of surface waters that flow onto and off of the reservation. Both in-situ physical data and laboratory generated water quality data are needed in order to predict long term changes in surface water supply and water quality. Initially, a wide range of analytes will be examined (Table 2).

B1.1 Physical/Chemical/Biological Sampling (PCB)
In-situ physical measurements are being taken bidaily and monthly. General physical, major cations, major anions, nutrients and selected trace metals and inorganics as well as biological samples (bacteria) will be taken four times a year (quarterly) (Table 2) in specified locations (Figure 3) in order to evaluate the inter-seasonal variability. Samples will be continued to be taken at this intensity for at least one year. After sufficient data has been collected to characterize baseline conditions the sampling intensity will be lessened to twice a year and eventually to once a year per parameter when sequential analyses render non detectable values. Sampling of benthic macroinvertebrates (bioassessment), with associated habitat evaluation activities, will take place on an annual basis.

All measurements and samplings above are critical i.e., required to achieve project objectives.

B1.2 Benthic MacroInvertebrate Sampling (BMI)

The Non-Point-source Sampling design of the California Proticol will be used. These SOPs have been incorporated into Tribal Benthic Macroinvertebrate Standard Operating Procedure Manual (Appendix A) - hearafter referred to as SOP (Appendix A). Samples will be taken once per year at the "index period" in late Summer (Table 2). Standard method and gear will be used per the California Proticol/Tribal SOP. The objective of the selected design is to monitor the ambient water quality conditions. The sampling sites were located adjacent to the surface water monitoring sites in order to serve the same objectives as the surface water sites and to allow comparison between PCB sampling and BMI sampling.

B1.3 Guidelines Used to Select Sampling Sites

Indicator sites will be located at upstream and downstream locations on the reservation to date data in support of the overall QAPP objectives listed in section A5.

Reference sites will be minimally impaired, representative and comparable to other sites by way of habitat. They will be located within the same ecological region as the indicator sites. The reference site will be within the same ecoregion, size class, and stream type (width, depth, gradient) as the indicator sites. Permission must be obtained before performing sampling activities off the reservation.

B1.4 Habitat Characterization

This assessment will identify constraints of the attainable potential of the site, assist in the selection of appropriate sampling stations, and provide basic information for interpreting bioassessment results. Standardized field data sheets will be used as listed in SOPs (Appendix A). Only personnel having received appropriate training will be involved in habitat characterization activities. This requirement is necessary to minimize variability in the final conclusions.

B1.5 Sampling Period

The index period will be in early September. This index period was chosen because a higher proportion of the BMIs are adult at this time, thus larger and thus easier to identify. This time period is during low flow conditions which allows for both ease of sampling and more accurate identification of yearlong riffle habitat. Additionaly, this time period is several weeks ahead of when leaves start to fall. Such allochthonous material serves only to increase sample volumes and reduce the sorting of the BMIs in the lab.

B1.6 Documentation

Field data sheets (SOP, Appendix A) should be filled out completely and accurately to provide a record in support of the survey and analysis conclusions. Abbreviations commonly used in documentation should be standardized and defined to decrease data manipulation errors.

Each sample collected should be documented by assigning a unique sample identification number as detailed in SOP (Appendix A).

The Environmental Specialist and QC/QC Officer will keep complete and permanent records of all conditions and activities that apply to each individually-numbered sample.
All field and laboratory data sheets should be dated and signed by the individual doing the sampling and analyst, respectively; taxonomic reference documents should be approved and noted. Notebooks, data sheets, and all other records that may be needed to document the integrity of the data should be archived at study completion and kept permanently filed in a safe and fire-proof location. Records and voucher samples should be maintained at least 3 years. Archived records are the responsibility of the Environmental Specialist.

B1.7 Replication

Three samples will be randomly selected from each sample reach. In effect this amounts to two replicates per sample site. By selecting three samples per reach a standard deviation can be calculated for a measure of precision as opposed to simply a relative percent difference/similarity.

B1.8 Method and Gear Selection

Gear selection is identified in SOPs (Appendix A).

B1.9 Level of Effort (LOE)

A consistent level of effort will be employed in sampling of BMIs and habitat assessment. Both activities will require two trained personnel. The BMI SOP Manual outlines time requirements for the sampling of the BMIs.

Ground-water

Ground water is being monitored to 1) establish a set of baseline water quality data for the groundwaters of the reservation and 2) monitor and evaluate the water quality of ground waters on the reservation. Both in-situ physical data and laboratory generated water quality data are needed in order to predict long term changes in ground-water supply and water quality. Initially, a wide range of analytes will be examined (Table 2).

In-situ water level measurements are being taken monthly. Initially, chemical samples will be taken two times a year (Table 2) of the ground waters in specified locations (Figure 3). Samples will continue to be taken at this intensity for at least two years in order to capture the inter-annual variability. Initially, a wide range of analytes will be examined (Table 3). After sufficient data has been collected to characterize baseline conditions the sampling intensity will be lessened to perhaps once a year per parameter if sequential analysis renders non detectable values. At one

well (MW-1) water level measurements will be taken continually via an in-situ pressure transducer/data logger. All measurements and samplings above are critical i.e., required to achieve project objectives.

B2 SAMPLING METHODS REQUIREMENTS

Specific sample collection procedures can be found in tribal standard operating procedures (SOPs) located in Appendix A. Methods, detection Limits, sampling and handling requirements are listed in Table 5. Sample container decontamination and preparation will follow guidance from Title 40, Code of Federal Regulations, Part 136, July 1, 1998 edition.

B3 SAMPLE HANDLING AND CUSTODY

B3.1 General Sample Handling and Custody Considerations

Samples, other than in-situ measurements, will be identified by a sample tag/label. Samples will be labeled in the field at the sample location. Identification labels will include the following information:

1. Sample identification number (A number assigned by the project coordinator)
2. Sample Time (Military) of collection and Sample Date (Month/Day/Year)
3. Sampler's name
4. Preservation method (Type of method used; i.e., pH control, chemical addition, the used of amber and opaque bottles, refrigeration, filtration and freezing (Table 5).
5. Laboratory ID #

When in-situ measurements are made, the data will be recorded directly in logbooks or field sample record books with identifying information (project number, station number, date, time, and sampler(s) in accordance with standard operating procedures (SOPs). All data will be recorded in pen with archival quality (acid-free), black ink.

Chain-Of-Custody (COC) procedures will be an integral part of the Bishop Paiute Tribe Water Quality Control Program. A COC form will accompany the samples at all times. The sampler will sign off for each sample at each storage location and seal the COC form inside the shipping container at the time of shipment to the contract lab. Samples will be placed in an iced cooler,

and sealed with appropriate shipping tape. Upon receipt by the lab, the receiver will sign the COC form and return it to the EMO staff of the Bishop Paiute Tribe. A copy of the final COC form will accompany the data results in the report from the laboratory. A copy of the Chain-Of-Custody record is included in Appendix H. Form(s) will be completed and delivered with the samples for each laboratory. Multiple coolers delivered to the laboratories will each contain forms.

The Chain-Of-Custody form(s) will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. The site sampling personnel and personnel delivering the samples will sign the forms.

The laboratories will be notified when samples will be delivered and after sampling they will be contacted to confirm that the delivery schedule time will be met. A fax containing the following information will be sent to the laboratories after samples are collected:

1. Sampler's name
2. Name and location of the site
3. Total number(s) of samples
4. Delivery date and estimated time of arrival
5. Irregularities or anticipated problems associated with the samples
6. Whether additional samples will be sent or if this is the last shipment.

B3.1 Sample Handling and Custody Considerations for BMI

After removing only the larger rocks devoid of any BMIs, the remaining volume of the sample, will be collected and transported to the laboratory. BMI samples will be preserved in the field, labeled and transported to the laboratory as outlined in the SOP (Appendix A). The exact condition and ambient conditions associated with sample collection will be maintained in the EMO surface water field notebook, and the field collection data sheets.

Chain-of-custody (COC) forms will be completed prior to transfer to the sample repository. Signatures will be required of Tribal staff to relinquish custody of samples to shipper, or laboratory personnel or to another staff member. To promote sample tracking, sampling staff should relinquish samples to another member of the EMO staff. The original signed COC forms must accompany the samples at all times until the samples are destroyed. Copies of the COC forms should be made by the person reliquishing the samples. This copy is to be kept in the appropriate data file along with all data from the sampling event.

Bishop Paiute Tribe Environmental Laboratory personnel removing or replacing samples from/to this repository for the purpose of analysis in the aforesaid Laboratory must make an entry into the Environmental Laboratory Logbook located physically inside the laboratory. This entry must include sample#, date, name, purpose of deposit/removal.

The repository will be a secured area accessable only to laboratory personnel. This area will be locked and ventilated to the outside. Damaged and unusable samples will be disposed of in an appropriate manner. Disposal will be documented. Damaged and usable samples will be documented and transferred to a new container, if possible and necessary. The Project Manager, the Environmental Specialist, will be notified immediately of any damaged or disposed samples. Samples, reference, and voucher specimens will be stored after completion of analysis in accordance with **Section** _____ or until instructed otherwise by the Project Manager, the Environmental Specialist. Reference or voucher specimens will not be stored with samples.

B4 ANALYTICAL METHODS REQUIREMENTS

B4.1 General Guidelines Regarding Analytical Methods Requirements

A list of analytical methods that may be used is found in Table 2 and Table 5. Details of these methods can be found in the laboratory SOPs in Appendix C. Only standard methods will be used in the Bishop Paiute Tribe Water Quality Control Program.

B4.2 BMI Sample Laboratory Processing

The initial or primary sample processing will include sorting, subsampling, and re-sorting checks (to verify repeatablity). All primary sample processing will be performed by staff of the Environmental Management Office of the Bishop Paiute Tribe at the Bishop Paiute Tribe Environmental Laboratory (BPTEL). Secondary or final phase processing will include taxonomic identification and verification procedures, tabulation, enumeration and measurements. The secondary phase will include calculation of metrics and indices. All secondary processing will be performed by a professional contract laboratory.

Sample Acceptance- Samples will be formally accepted into the Bishop Paiute Tribe Environmental laboratory (BPTEL) by signing the Chain-of-Custody form. Laboratory personnel will then open each jar, inpect their labels, link it to the sample identification number on the COC. Any problems with sample identification should be resolved at this time. Sample identification numbers and sample descriptions for each sample should be recorded

into the Laboratory Log Book. Finally, place samples into the BMI sample repository for storage until they can be further processed. The COC, Physical/Habitat Forms, and CBW forms will be placed in a file located in a safe place within the laboratory room.

B4.3 Primary Phase Sample Processing

B4.3.1 Subsampling (picking)

300+ organisms will be subsampled from each sample per methods outlined in the SOP (Appendix A). All subsampling will be conducted by Tribal staff at BPTEL. During training of tribal staff interlaboratory taxonomic validation, at this stage, will consist of each sample residual being checked by the Environmental Specialist for missed specimens (under-recovery). The subsampling (picking) error will be noted on benchsheets and in logbook and reported along with the final data.

In addition, 10% of all sample residuals will be submitted to a professional contract laboratory for validation of subsamples. Objectives for residual validation are contained in the SOP (Appendix A). The subsampling (picking) error will be reported along with the final data from the professional contract laboratory.

B4.3.2 Sorting

All BMI will be sorted to the order level according to methods outlined in the SOP. All sorting will be conducted by Tribal staff in the BPTEL. The use of an expert confirmed reference collection will be used by sorters in addition to taxonomic keys. Internal QC checks will be frequent until it is clear that the sorter knows what he/she is looking for (Section B5). During training of tribal staff interlaboratory taxonomic validation at this stage will consist of each sample residual being checked by the Environmental Specialist for missed specimens (under-recovery). The sorting error will be noted on benchsheets and in logbook and reported along with the final data.

Intralaboratory taxonomic validation will be performed by the professional contract laboratory. The identification error will be reported along with the final data from the professional contract laboratory.

B4.4 Secondary Phase Sample Processing

B4.4.1 Taxonomic Identifications, Verification Procedures

BMIs will be identified and validated down to the current standard level of effort (CAMLnet Short List of Taxonomic Effort, Table 8) by a professional contract taxonomist with expertise in the BMIs of the region, as indicated by the California State Bioassessment Procedures. All questionable taxonomic identifications should have a post-determined level of uncertainty identified. The professional taxonomist will define the criteria for assigning tolerance values to uncertain identifications. For example, if the generic level of identification is questionable, the taxonomist will determine an average tolerance value for the family level.

B4.4.2 Verification Procedures (Validation)

Interlaboratory taxinomic verification will be conducted at a frequency outlined in the QA plan of the professional contract taxonomist. As part of this verification the taxonomist will employ the use of an expert confirmed reference collection.

B4.5 Voucher Collection

Following identification and enumeration, the professional contract taxonomist will return all samples to the Tribe. This collection of samples are called the "voucher collection" for that sample. The Tribe will maintain this collection for the life of the project. This voucher collection will serve as evidence if the accuracy of taxonomic identification used in parameter calculation and reporting are ever questioned. They also may serve as a reference collection but not visa versa.

B5 QUALITY CONTROL REQUIREMENTS

B5.1 Purpose/Background

Samples collected as part of the tribal Water Quality Control Program to detect chemicals of concern will be analyzed at Sierra Environmental Monitoring Inc (SEM). SEM will subcontract organic methods to Alpha Analytical and radiometrics to Fruit Growers Laboratory (FGL) as outlined in Table 5. Inyo County Environmental Health Laboratory and Bishop paiute Tribe Drinking Water laboratory will analyze biological samples (Table 5). Laboratory accuracy and precision will be determined by the standard laboratory QC procedures (Appendices B-G) from the double volume samples provided. Quality control samples will also be generated in the field. Duplicate sampling and analyses, along with blanks should insure that representative analyses are obtained. These QA/QC samples will be taken at a frequency outlined in Table 6.

B5.2 Field Quality Control

B5.2.1 Blanks

Should the field blanks show contamination, procedures will be flagged, procedures evaluated, and resampling deferred to the next scheduled event. Blanks will be collected at a rate of one per day or one for every ten samples, whichever is less frequent unless there is reason to expect that contamination may be present (e.g., high ambient levels of VOCs) (Table 6).

B5.2.1.1 Travel Blanks

Travel blanks are only to be used for volatile organic compound (VOC) samples. Field blanks and/or equipment blanks will be used for other parameters.
Travel blank(s) will be prepared in the field following standard operating procedures (SOPs) (Appendix A). Travel blanks will be submitted blind to the laboratory

B5.2.1.2 Equipment Blanks

Equipment blanks will be used if sampling equipment will be reused and decontaminated.
Equipment blank(s) will be prepared in the field following standard operating procedures (SOPs) (Appendix A). Equipment blanks will be submitted blind to the laboratory.

B5.2.1.3 Field Blanks

Field blanks will be used if disposable equipment is used. Field blank(s) will be prepared in the field following standard operating procedures (SOPs) (Appendix A). Field blanks will be submitted blind to the laboratory. In the event that field blanks show contamination the results will be flagged, procedures evaluated, and resampling deferred to the next scheduled event.

See standard operating procedures (SOPs) for more information regarding blank sampling.

B5.2.2 Duplicate Samples

Duplicates will be collected at a rate of one per day or one for every ten samples, whichever is less frequent unless there is reason to expect that contamination may be present (Table 6). The preferred locations of duplicates will be those with known or suspected moderate levels of contamination. If no site meets this criterion, locations will be chosen randomly and rotated for each sampling event. Field duplicate samples will be submitted blind to the laboratory (Table 6). In the event that duplicates fail to meet the data quality criteria the results will be flagged, procedures evaluated, and resampling deferred to the next scheduled event.

BMI Sampling

Three samples will be taken at each sampling reach following the BMI SOP Manual. This replication allows a standard deviation to be calculated for an indication of sampling precision.

See standard operating procedures (SOPs) for more information regarding duplicate sampling.

B5.2.3 In-Situ Field Measurements

In-Situ data quality indicators are presented in Table 7.

B5.3 Laboratory QA/QC Samples

Laboratory QA/QC sample(s) will be taken at a frequency of one for every ten samples in volumes sufficient for laboratory QC purposes. The preferred locations of laboratory QA/QC samples will be those with known or suspected moderate levels. If no site meets this criterion, locations will be chosen randomly and rotated for each sampling event. In any case these tribally designated QA/QC samples will be made known to the laboratory.

As conditions in the field may vary, it may become necessary to implement minor modifications to sampling as presented in this plan. As indicated previously any variance of the sampling plan is subject to the approval of such variance by the EPA Quality Assurance Office. Modifications to the approved plan will be documented. When appropriate, Sierra Environmental's QA Program Office will be notified concurrently of any changes that may affect the analyses of the samples.

B5.4 Quality Control Acceptance Criteria

A main objective of having quality assurance for measurement data is to have a high level of confidence in data used to meet data quality objectives. Quality assurance data quality criteria are found in the contract laboratory standard operating procedures (SOPs) in appendix C. These limits have been reviewed and have been determined to meet tribal data quality objectives. As mentioned previously In-situ data quality indicators are detailed in Table 7.

B5.4.1 Data Quality Indicators –Laboratory

We default to the laboratory limits for data quality indicators (matrix spike, surrogate spike, and laboratory recovery limits; blank acceptance criteria, method detection limits or quantitation limits; calibration acceptance criteria, etc.).

B5.4.2 Data Quality Indicators –Field

We default to the laboratory limits for data quality indicators (matrix spike, surrogate spike, and laboratory recovery limits; blank acceptance criteria, method detection limits or quantitation limits; calibration acceptance criteria, etc.).

BMI -field activity QC checks will include:

1. Collection of replicate samples (3) at per station for the non-point source sampling scheme.
2. Occasional alternating/mixing of field personnel to maintain objectivity (minimize individual bias) in the bioassessment

Field data quality indicators for will be precision, accuracy, representativeness, comparability and completeness (abrev. PARCC).

B5.4.2.1 Precision

Precision is a measure of the closeness with which multiple analyses of a given sample agree with each other. For accuracy criteria please refer to the standard operating procedures in appendix C. The laboratory's criteria have been reviewed and determined to meet tribal data quality objectives and limits.

B5.4.2.2 Accuracy

Accuracy is a measure of the nearness of a measured value to the true value. For accuracy criteria please refer to the standard operating procedures in appendix C. The laboratory's criteria have been reviewed and determined to meet tribal data quality objectives and limits.

B5.4.2.3 Representativeness

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition. The Bishop Paiute Tribe Water Quality Control Program is set up to delineate the water quality of the reservation by surface water body (i.e. stream, wetland).

The site, population surveyed and the sampling methodology is detailed below per water body:

Streams

- **Sites:** SW-1, SW-2, SW-3, SW-4
- **Location:** The locations were selected to be as close as possible to the upstream and downstream exterior boundaries of the reservation.
- **Population surveyed:** Selected water quality parameters (Table 1) of stream water entering and leaving the reservation.
- **Sampling methodology:** Take samples (Table 1) on every stream on the reservation at points where the streams enter and leave the reservation. This will take place at a predetermined schedule (Table 2).

Groundwater

- **Site:** MW-1
- **Location:** This well was located in the SE corner of the reservation by NRCE consultants. At this location the shallow aquifer is monitored for changes in groundwater and water quality changes. This well was probably located based upon the proximity to off-reservation pumping wells.
- **Population surveyed:** Selected water quality parameters (Table 1) for the shallow unconfined aquifer at predetermined schedule (Table 2).

- **Site:** MW-2
- **Location:** in the NE corner of the reservation by NRCE consultants. At this location the deep aquifer is monitored for water quality and groundwater level. .This well was probably located based upon the proximity to off-reservation pumping wells.
- **Population surveyed:** Selected water quality parameters (Table 1) for the deep confined aquifer at a predetermined schedule (Table 2).
- **Sampling methodology:** Take samples at wells at predetermined schedule (Table 2) for selected water quality parameters (Table 1).

- **Site:** Groundwater wells 1-13
- **Location:** These wells were located to identify and monitor the shallow pieziomentric surface of the groundwater beneath the reservation and to monitor leakage and depth to water around buried sewer mains. In order to generate groundwater maps and iso-concentration maps of pollutants the sites were evenly scattered across the reservation. The sampling locations were then stratified with respect to the proximity to buried sewer lines.
- **Population surveyed:** 1) Selected water quality parameters (Table 1) for the shallow unconfined aquifer for waters proximal to sewer mains at a predetermined schedule.
  2) Water level data for the shallow unconfined aquifer for the entire Reservation.
- **Sampling methodology:** Take samples at wells at predetermined schedule (Table 2) for selected water quality parameters (Table 1).

Representativeness of each measured chemical parameter for surface water resources will be assured by using standard operating procedures (SOPs) for data collection (Appendix C). In addition, several in-situ physical parameters (pH, temperature, turbidity, conductivity and dissolved oxygen) will be measured during the field season so as to assure representative samples over a year's time.

B5.4.2.4 Comparability

Comparability is the confidence with which one data set can be compared to another. Consistency of reporting units, standardized analytical methods, and standardized data formatting will ensure comparability. Detection levels will be reported and specified for each analytical method. Methods used will be EPA approved from either Title 40, Code of Federal Regulations, Part 136, July 1, 1998, Standard Methods For the Examination of Water and Wastewater, 20th Edition, or EPA's "Methods for Chemical Analysis of Water and Wastes," March 1983. See Table 5 for information on Analytes, Methods, and Detection Limits.

As previously stated, one of the objectives of monitoring is to of evaluate all reservation waters and determine the levels of quality and/or impairment of those waters. If certain parameters are at high levels, then that stream segment will be identified for further monitoring of that parameter, and if certain parameters are within detection limits, or do not appear, the frequency of the monitoring of the parameter may be discontinued or adjusted.

B5.4.2.5 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct normal conditions. Completeness will be set at 80% for establishing good baseline information.

B6 INSTRUMENT MAINTENANCE REQUIREMENTS

B6.1 Horiba U-10 Water Quality Checker

Every two months the reference sensor will be recharged with a new reference solution.

B7 INSTRUMENTATION CALIBRATION AND FREQUENCY

Calibration procedures for equipment used in the field to obtain in-situ measurements, such as pH, dissolved oxygen, conductivity, turbidity and temperature probes and meters will follow the Standard Operating Procedure for Water Quality Checker Horiba U-10, submitted to EPA Region 9 in 1998. Calibration solutions (in the range of expected values) used for calibrating field instruments will be NIST-EPA certified, to insure calibration excellence. All instruments will be calibrated prior to each sampling event, following the above mentioned Standard Operating Procedure.

The calibration procedures and maintenance of laboratory equipment is located in the laboratory QA (Appendices B-G.)

BMI Sampling equipment

Prior to sampling there should be an effort toward repairing holes or replacing nets.

C ASSESSMENT/OVERSIGHT

C1 ASSESSMENTS AND RESPONSE ACTIONS

If a major problem exists, corrective action will be immediately taken and documented. The need for corrective action for sampling and analysis will be identified by the Environmental Specialist and approved by the Tribal Water Quality Control Program Quality Assurance Officer. Corrective action will be initiated any time a value obtained in the field is outside the range of data acceptability of the quality control requirements as identified in Section B5. Resampling, recalibration, cleaning of equipment and reevaluation and redesign of sampling procedure are all available options for corrective action. In those situations where independent expertise is needed to assess a certain aspect of the project, the tribe will request technical assistance from the U.S. EPA. The U.S. EPA Project Officer or Regional Quality Assurance Officer may conduct any type of assessment at any time during the length of the project. This includes conducting assessments of any contractor or sub-contractor performing sampling, analysis, or any other activity directly related to the program.

Self-assessments/audits

In order to identify any problem(s), the tribe will conduct a self-assessment/audit of the sampling and analysis of the data collected; at least once a year during the project. This will include a careful evaluation of all standard operating procedures.

Field system audits for the Bishop Paiute Tribe Water Quality Control Program will consist of evaluating sampling methodology, acquisition of water quality information, and analysis of selected components. The Water Quality Control Program Quality Assurance Officer will conduct this audit, using the appropriate SOP as a guideline. Comments will be noted by the QA Officer for each step of the SOP. In addition to the comments performance will be ranked on a one to five scale with one being the worst, three being average and five being excellent. After the procedure being audited is completed the QA officer shall sum the rankings and divide by the maximum possible ranking for the given situation.

Copies of any self-assessments/audits shall be provided to all sampling personnel and program staff for review. A record of these audits shall be kept in the files of the E.M.O.

D DATA VALIDATION AND USABILITY

D1 DATA REVIEW, VALIDATION, & VERIFICATION REQUIREMENTS

It is the responsibility of the Environmental Specialist to evaluate raw data generated by the tribal or contract laboratory for appropriate numeric reduction, data quality, and accuracy. All data will be reviewed and reported in units specified at the detection level of the analytical methods used. The Tribal Water Quality Control Program Quality Assurance Officer will perform a final review of the database printouts/reports with respect to tribal SOPs and this QAPP and either approve or disapprove these database printouts/reports by signature.

To reduce data point loss, data that are reported as "less than" detection level will be incorporated at a value of 1/2 the detection level.

Once data are generated, they will be compiled in a database file. During this data transfer, the information will be reviewed and verified in accordance with the data quality objectives. Data generated in the laboratory will be validated by performance checks which may include duplicate sample analysis, linear regression curve fitting for standards, spike recovery, inter-laboratory sample exchange, and unknown sample analysis reports.

If the data is less than 80% complete for any one sample, the data will be rejected for all the data in that sample. As indicated above, completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct normal conditions. The results from the incomplete sampling will be flagged, procedures evaluated, and resampling deferred to the next scheduled sampling event.

Data units will be systematically reported as indicated in Table 5. Scientific notation will be used, and significant figures will correlate with detection levels. Both graphing and narrative conclusions will be used to describe the water quality results and trend variations.

D2 VALIDATION AND VERIFICATION METHODS

The Environmental Specialist will be responsible for receiving the data sheets and field/laboratory notebooks, checking for errors in identification numbers, decimal placement, dates, times, units reported, and comments. Personnel collecting data will be contacted immediately if there are data gaps or if scheduled sampling times were missed. The Environmental Specialist will make every attempt to screen inaccurate data before they are entered in the database by analyzing all quality control data, including chain of custody, spikes, replicates, sample holding times, blanks, equipment calibrations, and sampling conditions. The Tribal Water Quality Control Program Quality Assurance Officer (QA Officer) will perform a final review of the database printouts/reports. The QA Officer will either approve by signing and/or initialing the entered database printout/report or disapprove the printout/report and return it to the Environmental Specialist for further analysis/examination.

Both raw data and a summary report will be reported by the laboratory. Laboratory QC data will be provided in/with the report. Data delivered by the laboratory will include: In-situ field instruments data will be hand entered into the field notebook. This data will be compared against their data quality objectives (repeatability) as outlined in Table 7.

All data will be reviewed with respect to laboratory and field data quality control criteria outlined in the quality control requirements in Section B5. Any data failing to meet these requirements will be flagged, procedures evaluated, and resampling deferred to the next scheduled sampling event.

Only the Environmental Specialist, Environmental Manager, Environmental Secretary and the Tribal Water Quality Control Program Quality Assurance Officer will be allowed to access project data and submit reports to data users. QA/QC information and COC(s) will accompany all raw data generated from the laboratory.

Data will be printed out in lists and graphs, with lists checked against original data sheets. Sampling personnel will be responsible for correcting data entry errors. A second examination will verify that corrections are completed. Inaccurate data will be discarded, and data anomalies will be evaluated on a case-by-case basis.

BMI Data

Descriptive statistics will be used to calculate the mean, the standard deviation and hence the coefficient of variation (CV) of the three replicate samples.

D3 RECONCILIATION WITH DATA QUALITY OBJECTIVES (DQOs)

The results of all QA/QC samples will be compared against established data quality objectives (Section A7) and quality assurance requirements (Section B5). This comparison will be performed by the Environmental Specialist and given final approval by the Tribal Water Quality Control Program Quality Assurance Officer.

Corrective Action

Data that do not met quality assurance requirements will be flagged, procedures evaluated, and resampling deferred to the next scheduled sampling event. Completeness, accuracy, precision, representativeness, and comparability will be evaluated by the Environmental Specialist and reviewed and given final approval by the Tribal Water Quality Control Program Quality Assurance Officer.

The reevaluation of procedures should proceed as follows:

1. Check equipment operation
2. Check reagents
3. Check maintenance and calibration records
4. Ensure analytical procedures were properly followed
5. Check sampling and sample handling procedures

REFERENCES

American Water Works Association, Standard Methods for the Examination of Water and Wasterwater, 20th edition.

California Regional Water Quality Control Board, Lahontan Region, Water Quality Control Plan for the Lahontan Region: North and South Basins, 1994.

Porter, C., 1998, Sampling and Analysis Plan for Benton, Big Pine, Bishop and Lone Pine Reservations, Porter Geotechnical Ltd., Reno, NV.

U.S. Federal Registrar, Code of Federal Regulations, Title 40, Part 136, July 1, 1998

FIGURES

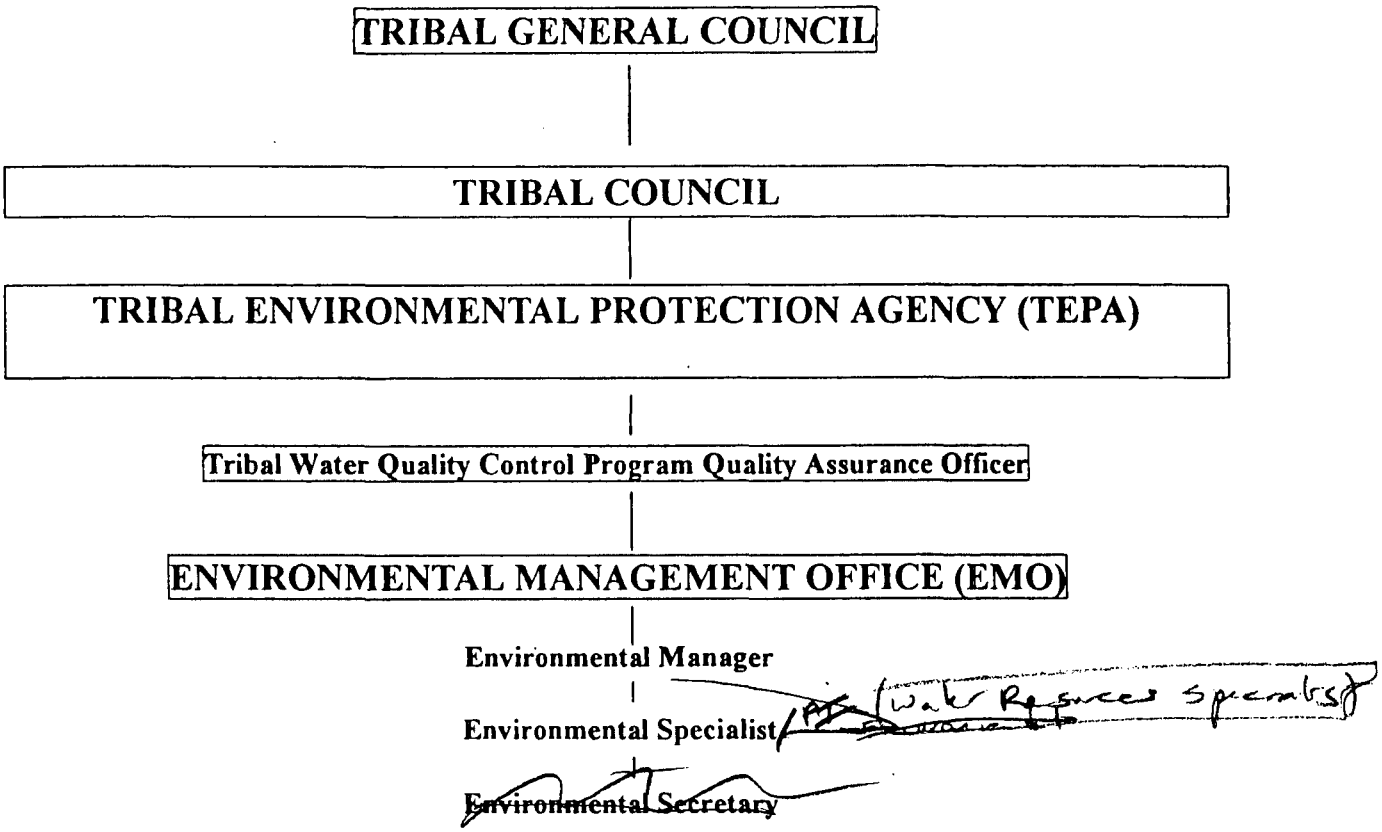


FIGURE 1: ORGANIZATION CHART: BISHOP PAIUTE TRIBE WATER QUALITY CONTROL PROGRAM

Figure 2: Bishop Paiute Reservation

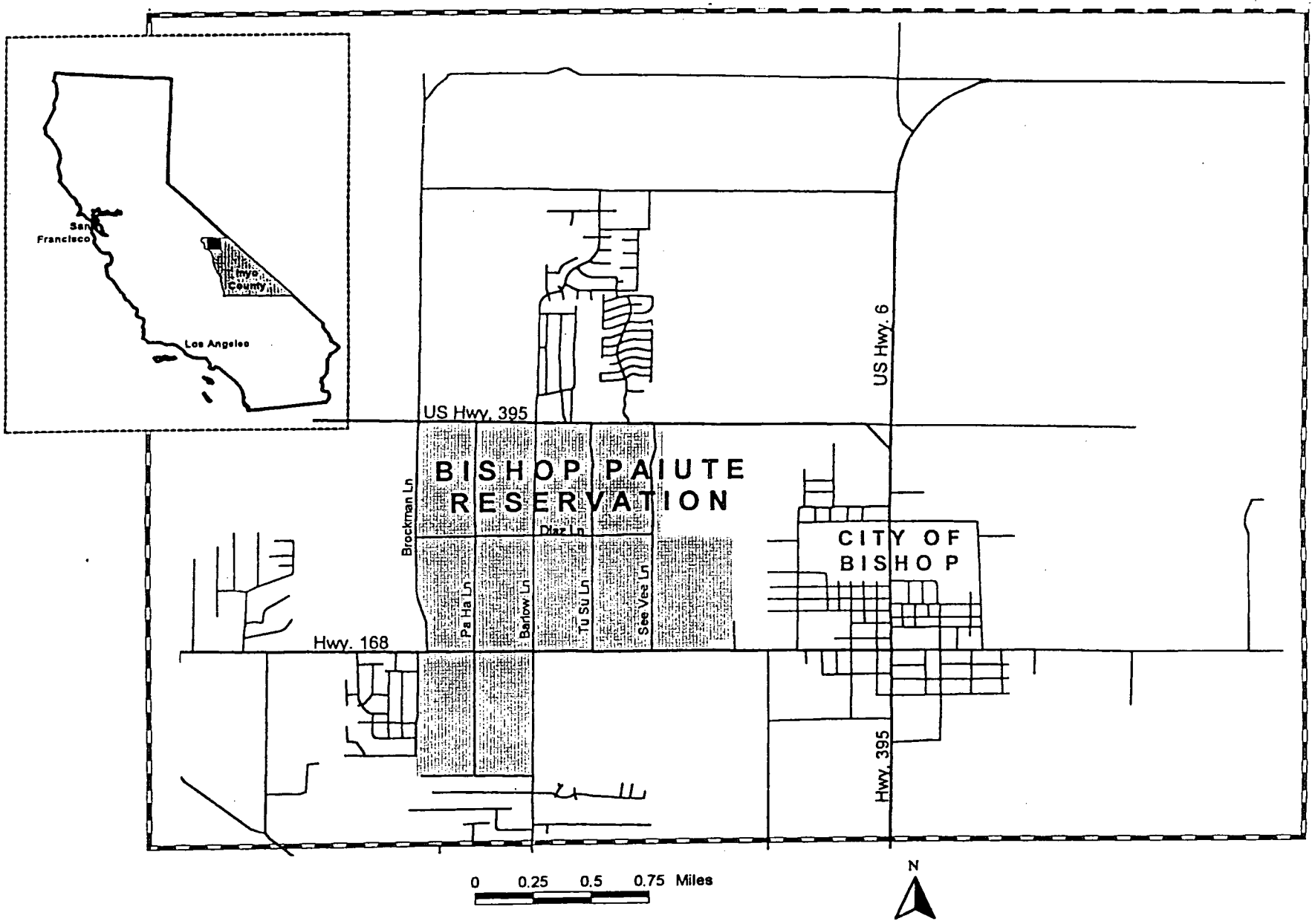
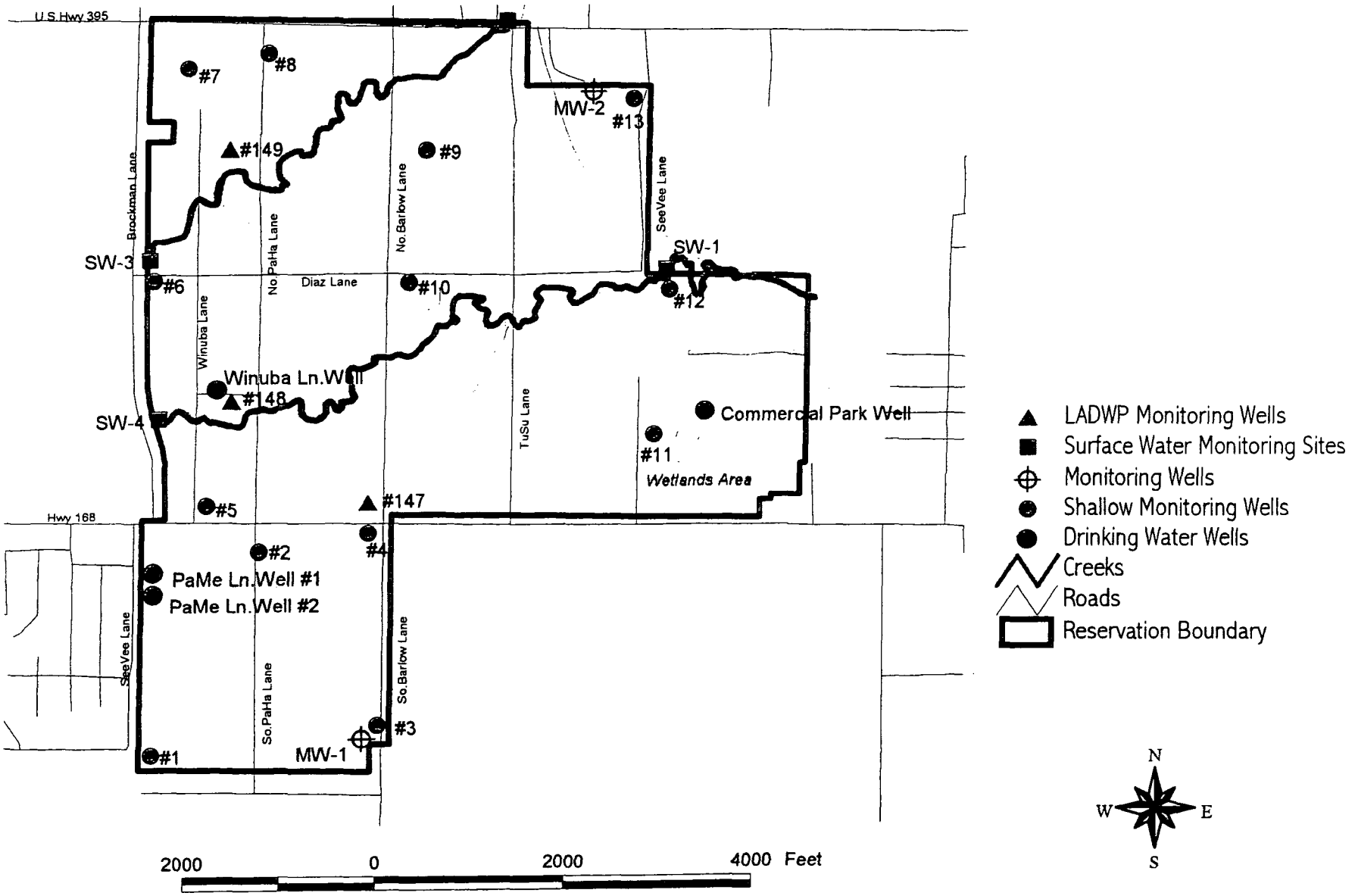


Figure 3: Sampling Locations



Site ID	LOCATION
SW-1	Immediately downstream from the downstream end of the culvert that passes South Fork Bishop Creek underneath See Vee Lane.
SW-2	Immediately upstream from the upstream end of the concrete box culvert that passes North Fork Bishop Creek underneath US Highway 395.
SW-3	Immediately downstream from the downstream end of the concrete box culvert that passes North Fork Bishop Creek underneath Brockman Lane.
SW-4	Immediately downstream from the downstream end of the bridge that passes South Fork Bishop Creek underneath Brockman Lane.
Note: Samples will be taken at the thalweg (point of highest flow velocity) of the channel as determined by using the Flow Probe velocity meter.	

FIGURE 3A: SURFACE WATER SAMPLE LOCATIONS

TABLES

TABLE 1: MEASUREMENTS OF TRIBAL WATERS

Measurement	Surface water	Ground-water
Stream Stage	X	
Stream Discharge	X	
Water level		X
In-situ physical parameters*	X	X
Chemical parameters**	X	X
Biological parameters***	X	X

* Includes the following parameters: pH, Temperature, Conductivity, Turbidity, Dissolved Oxygen, and Salinity.
**Will be measured at an analyitical laboratory.
***Includes colliform which will be measured at an analytical laboratory.

TABLE 2: SAMPLING SCHEDULE AND LOCATIONS

	Parameter	Analytical Method	Standard Method	SW-1	SW-2	SW-3	SW-4	MW-1	MW-2	Wells 1-13
In-Situ	Stage	--	--	bd	bd	bd	bd	--	--	--
	Velocity Discharge	--	--	m	m	m	m	--	--	--
	Water Level	--	--	--	--	--	--	h	m	m
	PH	--	--	m	m	m	m	m	m	--
	Conductivity	--	--	m	m	m	m	m	m	--
	Turbidity	--	--	m	m	m	m	m	m	--
	Dissolved Oxygen	--	--	m	m	m	m	m	m	--
	Temperature	--	--	m	m	m	m	m	m	--
General Physical	pH (Hydrogen Ion)	EPA 150.1	SM 4500 H+ B	q	q	q	q	b	b	--
	Alkalinity	EPA 310.1	SM 2320 B	q	q	q	q	b	b	--
	Turbidity	EPA 180.1	SM 2130 B	q	q	q	q	b	b	--
	Total Dissolved Solids	EPA 160.1	SM 2540 C	q	q	q	q	b	b	--
Major Cations	Calcium	EPA 200.7	SM 3120 B	q	q	q	q	b	b	--
	Magnesium	EPA 200.7	SM 3120 B	q	q	q	q	b	b	--
	Potassium	EPA 200.7	SM 3120 B	q	q	q	q	b	b	--
	Sodium	EPA 200.7	SM 3120 B	q	q	q	q	b	b	--
Major Anions	Chloride	EPA 300.0	SM 4110 C	q	q	q	q	b	b	--
	Sulfate	EPA 300.0	SM 4110 C	q	q	q	q	b	b	--
	Fluoride	EPA 300.0	SM 4110 C	q	q	q	q	b	b	--
Trace Metals	Arsenic	EPA 200.8	SM 3125 B	q	q	q	q	b	b	--
	Barium	EPA 200.8	SM 3125 B	--	--	--	--	b	b	--
	Chromium	EPA 200.8	SM 3125 B	--	--	--	--	--	--	--
	Copper	EPA 200.8	SM 3125 B	q	q	q	q	b	b	--
	Manganese	EPA 200.8	SM 3125 B	--	--	--	--	b	b	--
	Mercury	EPA 245.2	SM 3112 B	--	--	--	--	b	b	--
	Silver	EPA 200.8	SM 3125 B	q	q	q	q	--	--	--
	Zinc	EPA 200.8	SM 3125 B	q	q	q	q	b	b	--
	Boron	EPA 200.7	SM 3120 B	q	q	q	q	b	b	--
Other Inorganics	Cyanide	EPA 335.2	SM 4500 CN G	q	q	q	q	b	b	--
	Hardness	EPA 130.2	SM 2340 B,C	q	q	q	q	b	b	--
	Silica	EPA 370.1	SM 4500 Si D	--	--	--	--	b	b	--
Nutrients	Ammonia Nitrogen	EPA 350.3	SM 4500 NH3 F,G	q	q	q	q	b	b	--
	Total Kjeldahl Nitrogen	EPA 350.3	SM 4500 NH3 F,G	q	q	q	q	--	--	--
	Nitrate Nitrogen	EPA 300.0	SM 4110 C	q	q	q	q	b	b	--
	Nitrite Nitrogen	EPA 300.0	SM 4110 C	q	q	q	q	--	--	--
	Ortho Phosphate	EPA 365.3	SM 4500 P F	q	q	q	q	--	--	--
Organics	Volatile Organic Compounds	EPA 624	SM 6200	a	a	a	a	b	b	--
	Semivolatile Organic Compds.	EPA 625	SM 6410 B, 6420 B	a	a	a	a	b	b	--
	Pesticides & Herbicides	EPA 608,625	SM 6410 B, 6420 B	a	a	a	a	b	b	--

TABLE 2: SAMPLING SCHEDULE AND LOCATIONS-CONTINUED

	Parameter	Analytical Method	Standard Method	SW-1	SW-2	SW-3	SW-4	MW-1	MW-2	Wells 1-13
	Total Petroleum Hydrocarbons	EPA 8015	N/A	a	a	a	a	b	b	--
Radio	Gross Alpha	EPA 900	SM 7110 B	q	q	q	q	b	b	--
Activity	Gross Beta	EPA 900	SM 7110 B	q	q	q	q	b	b	--
Biological	Fecal Coliform*		SM 9221E	q	q	q	q	b	b	b
	E.Coli*		SM 9223	q	q	q	q	b	b	b

Key h = hourly
d = daily
w = weekly
m = monthly
b = biannual
a = annual

*Fecal Coliform and E.Coli will be performed using split samples until a sufficient (about 20) samples have been collected and analyses an a numerical relationship has been established between the two. After a good relationship has been established fecal coliform will be removed from the list and E.Coli will be used as the bacterial indicator.

** 40 CFR 136 analytical methods
*** CABP - California Bioassessment Protocol

Bioassessment | (Benthic macroinvertebrate) | CABP** | CABP*** | a | a | a | a | - | - | -

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TABLE 3: DATA QUALITY OBJECTIVES

1. Problems	Uses/Actions which may result	2. Decision	3.Inputs to Decision	4.Definition of Study Boundaries	5.Decision Rule	6.Limits on Decision Errors	7.Optimize Design
A) What are the baseline conditions of selected water quality parameters of concern in the natural navigable tribal surface waters and groundwaters?	• A data base of water quality parameters of natural navigable tribal surface waters and groundwaters. • Statistics of intra-seasonal and intra-annular variability of water data	• No decision necessary	• Not applicable	• Navigible natural streams within the exterior boundaries of the reservation	• Not applicable	• Not applicable	• Not applicable
B) What reaches of the stream of the natural navigable tribal surface waters are impaired with respect to their designated uses? What groundwater is impaired with respect to their designated uses.	• Ranking of surface and groundwater quality by designated use (water quality standards) by water body/segment	• If water quality parameters exceed MCLs of Water quality standards the beneficial use tied to this criteria will be identified as threatened or impired for that section of waterbody Use Assess for TMDL	• Water quality data from surface and groundwater monitoring sites per sampling schedule (Table 2). • Detection limits are presented in Table 5. • MCL State water quality standards	• Navigible natural streams within the exterior boundaries of the reservation	• See Decision Rule (Table 4)	• See Decision Rule chart (Table 4)	• Will reduce sampling frequecy to a semi annual or annual for nondetect samples. per normal review.

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TABLE 4: DATA QUALITY OBJECTIVES: DECISION RULES-PROBLEM B

Criteria	Statistical Parameter of Interest	Action Level	Tolerable limits on Decision Errors	Decision Rule
Ammonia	1 day maximum value	Unionized ammonia NH3 shall not be exceeded in any one day by the following calculation: 1h-NH3 = 0.052 / (FT x FPH x 2) where: FT=10[0.03(20-TCAP)] for TCAP<T<30 FPH=(1+10(7.4-pH)) / 1.25 for: 6.5<oG<8.0 FPH=1 for: 6.6<pH<9.0 (See state standards for a more complete description)	Not applicable**	See Decision Rule 1***
Bacteria, fecal coliform	log mean based on a minimum of not less than five samples collected as evenly spaced as practicable during any 30 day period	• 20/100ml • nor more than 10 percent of all samples collected exceed 30/100 ml • 20/100m ml even if fewer than five samples were collected during any 30-day period	Not applicable**	See Decision Rule 1***
Biostimulatory Substances	Instantaneous maximum value*	Shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect the water for beneficial uses.	Not applicable**	See Decision Rule 1***
Chemical Constants	Instantaneous maximum value*	Shall not exceed MCL or SMCL based upon drinking water standards specified in Title 22 of the California Code of Regulations (See Appendix I).	Not applicable**	See Decision Rule 1***
Chlorine, Total Residual	Median values will be based on daily measurements taken within any six-month period	• Shall not exceed a median value of 0.002 mg/L • Shall not exceed a maximum value of 0.003 mg/l.	Not applicable**	See Decision Rule 1***
Color	Instantaneous maximum value*	Free of coloration that causes nuisance or adversely affects the water for beneficial uses	Not applicable**	See Decision Rule 1***
Dissolved Oxygen	1 day minimum instantaneous concentrations to be achieved at all times	The minimum dissolved oxygen concentration shall not be less than 8.0 mg/L ambient (5.0 intergravel).	Not applicable**	See Decision Rule 1***
Floating Materials	Instantaneous maximum value*	Shall not contain floating material in concentrations that cause nuisance or adversely affect the water for beneficial uses.	Not applicable**	See Decision Rule 1***
Oil and Grease	Instantaneous maximum value*	Shall not contain visible oily coatings on the surface of the water that cause nuisance or adversely affect the water for beneficial uses.	Not applicable**	See Decision Rule 1***
Nondegradation of Aquatic	Instantaneous maximum value*	All wetlands shall be free from substances attributable to	Not applicable**	See Decision Rule 1***

Commmunities and Populations		wastewater or other discharges that produce adverse physiological responses in humans, animals, or plants; or which lead to the presence of undesirable or nuisance aquatic life		
Pesticides	Instantaneous maximum value*	Waters (designated as MUN) shall not contain concentrations of pesticides or herbicides in excess of the limiting concentrations specified in Table 64444-A of Section 64444 (organic Chemicals)	Not applicable**	See Decision Rule 1***
pH	Instantaneous maximum value*	Changes in pH levels shall not exceed 0.5 pH units from natural baseline values.	Statistically significant (95%) deviation from baseline levels	See Decision Rule 1***
Radioactivity	Instantaneous maximum value*	Shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 oif Seciton 64443 of Title 22 of the California Code of Regulations.	Not applicable**	See Decision Rule 1***
Sediment	Instantaneous maximum value*	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adveresly affect the water for beneficial uses.	Not applicable**	See Decision Rule 1***
Settleable Materials	Instantaneous maximum value*	Shall not contain suspended materials in concentrations that cause nusance or that adverely affects the water for beneficial uses.	Not applicable**	See Decision Rule 1***
Suspended Materials	Instantaneous maximum value*	Shall not contain suspended materials in concentrations that cause nusance or that adverely affects the water for beneficial uses.	Not applicable**	See Decision Rule 1***
Taste and Odor	Instantaneous maximum value*	Shall not contain taste or odor producing substances	Not applicable**	See Decision Rule 1***
Temperature	Instantaneous maximum value*	Temperature should not be altered for this COLD water	No statistically significant change from population of baseline temperature values	See Decision Rule 1***
Toxicity	Instantaneous maximum value*	Shall not contain toxic substances in excess of	Not applicable**	See Decision Rule 1***
Turbidity	Instantaneous maximum value*	Increases in turbidity shall not exceed natural baseline levels by more than 10%.	Statistically significant deviation by more than 10% above or below the population of tubidity values	See Decision Rule 1***
TDS	Instantaneous maximum value*	59 (105)$^{\tau}$	Not applicable**	See Decision Rule 1***
Chloride	Instantaneous maximum value*	2.4 (6.0)$^{\tau}$	Not applicable**	See Decision Rule 1***
Sulfate	Instantaneous maximum value*	7.2 (12.0)$^{\tau}$	Not applicable**	See Decision Rule 1***
Fluoride	Instantaneous maximum	0.12 (0.30)$^{\tau}$	Not applicable**	See Decision Rule

Criteria	Statistical Parameter	Action Level	Tolerable Limit on Dec. Error	Dec. Rule
	value*			1***
Boron	Instantaneous maximum value*	0.04 (0.10)$^{\tau}$	Not applicable**	See Decision Rule 1***
Nitrogen as Nitrate	Instantaneous maximum value*	0.5 (0.9)$^{\tau}$	Not applicable**	See Decision Rule 1***
Nitrogen, Total	Instantaneous maximum value*	0.5 (0.9)$^{\tau}$	Not applicable**	See Decision Rule 1***
Dissolved Orthophosphate	Instantaneous maximum value*	0.7 (1.0)$^{\tau}$	Not applicable**	See Decision Rule 1***

*State standards do not specify statistical sampling mechanisms for these parameters. In lieu of this we substitute the most conservative mechanism – Instantanous maximum value.

**Per state standards, there are no set limits on decision errors specified.

***Decision Rule 1 If the action level of this criteria is exceeded at any time per the limitations placed on it listed under "statistical parameter of interest" then the criteria will be in violation of the standard and the use that drives this criteria shall be considered impaired. The water shall be dubbed impaired from the sampling point upstream to the next sampling point that is not in violation.

$^{\tau}$ Annual average value/ (90th Percentile Values)

Note: all criteria are as mg/L

BMI	Relative Standard Deviation (RSD) $RSD = \frac{s}{\bar{x}} \times 100$ of 3 replicate samples	To be determined by ~~first~~ pilot study?	Not applicable**	Not applicable (pilot study) 10/26/00

TABLE 5: METHODS, DETECTION LIMITS, SAMPLING AND HANDLING REQUIREMENTS

Group Description	Analytical Parameter	Analytical Method	Standard Methods	Method Description	Sample Volume	Bottle Type*	Preservation	Holding Time	Detection Limit (mg/l)	Reporting Level (mg/l)	Laboratory
General Physical	pH (Hydrogen Ion)	EPA 150.1	SM 4500 H+ B	Electrometric	100 ml	P or G	none, 4C	ASAP	0.01 S. U.	0.01 S. U.	SEM
	Alkalinity	EPA 310.1	SM 2320 B	Titrimetric	500 ml	P or G	none, 4C	14 days	1 mg/l CaCO3	1 mg/l CaCO3	SEM
	Turbidity	EPA 180.1	SM 2130 B	Nephelometric	500 ml	P or G	none, 4C	48 hours	0.05 NTU	0.1 NTU	SEM
	Total Dissolved Solids	EPA 160.1	SM 2540 C	Gravimetric	500 ml	P or G	none, 4C	7 days	7	7	SEM
Major Cations	Calcium	EPA 200.7	SM 3120 B	Inductively Coupled Plasma	250 ml	P	HNO3 pH<2	6 months	0.008	0.1	SEM
	Magnesium	EPA 200.7	SM 3120 B	Inductively Coupled Plasma	250 ml	P	HNO3 pH<2	6 months	0.005	0.1	SEM
	Potassium	EPA 200.7	SM 3120 B	Inductively Coupled Plasma	250 ml	P	HNO3 pH<2	6 months	0.16	0.2	SEM
	Sodium	EPA 200.7	SM 3120 B	Inductively Coupled Plasma	250 ml	P	HNO3 pH<2	6 months	0.027	0.1	SEM
Major Anions	Chloride	EPA 300.0	SM 4110 C	Ion Chromatography	500 ml	P or G	none, 4C	28 days	0.03	0.1	SEM
	Sulfate	EPA 300.0	SM 4110 C	Ion Chromatography	500 ml	P or G	none, 4C	28 days	0.03	0.1	SEM
	Fluoride	EPA 300.0	SM 4110 C	Ion Chromatography	500 ml	P or G	none, 4C	28 days	0.01	0.1	SEM
Trace Metals	Arsenic	EPA 200.8	SM 3125 B	ICP - Mass Spectrum	250 ml	P	HNO3 pH<2	6 months	0.00031	0.001	SEM
	Barium	EPA 200.8	SM 3125 B	ICP - Mass Spectrum	250 ml	P	HNO3 pH<2	6 months	0.00011	0.001	SEM
	Chromium	EPA 200.8	SM 3125 B	ICP - Mass Spectrum	250 ml	P	HNO3 pH<2	6 months	0.00014	0.001	SEM
	Copper	EPA 200.8	SM 3125 B	ICP - Mass Spectrum	250 ml	P	HNO3 pH<2	6 months	0.00034	0.002	SEM
	Manganese	EPA 200.8	SM 3125 B	ICP - Mass Spectrum	250 ml	P	HNO3 pH<2	6 months	0.00008	0.001	SEM
	Mercury	EPA 245.2	SM 3112 B	Cold Vapor AA	250 ml	P	HNO3 pH<2	28 days	0.00018	0.0005	SEM
	Silver	EPA 200.8	SM 3125 B	ICP - Mass Spectrum	250 ml	P	HNO3 pH<2	6 months	0.00049	0.001	SEM
	Zinc	EPA 200.8	SM 3125 B	ICP - Mass Spectrum	250 ml	P	HNO3 pH<2	6 months	0.0016	0.05	SEM
	Boron	EPA 200.7	SM 3120 B	Inductively	250 ml	P	HNO3 pH<2	6 months	0.015	0.05	SEM

				Coupled Plasma							
Other	Cyanide	EPA 335.2	SM 4500 CN G	Digestion/Colorimetric	1,000 ml	P	NaOH, 4C	14 days	0.001	0.005	SEM
Inorganics	Hardness	EPA 130.2	SM 2340 B,C	EDTA Titrimetric or ICP	500 ml	P	HNO3 pH<2	6 months	1 mg/l CaCO3	2 mg/l CaCO3	SEM
	Silica	EPA 370.1	SM 4500 Si D	Molybdosilicate Colorimetric	500 ml	P	none	28 days	0.07	1	SEM
Nutrients	Ammonia Nitrogen	EPA 350.3	SM 4500 NH3 F,G	Distillation / ISE	250 ml	P	H2SO4, 4C	28 days	0.008	0.1 N	SEM
	Total Kjeldahl Nitrogen	EPA 350.3	SM 4500 NH3 F,G	Digestion /Distillation / ISE	250 ml	P	H2SO4, 4C	28 days	0.068	0.1	SEM
	Nitrate Nitrogen	EPA 300.0	SM 4110 C	Ion Chromatography	500 ml	P or G	none, 4C	48 hours	0.03	0.1	SEM
	Nitrite Nitrogen	EPA 300.0	SM 4110 C	Ion Chromatography	500 ml	P or G	none, 4C	48 hours	0.03	0.1	SEM
	Ortho Phosphate	EPA 365.3	SM 4500 P F	Ascorbic Acid Colorimetiric	250 ml	P	none, 4C	48 hours	0.007	0.02	SEM
Organics	Volatile Organic Compounds	EPA 624	SM 6200	GC / MS	3 x 40 ml	G	Na2S2O3, 4C	7 days	varies	varies	Alpha Analytical
	Semivolatile Organic Compds.	EPA 625	SM 6410 B, 6420 B	GC / MS	1,000 ml	G	Na2S2O3, 4C	7 days	varies	varies	Alpha Analytical
	Pesticides & Herbicides	EPA 608,625	SM 6410 B, 6420 B	GC / MS & HPLC	1,000 ml	G	Na2S2O3, 4C	7 days	varies	varies	Alpha Analytical
	Total Petroleum Hydrocarbons	EPA 8015	N/A	Extraction & GC/FID	3 x 40 ml	G	none, 4C	7 days	0.04 (diesel)	0.5	Alpha Analytical
Radio	Gross Alpha	EPA 900	SM 7110 B	Proportional Counter	1,000 ml	P	HNO3 pH<2	6 months			FGL
Activity	Gross Beta	EPA 900	SM 7110 B	Proportional Counter	1,000 ml	P	HNO3 pH<2	6 months			FGL
Biological	Fecal Coliform		SM9221E	10 tube MPN	100 ml	P	none, 4C	8 hour			County Lab
	Total Coliform		SM9223*	Enzyme substrate – T.Coliform	100ml	P	none, 4C	8 hour	<1	<1	Tribal Lab
	E.Coli		SM9223*	Enzyme substrate-E.Coli	100ml	P	8 hr	<1	<1	<1	Tribal Lab
Insitu Physical	pH (Hydrogen Ion)			Glass electrode					0-14 pH units		Tribal Meter
	Conductivity			4 electrode					0.01 mS/cm		Tribal Meter
	Turbidity			Scattered / Transmitted Light							Tribal Meter
	Dissolved Oxygen			Membrane galvanic cell					0-19.9		Tribal Meter
				Thermistor					0-50 deg C		Tribal Meter

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TABLE 6: QUALITY CONTROL CRITERIA-FIELD

Location	Sample Type	QC Frequency	Acceptance Criteria	Corrective Action For QC Failure
Field	Blanks	One per day or one for every ten samples, whichever is less frequent unless there is reason to expect that contamination may be present (e.g., high ambient levels of VOCs)	See Laboratory SOPs	If an analysis of any blank results in the detection of the analyte above its detection level the data will be flagged, procedures evaluated, and resampling deferred to the next scheduled sampling event.
Field	Duplicates	Duplicates will be collected at a rate of one per day or one for every ten samples, whichever is less frequent unless there is reason to expect that contamination may be present. Field duplicate samples will be submitted blind to the laboratory (Table 5).	See Laboratory SOPs	If an analysis of duplicates results in exceeding its acceptance criteria the data will be flagged, procedures evaluated, and resampling deffered to the next scheduled sampling event.

TABLE 7: IN-SITU DATA QUALITY INDICATORS

need RPD!

Parameter	Unit	Range of measurement	Resolution	Repeatability (Objective)	Frequency of Repeated Measurements		Calibration		Corrective Action
pH	Standard Unit	0-14	0.01	+/-0.05	1 per 10 measurements or once per day which ever is less. Site selected at random		1-point auto (Zero) Manual 2-point		Flag data, evaluate procedures, and defer resampling to the next scheduled sampling event.
Conductivity	ms/cm	0-100	0-1mS/cm: 0.01mS/cm 1-10mS/cm: 0.1mS/cm 10-100mS/cm: 1mS/cm	+/- 1%/F.S.	1 per 10 measurements or once per day which ever is less.		1-point auto (Span) Manual 2-point		Flag data, evaluate procedures, and defer resampling to the next scheduled sampling event.
Turbidity	NTU	0-800	1	+/- 3%/F.S.	1 per 10 measurements or once per day which ever is less.		1-point auto (Zero) Manual 2-point		Flag data, evaluate procedures, and defer resampling to the next scheduled sampling event.
Dissolved Oxygen	mg/L	0-19.9	0.01	+/- 0.3	1 per 10 measurements or once per day which ever is less.		1-point auto (Span) Manual 2-point		Flag data, evaluate procedures, and defer resampling to the next scheduled sampling event.
Temperature	Centigrade	0-50	+/1 0.3	+/- 0.1 mg/l	1 per 10 measurements or once per day which ever is less.		--		Flag data, evaluate procedures, and defer resampling to the next scheduled sampling event.

≤ 0-20% RPD

BISHOP TRIBAL COUNCIL

Memorandum

Date: December 21, 2000

To: Marvin Moskowitz, Contract QA/QC Officer

From: Brian Adkins R.P.G., Tribal Environmental Specialist

CC: Alan Spoonhunter, Env. Manager
File

Enclosures: A-R (See list of Enclosures)

RE: Data Quality Review - Bishop Paiute Tribe Water Quality Control Program Data

Per our contract (Attachment A, Task 1, Contract January 7, 2000 - December 31, 2000), please review all enclosed data for the following data (enclosed):

Enclosed is the following:

1. Copies of 3 quarters of analytical (chemical) data from Sierra Environmental Monitoring, sampled by the staff of the EMO. A quality control report is included with each analytical report. The purpose of this QA/QC data is to assure that the laboratory analyses are precise, accurate, representative and complete.
2. 3 quarters of chemical-field quality control data reports. This field QC data was produced by SEM. The purpose of this data is to assure that the sampling methodology yields samples that are precise, representative and complete.
3. 3 quarters of bacteria lab QA/QC reports from the Bishop Paiute Tribe Environmental Laboratory (BPTEL) Director. The purpose of this data is to assure that adequate quality control is being exercised in the laboratory.
4. 3 quarters of bacteria data from the Bishop Paiute Tribe Environmental Laboratory (BPTEL), sampled by the staff of the EMO. QA/QC data are presented with these reports. The purpose of the QA/QC data is to assure that the sampling methodology yields samples that are precise, representative and complete.
5. 3 quarters of Physical/In-Situ data collected and analyzed in-situ by the staff of the EMO. The purpose of the QA/QC data is to assure that the sampling methodology yields samples that are precise, representative and complete.
6. A copy of a correspondence sent to Sierra Environmental Monitoring regarding several questions and concerns that I have regarding the analytical reports enclosed with this memo.

PAIUTE PROFESSIONAL BUILDING • 50 TU SU LANE • BISHOP, CA 93514
PHONE (760) 873-3584 • FAX (760) 873-4143

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Protocol for approval of data and comments for entry into database

To approve all data on a particular row, simply place your initials in the column marked QA/QC Officer. To expedite the process you will note that I have reviewed the data prior to this submittal. If there is an instance where you approve one piece of data on a line but disprove another, please highlight the disapproved data by circling or highlighting and make an appropriate comment in the margin of the data report. Finally write a comment to the effect that you approve all above data and comments followed by your signature and date. A comment that I am using that you are welcome to use is the following: "I have reviewed all data in accordance with Sections D1 and D3 of QAPP and approve entry of all data + comments into database".

Please place your comments in the margin adjacent to the data entry. If you need more room for a comment please flag the data entry and note your comment on the back of the page.

1. Data Review, Validation & Verification (Section D1 of QAPP)

1. Check that appropriate numeric reduction has been performed
2. Check for appropriate reported detection limit as specified in Table 5 of QAPP
3. Check for completeness. For the data-gathering event to be complete, at least 80% of the data expected to be obtained was generated. For chemical-lab data only compare the number of actual analytical tests performed during one sampling event with the number of total analytical tests expected to be performed to be entered into the database per the list of analytes attached to letters addressed to contract analytical laboratories

2. Reconciliation of Data with Data Quality Objectives (DQOs) (Section D3 of QAPP)

For your convenience I have included reports that include all upper and lower quality control limits (Data Quality Objectives). Simply compare the data quality indicator with the upper and lower control limits (UCL and LCL) and approve if the indicator falls within the limits. If the indicator falls outside of the limits please approve and flag the entry with a comment.
Please make a copy of all data for your files and return all signed reports to the EMO.

Table 1:
Summary of Data Validation for Bishop Paiute Tribe
Water Quality Control Program

	QA/QC Data Validation and Reconciliation with DQOs*	
	Laboratory	Field
	QAPP Section D3	
Chemical	X	X
Bacteria	X	X
Physical-Insitu		X
Bioassessment**	X	X

Note:
* Unless otherwise specified, the Tribe defaults to the laboratory limits for data quality indicators per QAPP Section B5.4
**Bioassessment data have not been generated as of the date of this memo.

Please note that all data are original hardcopies, are confidential in nature, and must be returned to the EMO to my attention. You are welcome to make one copy of each report for your files if you desire.

Thank you for your attention to this task. We are working with our contract laboratories to expedite the flow of QA/QC data to us, and hence, to you. We appreciate your patience as we get this new program off the ground. If you have any questions regarding this memo please call me at 873-3665 or by email at bishopemo@telis.org. Thanks.

List of Enclosures

Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
A	Winter 00	3/8/00	Chemical	Lab	SEM Report #34068
B	Winter 00	3/8/00	Chemical	Lab	Alpha Analytical Report #SEM00030931
C	Winter 00	3/8/00	Chemical	Lab	Montgomery Watson Report #63872
D	Winter 00	3/8/00	Chemical	Field	EMO Report 1 Bishop34068WQCP.QA
E	Winter 00	3/8/00	Bacteria	Lab	BPTEL Data QA Review 4/14/00
F	Winter 00	3/8/00	Bacteria	Field	WQCP.BACT.QAReport.1
G	Winter 00	3/8/00	Physical-Insitu	Field	WCQP.Physical-Insitu.QAreport.1
H	Spring 00	6/6/00	Chemical	Lab	SEM Report # 35300
I	Spring 00	6/6/00	Chemical	Field	EMO Report # Bishop35300WQCP.QA
J	Spring 00	6/6/00	Bacteria	Lab	BPTEL Data QA Review 8/25/00
K	Spring 00	6/6/00	Bacteria	Field	WQCP.BACT.QAReport.2
L	Spring 00	6/6/00	Physical-Insitu	Field	WCQP.Physical-Insitu.QAreport.2
M	Fall 00	9/11/00	Chemical	Lab	SEM Report # 36750
N	Fall 00	9/11/00	Chemical	Field	EMO Report # Bishop36750WQCP.QA
O	Fall 00	9/11/00	Bacteria	Lab	BPTEL Data QA Review 11/17/00
P	Fall 00	9/11/00	Bacteria	Field	WQCP.BACT.QAReport.3
Q	Fall 00	9/11/00	Physical-Insitu	Field	WCQP.Physical-Insitu.QAreport.3
R	-	-	-	-	Copy of 11/30/00 letter to SEM

Enclosure	Sampling Quarter	Sample Date	Type	Vendor	Remarks
A	Winter 00	3/8/00	Chemical	Lab	SEM Report #34060

Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 4/11/2000
Client: BIS-002
Taken by: B. Adkins
Report: 34068
PO #: 2589

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0363	MW-1	3/7/2000	2:38 PM	3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	31	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Bicarbonate	EPA 310.1	31	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Total Dissolved Solids	EPA 160.1	52	mg/L	7	Tretten	3/10/2000
Ammonia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	3/23/2000
Nitrate-N - Ion Chromatography	EPA 300.0	0.2N	mg/L	0.1	Lowe	3/9/2000
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Jones	3/10/2000
Calcium - ICP-OES	EPA 200.7	8.8	mg/L	0.1	Faulstich	3/9/2000
Magnesium - ICP-OES	EPA 200.7	1.2	mg/L	0.1	Faulstich	3/9/2000
Potassium - ICP-OES	EPA 200.7	1.1	mg/L	0.2	Faulstich	3/9/2000
Sodium - ICP-OES	EPA 200.7	5.1	mg/L	0.1	Faulstich	3/9/2000
Chloride - Ion Chromatography	EPA 300.0	0.9	mg/L	0.1	Lowe	3/9/2000
Cyanide,Total	EPA 335.2	<0.005	mg/L	0.005	Kobza	3/15/2000
Fluoride - Ion Chromatography	EPA 300.0	0.1	mg/L	0.1	Lowe	3/9/2000
Hardness, as CACO3	EPA 130.2	27	mg/L	0.1	Seher	3/13/2000
Silica	EPA 370.1	15	mg/L	1	Nussbaum	3/10/2000
Sulfate - Ion Chromatography	EPA 300.0	6	mg/L	0.1	Lowe	3/9/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	3/10/2000
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Barium - ICP-MS	EPA 200.8	0.009	mg/L	0.001	Lambert	3/20/2000
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Faulstich	3/15/2000
Chromium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	3/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	3/20/2000
Radiological Analysis	Subcontract	See Report		0		4/10/2000
Total Petroleum Hydrocarbon	Subcontract	See Report		0		
VOCs	Subcontract	See Report		0		

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

John Kobza, Ph.D.
John C. Seher
Managers

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BS Res 2

Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 4/11/2000
Client: BIS-002
Taken by: B. Adkins
Report: 34068
PO #: 2589

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0364	MW-2	3/8/2000	1:00 PM	3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	52	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Bicarbonate	EPA 310.1	52	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Total Dissolved Solids	EPA 160.1	79	mg/L	7	Tretten	3/10/2000
Ammonia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	3/23/2000
Nitrate-N - Ion Chromatography	EPA 300.0	0.3N	mg/L	0.1	Lowe	3/9/2000
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Jones	3/10/2000
Calcium - ICP-OES	EPA 200.7	12	mg/L	0.1	Faulstich	3/9/2000
Magnesium - ICP-OES	EPA 200.7	0.88	mg/L	0.1	Faulstich	3/9/2000
Potassium - ICP-OES	EPA 200.7	1.5	mg/L	0.2	Faulstich	3/9/2000
Sodium - ICP-OES	EPA 200.7	18	mg/L	0.1	Faulstich	3/9/2000
Chloride - Ion Chromatography	EPA 300.0	4.6	mg/L	0.3	Lowe	3/9/2000
Cyanide,Total	EPA 335.2	<0.005	mg/L	0.005	Kobza	3/15/2000
Fluoride - Ion Chromatography	EPA 300.0	1	mg/L	0.2	Lowe	3/9/2000
Hardness, as CACO3	EPA 130.2	34	mg/L	0.1	Seher	3/13/2000
Silica	EPA 370.1	20	mg/L	1	Nussbaum	3/10/2000
Sulfate - Ion Chromatography	EPA 300.0	14	mg/L	0.3	Lowe	3/9/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	3/10/2000
Arsenic - ICP-MS	EPA 200.8	0.004	mg/L	0.001	Lambert	3/20/2000
Barium - ICP-MS	EPA 200.8	0.007	mg/L	0.001	Lambert	3/20/2000
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Faulstich	3/15/2000
Chromium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	3/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	3/20/2000
Radiological Analysis	Subcontract	See Report		0		4/10/2000
Total Petroleum Hydrocarbon	Subcontract	See Report		0		
VOCs	Subcontract	See Report		0		

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
sem@powernet.net

William F. Pillsbury
President

John Kobza, Ph.D.
John C. Seher
Managers

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 4/11/2000
Client: BIS-002
Taken by: B. Adkins
Report: 34068
PO #: 2589

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0365	MW-3	3/8/2000	1:15 PM	3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Ammonia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	3/23/2000
Nitrate-N - Ion Chromatography	EPA 300.0	0.4N	mg/L	0.1	Lowe	3/9/2000
Hardness, as CACO3	EPA 130.2	38	mg/L	0.1	Seher	3/14/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	3/10/2000
Arsenic - ICP-MS	EPA 200.8	0.004	mg/L	0.001	Lambert	3/20/2000
Barium - ICP-MS	EPA 200.8	0.007	mg/L	0.001	Lambert	3/20/2000
[redacted]ron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Faulstich	3/15/2000
[redacted]mium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	3/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	3/20/2000
Total Petroleum Hydrocarbon	Subcontract	See Report		0		
VOCs	Subcontract	See Report		0		

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0366	GW-7	3/8/2000	2:30 PM	3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Total Petroleum Hydrocarbon	Subcontract	See Report		0		
VOCs	Subcontract	See Report		0		

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
sem@powernet.net

William F. Pillsbury
President

John Kobza, Ph.D.
John C. Seher
Managers

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 4/11/2000
Client: BIS-002
Taken by: B. Adkins
Report: 34068
PO #: 2589

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0367	SW-1	3/8/2000	11:22 AM	3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	21	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Bicarbonate	EPA 310.1	21	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Total Dissolved Solids	EPA 160.1	26	mg/L	7	Tretten	3/10/2000
Suspended Solids	EPA 160.2	3	mg/L	1	Tretten	3/10/2000
Ammonia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	3/23/2000
Nitrate-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	3/9/2000
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	3/9/2000
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	0.31	mg/L	0.1	Hellmann	3/21/2000
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Jones	3/10/2000
Calcium - ICP-OES	EPA 200.7	7	mg/L	0.1	Faulstich	3/9/2000
Magnesium - ICP-OES	EPA 200.7	0.59	mg/L	0.1	Faulstich	3/9/2000
Potassium - ICP-OES	EPA 200.7	<0.5	mg/L	0.5	Faulstich	3/9/2000
Sodium - ICP-OES	EPA 200.7	3.4	mg/L	0.1	Faulstich	3/9/2000
Chloride - Ion Chromatography	EPA 300.0	0.6	mg/L	0.1	Lowe	3/9/2000
Cyanide,Total	EPA 335.2	<0.005	mg/L	0.005	Kobza	3/15/2000
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	3/9/2000
Hardness, as CACO3	EPA 130.2	20	mg/L	0.1	Seher	3/13/2000
Sulfate - Ion Chromatography	EPA 300.0	4.4	mg/L	0.1	Lowe	3/9/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	3/10/2000
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Barium - ICP-MS	EPA 200.8	0.002	mg/L	0.001	Lambert	3/20/2000
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Faulstich	3/15/2000
Chromium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	3/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	3/20/2000

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

John Kobza, Ph.D.
John C. Seher
Managers

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 4/11/2000
Client: BIS-002
Taken by: B. Adkins
Report: 34068
PO #: 2589

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0368	SW-2	3/8/2000	9:40 AM	3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	21	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Bicarbonate	EPA 310.1	21	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Total Dissolved Solids	EPA 160.1	28	mg/L	7	Tretten	3/10/2000
[illegible]spended Solids	EPA 160.2	2	mg/L	1	Tretten	3/10/2000
[illegible]monia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	3/23/2000
Nitrate-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	3/9/2000
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	3/9/2000
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	0.15	mg/L	0.1	Hellmann	3/21/2000
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Jones	3/10/2000
Calcium - ICP-OES	EPA 200.7	7.1	mg/L	0.1	Faulstich	3/9/2000
Magnesium - ICP-OES	EPA 200.7	0.61	mg/L	0.1	Faulstich	3/9/2000
Potassium - ICP-OES	EPA 200.7	<0.5	mg/L	0.5	Faulstich	3/9/2000
Sodium - ICP-OES	EPA 200.7	3.5	mg/L	0.1	Faulstich	3/9/2000
Chloride - Ion Chromatography	EPA 300.0	0.6	mg/L	0.1	Lowe	3/9/2000
Cyanide,Total	EPA 335.2	<0.005	mg/L	0.005	Kobza	3/15/2000
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	3/9/2000
Hardness, as CACO3	EPA 130.2	19	mg/L	0.1	Seher	3/13/2000
Sulfate - Ion Chromatography	EPA 300.0	4.3	mg/L	0.1	Lowe	3/9/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	3/10/2000
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Barium - ICP-MS	EPA 200.8	0.002	mg/L	0.001	Lambert	3/20/2000
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Faulstich	3/15/2000
Chromium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	3/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	3/20/2000

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

William F. Pillsbury
Chemist

John Kobza, Ph.D.
John C. Seher

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 4/11/2000
Client: BIS-002
Taken by: B. Adkins
Report: 34068
PO #: 2589

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0369	SW-3	3/8/2000	9:04 AM	3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	21	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Bicarbonate	EPA 310.1	21	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Total Dissolved Solids	EPA 160.1	27 ✓	mg/L	7	Tretten	3/10/2000
Suspended Solids	EPA 160.2	2	mg/L	1	Tretten	3/10/2000
[illegible]mmonia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	3/23/2000
[illegible]te-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	3/9/2000
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	3/9/2000
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	0.14	mg/L	0.1	Hellmann	3/21/2000
Phosphorus - Ortho	EPA 365.3	<0.02 ✓	mg/L	0.02	Jones	3/10/2000
Calcium - ICP-OES	EPA 200.7	6.8	mg/L	0.1	Faulstich	3/9/2000
Magnesium - ICP-OES	EPA 200.7	0.55	mg/L	0.1	Faulstich	3/9/2000
Potassium - ICP-OES	EPA 200.7	<0.5	mg/L	0.5	Faulstich	3/9/2000
Sodium - ICP-OES	EPA 200.7	3.3	mg/L	0.1	Faulstich	3/9/2000
Chloride - Ion Chromatography	EPA 300.0	0.6 ✓	mg/L	0.1	Lowe	3/9/2000
Cyanide,Total	EPA 335.2	<0.005	mg/L	0.005	Kobza	3/15/2000
Fluoride - Ion Chromatography	EPA 300.0	<0.1 ✓	mg/L	0.1	Lowe	3/9/2000
Hardness, as CACO3	EPA 130.2	19	mg/L	0.1	Seher	3/13/2000
Sulfate - Ion Chromatography	EPA 300.0	4.3 ✓	mg/L	0.1	Lowe	3/9/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	3/10/2000
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Barium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Boron - ICP-OES	EPA 200.7	<0.05 ✓	mg/L	0.05	Faulstich	3/15/2000
Chromium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	3/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	3/20/2000

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
sem@powernet.net

John Kobza, Ph.D.
John C. Seher
Managers

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 4/11/2000
Client: BIS-002
Taken by: B. Adkins
Report: 34068
PO #: 2589

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0370	SW-4	3/8/2000	8:31 AM	3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	21	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Bicarbonate	EPA 310.1	21	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Jones	3/13/2000
Total Dissolved Solids	EPA 160.1	19 ✓	mg/L	7	Tretten	3/10/2000
Suspended Solids	EPA 160.2	3	mg/L	1	Tretten	3/10/2000
monia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	3/23/2000
Nitrate-N - Ion Chromatography	EPA 300.0	<0.1N ✓	mg/L	0.1	Lowe	3/9/2000
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	3/9/2000
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	0.18	mg/L	0.1	Hellmann	3/21/2000
Phosphorus - Ortho	EPA 365.3	<0.02 ✓	mg/L	0.02	Jones	3/10/2000
Calcium - ICP-OES	EPA 200.7	6.6	mg/L	0.1	Faulstich	3/9/2000
Magnesium - ICP-OES	EPA 200.7	0.55	mg/L	0.1	Faulstich	3/9/2000
Potassium - ICP-OES	EPA 200.7	<0.5	mg/L	0.5	Faulstich	3/9/2000
Sodium - ICP-OES	EPA 200.7	3.4	mg/L	0.1	Faulstich	3/9/2000
Chloride - Ion Chromatography	EPA 300.0	0.6	mg/L	0.1	Lowe	3/9/2000
Cyanide,Total	EPA 335.2	<0.005	mg/L	0.005	Kobza	3/15/2000
Fluoride - Ion Chromatography	EPA 300.0	<0.1 ✓	mg/L	0.1	Lowe	3/9/2000
Hardness, as CACO3	EPA 130.2	19	mg/L	0.1	Seher	3/13/2000
Sulfate - Ion Chromatography	EPA 300.0	4.3 ✓	mg/L	0.1	Lowe	3/9/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	3/10/2000
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Barium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Boron - ICP-OES	EPA 200.7	<0.05 ✓	mg/L	0.05	Faulstich	3/15/2000
Chromium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	3/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	3/20/2000

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William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

John Kobza, Ph.D.
John C. Seher
Managers

Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 4/11/2000
Client: BIS-002
Taken by: B. Adkins
Report: 34068
PO #: 2589

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0371	Trip Blank	1/21/2000		3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
VOCs	Subcontract	See Report		0		

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0372	Field Blank	3/8/2000		3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	3/10/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	3/20/2000

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0373	Sample A	11/3/1999	9:57 AM	3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Total Dissolved Solids	EPA 160.1	26	mg/L	7	Tretten	3/10/2000
Suspended Solids	EPA 160.2	27	mg/L	1	Tretten	3/10/2000

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200003-0374	Sample B	11/3/1999	9:57 AM	3/9/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Total Dissolved Solids	EPA 160.1	<7	mg/L	7	Tretten	3/10/2000
Suspended Solids	EPA 160.2	42	mg/L	1	Tretten	3/10/2000

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1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

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Managers

Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date:	4/11/2000
Client:	BIS-002
Taken by:	B. Adkins
Report:	34068
PO #:	2589

Approved By: _____ **Date:** 4-12-00

Sierra Environmental Monitoring, Inc

This report is applicable only to the sample received by the laboratory. The liability of the laboratory is limited to the amount paid for this report. This report is for the exclusive use of the client to whom it is addressed and upon the condition that the client assumes all liability for the further distribution of the report or its contents.

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

William F. Pillsbury
President

John Kobza, Ph.D.
John C. Seher
Managers

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SIERRA ENVIRONMENTAL MONITORING, INC.

1135 FINANCIAL BOULEVARD - RENO - NEVADA - 89502

TELEPHONE: (775) 857-2400 TELEFAX: (775) 857-2404

CHAIN OF CUSTODY RECORD

Client Name: Bishop Paint Tribe - EMC | Purchase Order: 2589

Address: [illegible] | Phone/Fax #: 760-873-3665 / 4143

City: Bishop | State: CA | Zip: 93514 | Report Attention: Brian Adkins

Sampled by: Brian Adkins | Signature: Brian Adkins

Turnaround Time: Standard: X | Other: ____ | Rush: 24 Hr ____ 48 Hr ____

Compliance Monitoring: Yes: ____ No: ____

Lab Use Only Pres. Verified

Date Sampled	Time Sampled	Sample Type *	Sample Identification	Preservative*	Analyses Requested	Remarks
3/1/00	—	3	Trip Blank		X	MTBE also
3/1/00	8:31	2	Field Blank		X	
3/1/00	9:51	2	[illegible] A		X	
3/1/00	10:15	2	[illegible] B		X	Please send raw data + QA/QC info with report.
						Please fax results + hardcopy 760-873-4143

	Signature	Print Name	Company	Date	Time
Relinquished By:	Brian Adkins	Brian Adkins	Bishop Paint Tribe	3/3/00	5:00pm
Received By:	SIERRA WEST Express	David Stephen	Sierra West Express	3/4/00	17:00
Relinquished By:					
Received By:					
Relinquished By:					
Received By Laboratory:	[illegible]	[illegible]	SEM	3/7/00	1105

Custody Seal Intact
Yes ✓ No ____ None ____

Sample Temperature
Chilled 4°C Ambient ____

Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report.

*** KEY:** Sample Type: 1=Drinking Water, 2=Surface Water, 3=Ground Water, 4=Waste Water, 5=Soil, 6=RCRA, 7=Other
Preservative: 1=NaOH, 2=NaOH + ZnOAC, 3=HNO3, 4=H2SO4, 5=Na2S2O3, 6=None, 7=Other

SEM COC Form Revised 5/98

SIERRA ENVIRONMENTAL MONITORING, INC.
1135 FINANCIAL BOULEVARD - RENO - NEVADA - 89502
TELEPHONE: (775) 857-2400 TELEFAX: (775) 857-2404

CHAIN OF CUSTODY RECORD

Client Name: Bishop Paiute Tribe - EMO
Purchase Order: 2589
Address: 50-A Tu Su Lane
Phone/Fax #: 760-873-3665 / Fax 4143
City: Bishop State: CA Zip: 93514
Report Attention: Brian Adkins
Sampled by: Brian Adkins
Signature: [signature]

Turnaround Time: Standard: ✓ Other: ___ Rush: 24 Hr ___ 48 Hr ___
Compliance Monitoring: Yes: ___ No: ___
Lab Use Only Pres. Verified

Analyses Requested: See attached list; Organics (see attached list); [illegible]

Date Sampled	Time Sampled	Sample Type*	Sample Identification	Preservative*	See attached list	Organics	[illegible]	Remarks	Pres. Verified
3/8/	14:38	3	MW-1	3,4,6,7	X	X	X	Please do MTBE	✓
3/8/00	[illegible]	3	MW-2	3,4,6,7	X	X	X	↓	✓
	13:15	3	MW-3	3,4,6,7	X	X			
	14:30	3	GW-7	7		X			
		~~3~~	~~GW-8~~	~~7~~		~~X~~			
	8:22 / 8:24	2	SW-1	3,4,6	X				✓
	7:40	2	SW-2	3,4,6	X				
	7:04	2	SW-3	3,4,6	X				
	8:31	2	SW-4	3,4,6	X				

Signature	Print Name	Company	Date	Time
Relinquished By: [signature]	Brian Adkins	Bishop Paiute Tribe	3/8/00	5:00 pm
Received By: [signature]	Dave [illegible]	Sierra West Express	3/8/00	7:00
Relinquished By:				
Received By:				
Relinquished By:				
Received By Laboratory: [signature]	Jamie Ward	SEM	3/9/00	0950

Custody Seal Intact: Yes ___ No ___ None ___

Sample Temperature: Chilled 4°C Ambient ___

Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report.

*KEY: Sample Type: 1=Drinking Water, 2=Surface Water, 3=Ground Water, 4=Waste Water, 5=Soil, 6=RCRA, 7=Other
Preservative: 1=NaOH, 2=NaOH + ZnOAC, 3=HNO3, 4=H2SO4, 5=Na2S2O3, 6=None, 7=Other

SEM COC Form Revised 5/98

Quality Control Report

An Addendum to SEM Report Number: 34068

Sierra
Environmental
Monitoring, Inc.

Parameter	*LCS, % Recovery*	*MS, % Recovery*	*MSD, % Recovery*	*RPD, %*	*Method Blank*	
Alkalinity, Total				0.00		
Alkalinity/Bicarbonate				0.00		
Alkalinity/Carbonate				0.00		
Alkalinity/Hydroxide				0.00		
Ammonia-N	95.2	103.0	101.0	1.96	<0.1	mg/L
Arsenic - ICP-MS	101.0	105.0	108.0	2.82	< 0.002	mg/L
Barium - ICP-MS	97.6	101.1	107.1	5.76	< 0.002	mg/L
Boron - ICP-OES	103.2	106.8	109.6	2.59	<0.05	mg/L
Calcium - ICP-OES	102.2	82.0	90.0	2.20	<0.1	mg/L
Chloride - Ion Chromatography	96.6	96.0	95.0	1.05	<0.1	mg/L
Chromium - ICP-MS	105.0	114.0	147.0	25.29	< 0.002	mg/L
Copper - ICP-MS	103.0	114.0	148.0	25.95	< 0.002	mg/L
Cyanide,Total	99.8	95.5	95.0	0.52	<0.005	mg/L
Fluoride - Ion Chromatography	96.7	100.0	100.0	0.00	<0.1	mg/L
Hardness, as CACO3				1.34		
Kjeldahl Nitrogen - Digestion/Anal	100.0	94.0	98.0	4.17	<0.1	mg/L
Magnesium - ICP-OES	104.8	106.8	105.8	0.94	<0.1	mg/L
Manganese - ICP-MS	104.0	114.0	146.0	24.62	< 0.002	mg/L
Mercury - AA Cold Vapor	94.9	100.0	102.0	1.98	<0.0005	mg/L
Nitrate-N - Ion Chromatography	99.1	101.0	101.0	0.00	<0.1	mg/L
Nitrite-N - Ion Chromatography	98.8	101.0	101.0	0.00	<0.1	mg/L
Phosphorus - Ortho	94.0	98.5	98.5	0.00	<0.02	mg/L
Potassium - ICP-OES	98.2	111.6	110.2	1.26	<0.5	mg/L
Silica		61.2	62.5	2.02		
Silver - ICP-MS	102.0	92.8	97.2	4.63	< 0.002	mg/L
Sodium - ICP-OES	101.8	86.0	88.0	2.30	<0.1	mg/L

Legend: LCS, Laboratory Control Standard; MS, Matrix Spike; MSD, Matrix Spike Duplicate; RPD, Relative Percent Difference

Tuesday, April 11, 2000

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

John Kobza, Ph.D.
John C. Seher
Managers

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Quality Control Report

An Addendum to SEM Report Number: 34068

Sierra Environmental Monitoring, Inc.

Parameter	*LCS, % Recovery*	*MS, % Recovery*	*MSD, % Recovery*	*RPD, %*	*Method Blank*	
Sulfate - Ion Chromatography	99.6	93.0	96.0	3.17	<0.1	mg/L
Suspended Solids				7.14		
Total Dissolved Solids		100.8		0.00		
Zinc - ICP-MS	108.0	118.5	156.5	27.64	< 0.02	mg/L

Legend: LCS, Laboratory Control Standard; MS, Matrix Spike; MSD, Matrix Spike Duplicate; RPD, Relative Percent Difference

Tuesday, April 11, 2000

William F. Pillsbury
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1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
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John Kobza, Ph.D.
John C. Seher
Managers

/S

SIERRA ENVIRONMRENTAL MONITORING, INC.

OrderID	Param	LCS % Recovery	LCS Upper Control	LCS Lower Control	MS % Recovery	MS Upper Control	MS Lower Control Limit	MSD % Recovery	MSD Upper Control	MSD Lower Control	RPD	UCL	LCL	
34068	Alkalinity, Total										0	20	0	
34068	Alkalinity/Bicarbonate										0	20	0	
34068	Alkalinity/Carbonate										0	20	0	
34068	Alkalinity/Hydroxide										0	20	0	
34068	Ammonia-	95.2381	115	85	103	120	80	101	120	80	1.960784	20	0	BA
34068	Arsenic - IC	101	110	90	105	130	70	108	130	70	2.816901	20	0	BA
34068	Barium - IC	97.6	110	90	101.1	130	70	107.1	130	70	5.763689	20	0	BA
34068	Boron - IC	103.2	110	90	106.8	130	70	109.6	130	70	2.5878	20	0	BA
34068	Calcium - I	102.2	110	90	82	130	70	90	130	70	2.197802	20	0	BA
34068	Chloride - I	96.57143	110	90	96	110	90	95	110	90	1.04712	20	0	BA
34068	Chromium	105	110	90	114	130	70	(147)	130	70	(25)28736	20	0	BA ms SD%, RPD ex
34068	Copper - IC	103	110	90	114	130	70	(148)	130	70	25.9542	20	0	BA msD% exceed
34068	Cyanide,To	99.75	115	85	95.5	115	85	95	115	85	0.524934	20	0	BA
34068	Fluoride - I	96.66667	110	90	100	110	90	100	110	90	0	20	0	BA
34068	Hardness, as CACO3										1.336303	20	0	BA
34068	Kjeldahl Ni	100	115	85	94	120	80	98	120	80	4.166667	20	0	BA
34068	Magnesiu	104.8	110	90	106.8	130	70	105.8	130	70	0.940734	20	0	BA
34068	Manganese	104	110	90	114	130	70	146	130	70	(24.)61538	20	0	RPD exceeded
34068	Mercury -	94.87805	110	90	100	120	80	102	120	80	1.980198	20	0	BA
34068	Nitrate-N -	99.05882	110	90	101	110	90	101	110	90	0	20	0	BA
34068	Nitrite-N - I	98.80952	110	90	101	110	90	101	110	90	0	20	0	BA
34068	Phosphoru	94.01869	110	90	98.5	120	80	98.5	120	80	0	20	0	BA
34068	Potassium	98.2	110	90	111.6	130	70	110.2	130	70	1.262399	20	0	BA
34068	Silica				(61.25)	120	80	(62.5)	120	80	2.020202	20	0	BA ms%, msD% ex
34068	Silver - ICP	102	110	90	92.8	130	70	97.2	130	70	4.631579	20	0	BA
34068	Sodium - I	101.8	110	90	86	130	70	88	130	70	2.298851	20	0	BA
34068	Sulfate - Io	99.55556	110	90	93	110	90	96	110	90	3.174603	20	0	BA
34068	Suspended Solids										7.142857	20	0	
34068	Total Dissolved Solids				100.8	120	80				0	10	0	
34068	Zinc - ICP-	108	110	90	118.5	130	70	(156.5)	130	70	(27.)63636	20	0	BA msD%, RPD exceed

This photocopy of electronic data file agrees with signed Quality Control Report 34068 per my review. [illegible] 11/20/00

All rows of data above, ~~is app~~ that bears my initials, is approved for data entry.

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CustomerName	Customer ID	Order ID	Customer PO	Project ID	Customer Sample Number	Site	Collector	CollectDate	SampleNumber	Matrix	Param	Method	Detection Limit	RDL	Reported Result	Numeric Result	Units	Analyst/ Employee	Analysis Date
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Alkalinity, Total	EPA 310.1	1	1	31	31	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Alkalinity/Bicarbonate	EPA 310.1	1	1	31	31	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Alkalinity/Carbonate	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Alkalinity/Hydroxide	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05	mg/L	Hellmann	23-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.001	0.009	0.009	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025	mg/L	Faulstich	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Calcium - ICP-OES	EPA 200.7	0.1	0.1	8.8	8.8	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	0.9	0.9	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Cyanide,Total	EPA 335.2	0.005	0.005	<0.005	0.0025	mg/L	Kobza	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	0.1	0.1	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	27	27	mg/L	Seher	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Magnesium - ICP-OES	EPA 200.7	0.1	0.1	1.2	1.2	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025	mg/L	Jones	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	0.2N	0.2	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01	mg/L	Jones	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Potassium - ICP-OES	EPA 200.7	0.2	0.2	1.1	1.1	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Radiological Analysis	Subcontract		0	See	0			10-Apr-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Silica	EPA 370.1	1	1	15	15	mg/L	Nussbaum	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Sodium - ICP-OES	EPA 200.7	0.1	0.1	5.1	5.1	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	6.0	6	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	52	52	mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Total Petroleum Hydrocarbon	Subcontract		0	See	0			
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	VOCs	Subcontract		0	See	0			
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-1		B. Adkins	3/7/2000	S200003-0363	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Alkalinity, Total	EPA 310.1	1	1	52	52	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Alkalinity/Bicarbonate	EPA 310.1	1	1	52	52	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Alkalinity/Carbonate	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Alkalinity/Hydroxide	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05	mg/L	Hellmann	23-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.001	0.004	0.004	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.001	0.007	0.007	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025	mg/L	Faulstich	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Calcium - ICP-OES	EPA 200.7	0.1	0.1	12	12	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	4.6	4.6	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Cyanide,Total	EPA 335.2	0.005	0.005	<0.005	0.0025	mg/L	Kobza	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	1.0	1	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	34	34	mg/L	Seher	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Magnesium - ICP-OES	EPA 200.7	0.1	0.1	0.88	0.88	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025	mg/L	Jones	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	0.3N	0.3	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01	mg/L	Jones	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Potassium - ICP-OES	EPA 200.7	0.2	0.2	1.5	1.5	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Radiological Analysis	Subcontract		0	See	0			10-Apr-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Silica	EPA 370.1	1	1	20	20	mg/L	Nussbaum	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Sodium - ICP-OES	EPA 200.7	0.1	0.1	18	18	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	14	14	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	79	79	mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Total Petroleum Hydrocarbon	Subcontract		0	See	0			
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	VOCs	Subcontract		0	See	0			
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-2		B. Adkins	3/8/2000	S200003-0364	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		MW-3		B. Adkins	3/8/2000	S200003-0365	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05	mg/L	Hellmann	23-Mar-00

Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.001	0.004	0.004	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.001	0.007	0.007	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025	mg/L	Faulstich	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	38	38	mg/L	Seher	14-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025	mg/L	Jones	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	0.4N	0.4	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Total Petroleum Hydrocarbon	Subcontract			0 See	0			
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	VOCs	Subcontract			0 See	0			
Bishop Paiute Tribal Council	BIS-002	34068	2589	MW-3	B. Adkins	3/8/2000	S200003-0365	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	GW-7	B. Adkins	3/8/2000	S200003-0366	Clean Water	Total Petroleum Hydrocarbon	Subcontract			0 See	0			
Bishop Paiute Tribal Council	BIS-002	34068	2589	GW-7	B. Adkins	3/8/2000	S200003-0366	Clean Water	VOCs	Subcontract			0 See	0			
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Alkalinity, Total	EPA 310.1	1	1	21	21	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Alkalinity/Bicarbonate	EPA 310.1	1	1	21	21	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Alkalinity/Carbonate	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Alkalinity/Hydroxide	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05	mg/L	Hellmann	23-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.001	0.002	0.002	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025	mg/L	Faulstich	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Calcium - ICP-OES	EPA 200.7	0.1	0.1	7.0	7	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	0.6	0.6	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Cyanide,Total	EPA 335.2	0.005	0.005	<0.005	0.0025	mg/L	Kobza	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	20	20	mg/L	Seher	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Kjeldahl Nitrogen - Digestion/Analysis	EPA 351.4	0.1	0.1	0.31	0.31	mg/L	Hellmann	21-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Magnesium - ICP-OES	EPA 200.7	0.1	0.1	0.59	0.59	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025	mg/L	Jones	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1N	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Nitrite-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1N	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01	mg/L	Jones	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Potassium - ICP-OES	EPA 200.7	0.2	0.5	<0.5	0.25	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Sodium - ICP-OES	EPA 200.7	0.1	0.1	3.4	3.4	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	4.4	4.4	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Suspended Solids	EPA 160.2	1	1	3	3	mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	26	26	mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-1	B. Adkins	3/8/2000	S200003-0367	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Alkalinity, Total	EPA 310.1	1	1	21	21	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Alkalinity/Bicarbonate	EPA 310.1	1	1	21	21	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Alkalinity/Carbonate	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Alkalinity/Hydroxide	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05	mg/L	Hellmann	23-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.001	0.002	0.002	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025	mg/L	Faulstich	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Calcium - ICP-OES	EPA 200.7	0.1	0.1	7.1	7.1	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	0.6	0.6	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Cyanide,Total	EPA 335.2	0.005	0.005	<0.005	0.0025	mg/L	Kobza	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	19	19	mg/L	Seher	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Kjeldahl Nitrogen - Digestion/Analysis	EPA 351.4	0.1	0.1	0.15	0.15	mg/L	Hellmann	21-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Magnesium - ICP-OES	EPA 200.7	0.1	0.1	0.61	0.61	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025	mg/L	Jones	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589	SW-2	B. Adkins	3/8/2000	S200003-0368	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1N	0.05	mg/L	Lowe	09-Mar-00

Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-2	B Adkins	3/8/2000 S200003-0368	Clean Water	Nitrite-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1N	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-2	B Adkins	3/8/2000 S200003-0368	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01	mg/L	Jones	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-2	B. Adkins	3/8/2000 S200003-0368	Clean Water	Potassium - ICP-OES	EPA 200.7	0.2	0.5	<0.5	0.25	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-2	B. Adkins	3/8/2000 S200003-0368	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-2	B. Adkins	3/8/2000 S200003-0368	Clean Water	Sodium - ICP-OES	EPA 200.7	0.1	0.1	3.5	3.5	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-2	B. Adkins	3/8/2000 S200003-0368	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	4.3	4.3	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-2	B. Adkins	3/8/2000 S200003-0368	Clean Water	Suspended Solids	EPA 160.2	1	1	2	2	mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-2	B. Adkins	3/8/2000 S200003-0368	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	28	28	mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-2	B Adkins	3/8/2000 S200003-0368	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Alkalinity, Total	EPA 310.1	1	1	21	21	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Alkalinity/Bicarbonate	EPA 310.1	1	1	21	21	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Alkalinity/Carbonate	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Alkalinity/Hydroxide	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05	mg/L	Heilmann	23-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025	mg/L	Faulstich	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Calcium - ICP-OES	EPA 200.7	0.1	0.1	6.8	6.8	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	0.6	0.6	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Cyanide,Total	EPA 335.2	0.005	0.005	<0.005	0.0025	mg/L	Kobza	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	19	19	mg/L	Seher	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Kjeldahl Nitrogen - Digestion/Analysis	EPA 351.4	0.1	0.1	0.14	0.14	mg/L	Heilmann	21-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Magnesium - ICP-OES	EPA 200.7	0.1	0.1	0.55	0.55	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025	mg/L	Jones	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1N	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Nitrite-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1N	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01	mg/L	Jones	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Potassium - ICP-OES	EPA 200.7	0.2	0.5	<0.5	0.25	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Sodium - ICP-OES	EPA 200.7	0.1	0.1	3.3	3.3	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	4.3	4.3	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Suspended Solids	EPA 160.2	1	1	2	2	mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	27	27	mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-3	B. Adkins	3/8/2000 S200003-0369	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Alkalinity, Total	EPA 310.1	1	1	21	21	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Alkalinity/Bicarbonate	EPA 310.1	1	1	21	21	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Alkalinity/Carbonate	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Alkalinity/Hydroxide	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Jones	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05	mg/L	Heilmann	23-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025	mg/L	Faulstich	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Calcium - ICP-OES	EPA 200.7	0.1	0.1	6.6	6.6	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	0.6	0.6	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Cyanide,Total	EPA 335.2	0.005	0.005	<0.005	0.0025	mg/L	Kobza	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	19	19	mg/L	Seher	13-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Kjeldahl Nitrogen - Digestion/Analysis	EPA 351.4	0.1	0.1	0.18	0.18	mg/L	Heilmann	21-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Magnesium - ICP-OES	EPA 200.7	0.1	0.1	0.55	0.55	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025	mg/L	Jones	15-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1N	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Nitrite-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1N	0.05	mg/L	Lowe	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01	mg/L	Jones	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Potassium - ICP-OES	EPA 200.7	0.2	0.5	<0.5	0.25	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Sodium - ICP-OES	EPA 200.7	0.1	0.1	3.4	3.4	mg/L	Faulstich	09-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000 S200003-0370	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	4.3	4.3	mg/L	Lowe	09-Mar-00

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Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000	S200003-0370	Clean Water	Suspended Solids	EPA 160.2	1	1	3	3 mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000	S200003-0370	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	19	19 mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		SW-4	B. Adkins	3/8/2000	S200003-0370	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01 mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		Trip Blank	B. Adkins	1/21/2000	S200003-0371	Clean Water	VOCs	Subcontract		0	See	0		
Bishop Paiute Tribal Council	BIS-002	34068	2589		Field	B. Adkins	3/8/2000	S200003-0372	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001 mg/L	Lambert	20-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		Sample A	B. Adkins	11/3/1999	S200003-0373	Clean Water	Suspended Solids	EPA 160.2	1	1	27	27 mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		Sample A	B. Adkins	11/3/1999	S200003-0373	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	26	26 mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		Sample B	B. Adkins	11/3/1999	S200003-0374	Clean Water	Suspended Solids	EPA 160.2	1	1	42	42 mg/L	Tretten	10-Mar-00
Bishop Paiute Tribal Council	BIS-002	34068	2589		Sample B	B. Adkins	11/3/1999	S200003-0374	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	<7	3.5 mg/L	Tretten	10-Mar-00

~~RH~~ Data have been reviewed pursuant to QAPP Section D1. All data + comments is approved for entry into data base. ok B. Adkins 12/21/00

TestMethod	Analyte	SampleID	Result	SampleID	Result	RPD	UCL	LCL
EPA Method SW8015	Nonane	(200003-364) MW-2	98.4	(200003-365) MW-3	81.5	18.7882157	20	0
EPA Method SW8015	TPH-E (Diesel)	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method SW8015	TPH-E (Gasoline)	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method SW8015	TPH-E (Jet Fuel)	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method SW8015	TPH-E (Oil)	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	1,1,1-Trichloroethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	1,1,2,2-Tetrachloroethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	1,1,2-Trichloroethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	1,1-Dichloroethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	1,1-Dichloroethene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	1,2-Dichlorobenzene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	1,2-Dichloroethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	1,2-Dichloroethane-d4	(200003-364) MW-2	9.91	(200003-365) MW-3	10.1	-1.89905047	20	0
EPA Method 624/SW8260B	1,2-Dichloropropane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	1,3-Dichlorobenzene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	1,4-Dichlorobenzene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	2-Chloroethylvinylether	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	4-Bromofluorobenzene	(200003-364) MW-2	9.89	(200003-365) MW-3	9.8	0.91416963	20	0
EPA Method 624/SW8260B	Benzene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Bromodichloromethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Bromoform	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Bromomethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Carbon tetrachloride	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Chlorobenzene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Chloroethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Chloroform	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Chloromethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	cis-1,2-Dichloroethene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	cis-1,3-Dichloropropene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Dibromochloromethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Dichloromethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Ethylbenzene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	m,p-Xylene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Methyl tert-butyl ether (MTI	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	o-Xylene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Tetrachloroethene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Toluene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Toluene-d8	(200003-364) MW-2	10.4	(200003-365) MW-3	10.3	0.96618357	20	0
EPA Method 624/SW8260B	trans-1,2-Dichloroethene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	trans-1,3-Dichloropropene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Trichloroethene	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Trichlorofluoromethane	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0
EPA Method 624/SW8260B	Vinyl chloride	(200003-364) MW-2	0	(200003-365) MW-3	0	#DIV/0!	20	0

(Note: MW3 is a duplicate of MW2).

The above QA data has been reconciled with DQOs of Section D3 QAPP (July, 30, 99).

11/28/00

Facility	Sampling Quarter	Sample Date	Type	Location	Report
[redacted]	Winter 00	3/8/007	Chemical	Lab	Alpha Analytical Report #SEM00030931

Alpha Analytical, I.
255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Sierra Environmental Monitoring
1135 Financial Blvd.
Reno, NV 89502

Job#:
Phone: (775) 857-2400
Attn: John Seher

Total Petroleum Hydrocarbons - Extractable (TPH-E) EPA Method 8015B/DHS LUFT Manual

		Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID :	(200003-363) MW-1	TPH-E (Gasoline)	ND	0.50 mg/L	03/07/00	03/13/00
Lab ID :	SEM00030931-01A	TPH-E (Jet Fuel)	ND	0.50 mg/L	03/07/00	03/13/00
		TPH-E (Diesel)	ND	0.50 mg/L	03/07/00	03/13/00
		TPH-E (Oil)	ND	0.50 mg/L	03/07/00	03/13/00
Client ID :	(200003-364) MW-2	TPH-E (Gasoline)	ND	0.50 mg/L	03/08/00	03/11/00
Lab ID :	SEM00030931-02A	TPH-E (Jet Fuel)	ND	0.50 mg/L	03/08/00	03/11/00
		TPH-E (Diesel)	ND	0.50 mg/L	03/08/00	03/11/00
		TPH-E (Oil)	ND	0.50 mg/L	03/08/00	03/11/00
Client ID :	(200003-365) MW-3	TPH-E (Gasoline)	ND	0.50 mg/L	03/08/00	03/11/00
Lab ID :	SEM00030931-03A	TPH-E (Jet Fuel)	ND	0.50 mg/L	03/08/00	03/11/00
		TPH-E (Diesel)	ND	0.50 mg/L	03/08/00	03/11/00
		TPH-E (Oil)	ND	0.50 mg/L	03/08/00	03/11/00
Client ID :	(200003-366) GW-7	TPH-E (Gasoline)	ND	0.50 mg/L	03/08/00	03/11/00
Lab ID :	SEM00030931-04A	TPH-E (Jet Fuel)	ND	0.50 mg/L	03/08/00	03/11/00
		TPH-E (Diesel)	ND	0.50 mg/L	03/08/00	03/11/00
		TPH-E (Oil)	ND	0.50 mg/L	03/08/00	03/11/00

ND = Not Detected

Approved By: R Scholl Date: 3/21/00

Roger L. Scholl, Ph.D.
Laboratory Director

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Alpha Analytical, I.
255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Sierra Environmental Monitoring
1135 Financial Blvd.
Reno, NV 89502

Job#:
Phone: (775) 857-2400
Attn: John Seher

Alpha Analytical Number: SEM00030931-01A
Client I.D. Number: (200003-363) MW-1

Sampled: 03/07/00
Received: 03/09/00
Analyzed: 03/13/00

Volatile Organics by GC/MS
EPA Method 624/SW8260B

	Compound	Concentration µg/L	Reporting Limit
1	Chloromethane	ND	2.0 µg/L
2	Vinyl chloride	ND	1.0 µg/L
3	Chloroethane	ND	1.0 µg/L
4	Bromomethane	ND	1.0 µg/L
5	Trichlorofluoromethane	ND	1.0 µg/L
6	1,1-Dichloroethene	ND	1.0 µg/L
7	Dichloromethane	ND	2.0 µg/L
8	trans-1,2-Dichloroethene	ND	1.0 µg/L
9	Methyl tert-butyl ether (MTBE)	ND	1.0 µg/L
10	1,1-Dichloroethane	ND	1.0 µg/L
11	cis-1,2-Dichloroethene	ND	1.0 µg/L
12	Chloroform	ND	1.0 µg/L
13	1,2-Dichloroethane	ND	1.0 µg/L
14	1,1,1-Trichloroethane	ND	1.0 µg/L
15	Carbon tetrachloride	ND	1.0 µg/L
16	Benzene	ND	1.0 µg/L
17	1,2-Dichloropropane	ND	1.0 µg/L
18	Trichloroethene	ND	1.0 µg/L
19	Bromodichloromethane	ND	1.0 µg/L
20	2-Chloroethylvinylether	ND	2.0 µg/L
21	cis-1,3-Dichloropropene	ND	1.0 µg/L
22	trans-1,3-Dichloropropene	ND	1.0 µg/L
23	1,1,2-Trichloroethane	ND	1.0 µg/L
24	Toluene	ND	1.0 µg/L
25	Dibromochloromethane	ND	1.0 µg/L
26	Tetrachloroethene	ND	1.0 µg/L
27	Chlorobenzene	ND	1.0 µg/L
28	Ethylbenzene	ND	1.0 µg/L
29	m,p-Xylene	ND	1.0 µg/L
30	Bromoform	ND	1.0 µg/L
31	o-Xylene	ND	1.0 µg/L
32	1,1,2,2-Tetrachloroethane	ND	1.0 µg/L
33	1,3-Dichlorobenzene	ND	1.0 µg/L
34	1,4-Dichlorobenzene	ND	1.0 µg/L
35	1,2-Dichlorobenzene	ND	1.0 µg/L

ND = Not Detected

Approved By: _____ Date: 3/21/00

Roger L. Scholl, Ph.D.
Laboratory Director

Alpha Analytical, I.
255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Sierra Environmental Monitoring
1135 Financial Blvd.
Reno, NV 89502

Job#:
Phone: (775) 857-2400
Attn: John Seher

Alpha Analytical Number: SEM00030931-02A
Client I.D. Number: (200003-364) MW-2

Sampled: 03/08/00
Received: 03/09/00
Analyzed: 03/13/00

Volatile Organics by GC/MS
EPA Method 624/SW8260B

	Compound	Concentration µg/L	Reporting Limit
1	Chloromethane	ND	2.0 µg/L
2	Vinyl chloride	ND	1.0 µg/L
3	Chloroethane	ND	1.0 µg/L
4	Bromomethane	ND	1.0 µg/L
5	Trichlorofluoromethane	ND	1.0 µg/L
6	1,1-Dichloroethene	ND	1.0 µg/L
7	Dichloromethane	ND	2.0 µg/L
8	trans-1,2-Dichloroethene	ND	1.0 µg/L
9	Methyl tert-butyl ether (MTBE)	ND	1.0 µg/L
10	1,1-Dichloroethane	ND	1.0 µg/L
11	cis-1,2-Dichloroethene	ND	1.0 µg/L
12	Chloroform	ND	1.0 µg/L
13	1,2-Dichloroethane	ND	1.0 µg/L
14	1,1,1-Trichloroethane	ND	1.0 µg/L
15	Carbon tetrachloride	ND	1.0 µg/L
16	Benzene	ND	1.0 µg/L
17	1,2-Dichloropropane	ND	1.0 µg/L
18	Trichloroethene	ND	1.0 µg/L
19	Bromodichloromethane	ND	1.0 µg/L
20	2-Chloroethylvinylether	ND	2.0 µg/L
21	cis-1,3-Dichloropropene	ND	1.0 µg/L
22	trans-1,3-Dichloropropene	ND	1.0 µg/L
23	1,1,2-Trichloroethane	ND	1.0 µg/L
24	Toluene	ND	1.0 µg/L
25	Dibromochloromethane	ND	1.0 µg/L
26	Tetrachloroethene	ND	1.0 µg/L
27	Chlorobenzene	ND	1.0 µg/L
28	Ethylbenzene	ND	1.0 µg/L
29	m,p-Xylene	ND	1.0 µg/L
30	Bromoform	ND	1.0 µg/L
31	o-Xylene	ND	1.0 µg/L
32	1,1,2,2-Tetrachloroethane	ND	1.0 µg/L
33	1,3-Dichlorobenzene	ND	1.0 µg/L
34	1,4-Dichlorobenzene	ND	1.0 µg/L
35	1,2-Dichlorobenzene	ND	1.0 µg/L

ND = Not Detected

Approved By: _____ Date: 3/21/00

Roger L. Scholl, Ph.D.
Laboratory Director

Alpha Analytical, I.
255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
(775) 355-1044 • (775) 355-0406 FAX • 1-800-288-1183

ANALYTICAL REPORT

Sierra Environmental Monitoring
1135 Financial Blvd.
Reno, NV 89502

Job#:
Phone: (775) 857-2400
Attn: John Seher

Alpha Analytical Number: SEM00030931-03A
Client I.D. Number: (200003-365) MW-3

Sampled: 03/08/00
Received: 03/09/00
Analyzed: 03/13/00

Volatile Organics by GC/MS
EPA Method 624/SW8260B

	Compound	Concentration µg/L	Reporting Limit
1	Chloromethane	ND	2.0 µg/L
2	Vinyl chloride	ND	1.0 µg/L
3	Chloroethane	ND	1.0 µg/L
4	Bromomethane	ND	1.0 µg/L
5	Trichlorofluoromethane	ND	1.0 µg/L
6	1,1-Dichloroethene	ND	1.0 µg/L
7	Dichloromethane	ND	2.0 µg/L
8	trans-1,2-Dichloroethene	ND	1.0 µg/L
9	Methyl tert-butyl ether (MTBE)	ND	1.0 µg/L
10	1,1-Dichloroethane	ND	1.0 µg/L
11	cis-1,2-Dichloroethene	ND	1.0 µg/L
12	Chloroform	ND	1.0 µg/L
13	1,2-Dichloroethane	ND	1.0 µg/L
14	1,1,1-Trichloroethane	ND	1.0 µg/L
15	Carbon tetrachloride	ND	1.0 µg/L
16	Benzene	ND	1.0 µg/L
17	1,2-Dichloropropane	ND	1.0 µg/L
18	Trichloroethene	ND	1.0 µg/L
19	Bromodichloromethane	ND	1.0 µg/L
20	2-Chloroethylvinylether	ND	2.0 µg/L
21	cis-1,3-Dichloropropene	ND	1.0 µg/L
22	trans-1,3-Dichloropropene	ND	1.0 µg/L
23	1,1,2-Trichloroethane	ND	1.0 µg/L
24	Toluene	ND	1.0 µg/L
25	Dibromochloromethane	ND	1.0 µg/L
26	Tetrachloroethene	ND	1.0 µg/L
27	Chlorobenzene	ND	1.0 µg/L
28	Ethylbenzene	ND	1.0 µg/L
29	m,p-Xylene	ND	1.0 µg/L
30	Bromoform	ND	1.0 µg/L
31	o-Xylene	ND	1.0 µg/L
32	1,1,2,2-Tetrachloroethane	ND	1.0 µg/L
33	1,3-Dichlorobenzene	ND	1.0 µg/L
34	1,4-Dichlorobenzene	ND	1.0 µg/L
35	1,2-Dichlorobenzene	ND	1.0 µg/L

ND = Not Detected

Approved By: _____ Date: 3/21/00

Roger L. Scholl, Ph.D.
Laboratory Director

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Alpha Analytical, I.
255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Sierra Environmental Monitoring
1135 Financial Blvd.
Reno, NV 89502

Job#:
Phone: (775) 857-2400
Attn: John Seher

Alpha Analytical Number: SEM00030931-04A
Client I.D. Number: (200003-366) GW-7

Sampled: 03/08/00
Received: 03/09/00
Analyzed: 03/13/00

Volatile Organics by GC/MS
EPA Method 624/SW8260B

	Compound	Concentration µg/L	Reporting Limit
1	Chloromethane	ND	2.0 µg/L
2	Vinyl chloride	ND	1.0 µg/L
3	Chloroethane	ND	1.0 µg/L
4	Bromomethane	ND	1.0 µg/L
5	Trichlorofluoromethane	ND	1.0 µg/L
6	1,1-Dichloroethene	ND	1.0 µg/L
7	Dichloromethane	ND	2.0 µg/L
8	trans-1,2-Dichloroethene	ND	1.0 µg/L
9	Methyl tert-butyl ether (MTBE)	ND	1.0 µg/L
10	1,1-Dichloroethane	ND	1.0 µg/L
11	cis-1,2-Dichloroethene	ND	1.0 µg/L
12	Chloroform	ND	1.0 µg/L
13	1,2-Dichloroethane	ND	1.0 µg/L
14	1,1,1-Trichloroethane	ND	1.0 µg/L
15	Carbon tetrachloride	ND	1.0 µg/L
16	Benzene	ND	1.0 µg/L
17	1,2-Dichloropropane	ND	1.0 µg/L
18	Trichloroethene	ND	1.0 µg/L
19	Bromodichloromethane	ND	1.0 µg/L
20	2-Chloroethylvinylether	ND	2.0 µg/L
21	cis-1,3-Dichloropropene	ND	1.0 µg/L
22	trans-1,3-Dichloropropene	ND	1.0 µg/L
23	1,1,2-Trichloroethane	ND	1.0 µg/L
24	Toluene	ND	1.0 µg/L
25	Dibromochloromethane	ND	1.0 µg/L
26	Tetrachloroethene	ND	1.0 µg/L
27	Chlorobenzene	ND	1.0 µg/L
28	Ethylbenzene	ND	1.0 µg/L
29	m,p-Xylene	ND	1.0 µg/L
30	Bromoform	ND	1.0 µg/L
31	o-Xylene	ND	1.0 µg/L
32	1,1,2,2-Tetrachloroethane	ND	1.0 µg/L
33	1,3-Dichlorobenzene	ND	1.0 µg/L
34	1,4-Dichlorobenzene	ND	1.0 µg/L
35	1,2-Dichlorobenzene	ND	1.0 µg/L

ND = Not Detected

Approved By: R. Scholl   Date: 3/21/00
Roger L. Scholl, Ph.D.
Laboratory Director

Alpha Analytical, I.
255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

ANALYTICAL REPORT

Sierra Environmental Monitoring
1135 Financial Blvd.
Reno, NV 89502

Job#:
Phone: (775) 857-2400
Attn: John Seher

Alpha Analytical Number: SEM00030931-05A
Client I.D. Number: (200003-371) Trip Blank

Sampled: 01/21/00
Received: 03/09/00
Analyzed: 03/13/00

Volatile Organics by GC/MS
EPA Method 624/SW8260B

	Compound	Concentration µg/L	Reporting Limit
1	Chloromethane	ND	2.0 µg/L
2	Vinyl chloride	ND	1.0 µg/L
3	Chloroethane	ND	1.0 µg/L
4	Bromomethane	ND	1.0 µg/L
5	Trichlorofluoromethane	ND	1.0 µg/L
6	1,1-Dichloroethene	ND	1.0 µg/L
7	Dichloromethane	ND	2.0 µg/L
8	trans-1,2-Dichloroethene	ND	1.0 µg/L
9	Methyl tert-butyl ether (MTBE)	ND	1.0 µg/L
10	1,1-Dichloroethane	ND	1.0 µg/L
11	cis-1,2-Dichloroethene	ND	1.0 µg/L
12	Chloroform	ND	1.0 µg/L
13	1,2-Dichloroethane	ND	1.0 µg/L
14	1,1,1-Trichloroethane	ND	1.0 µg/L
15	Carbon tetrachloride	ND	1.0 µg/L
16	Benzene	ND	1.0 µg/L
17	1,2-Dichloropropane	ND	1.0 µg/L
18	Trichloroethene	ND	1.0 µg/L
19	Bromodichloromethane	ND	1.0 µg/L
20	2-Chloroethylvinylether	ND	2.0 µg/L
21	cis-1,3-Dichloropropene	ND	1.0 µg/L
22	trans-1,3-Dichloropropene	ND	1.0 µg/L
23	1,1,2-Trichloroethane	ND	1.0 µg/L
24	Toluene	ND	1.0 µg/L
25	Dibromochloromethane	ND	1.0 µg/L
26	Tetrachloroethene	ND	1.0 µg/L
27	Chlorobenzene	ND	1.0 µg/L
28	Ethylbenzene	ND	1.0 µg/L
29	m,p-Xylene	ND	1.0 µg/L
30	Bromoform	ND	1.0 µg/L
31	o-Xylene	ND	1.0 µg/L
32	1,1,2,2-Tetrachloroethane	ND	1.0 µg/L
33	1,3-Dichlorobenzene	ND	1.0 µg/L
34	1,4-Dichlorobenzene	ND	1.0 µg/L
35	1,2-Dichlorobenzene	ND	1.0 µg/L

ND = Not Detected

Approved By: _____ Date: 3/21/00

Roger L. Scholl, Ph.D.
Laboratory Director

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SIERRA ENVIRONMENTAL MONITORING INC

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	Subl ab Name	COC Work Order Number	AlphaSample ID	SubSampleID	Sample Type	SubTestMethod	SubMatrix	SubAnalyte	Sub Result	Sub Analyte Report Limit	Sub Test Report Limit	Sub Report Units	Sub Analysis Date	SubBatchID	Sub Prep Date	Sub Prep Method	Sub QC Spiked Amount	Sub QC Lower Limit	Sub QC Upper Limit	Sub QC Native Amount	Sub Comments	Sub Dilution Factor	RPD
2	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method SW8015	Aqueous	Nonane	100	0	0	mg/L	3/13/2000	3426	3/10/2000	TPH_W_P	100	40	153	0		0.3333333	0
3	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method SW8015	Aqueous	TPH E (Diesel)	0 33	0 5	1 5	mg/L	3/13/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
4	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method SW8015	Aqueous	TPH E (Gasoline)	0	0 5	1 5	mg/L	3/13/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
5	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method SW8015	Aqueous	TPH E (Jet Fuel)	0	0 5	1 5	mg/L	3/13/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
6	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method SW8015	Aqueous	TPH E (Oil)	0 31	0 5	1 5	mg/L	3/13/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
7	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,1 Trichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
8	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,2 2 Tetrachloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
9	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,2 Trichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
10	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
11	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
12	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
13	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
14	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichloroethane d4	9 93	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	67	139	0		1	0
15	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichloropropane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
16	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	1,3 Dichlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
17	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	1,4 Dichlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
18	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	2 Chloroethylvinylether	0	2	2	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
19	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	4 Bromofluorobenzene	10 1	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	72	128	0		1	
20	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	Benzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
21	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Bromodichloromethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
22	Alpha	none	00030931 01A	(200003 353) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Bromoform	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	U
23	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Bromomethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
24	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Carbon tetrachloride	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
25	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	Chlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
26	Alpha	none	00030931 01A	(200003 363) MW 1	SAMP	EPA Method 624/SW8260B	Aqueous	Chloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
27	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Chloroform	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
28	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Chloromethane	0	2	2	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
29	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	cis 1,2 Dichloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
30	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	cis 1,3 Dichloropropene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
31	Alpha	none	00030931-01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Dibromochloromethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
32	Alpha	none	00030931-01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Dichloromethane	0	2	2	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
33	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Ethylbenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
34	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	m,p Xylene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
35	Alpha	none	00030931-01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Methyl tert-butyl ether (MTBE)	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
36	Alpha	none	00030931 01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	o Xylene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
37	Alpha	none	00030931 01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Tetrachloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
38	Alpha	none	00030931 01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Toluene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
39	Alpha	none	00030931 01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Toluene d8	10.3	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	74	127	0		1	0
40	Alpha	none	00030931 01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	trans 1,2 Dichloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
41	Alpha	none	00030931 01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	trans-1,3 Dichloropropene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
42	Alpha	none	00030931-01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Trichloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
43	Alpha	none	00030931 01A	(200003 363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Trichlorofluoromethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
44	Alpha	none	00030931-01A	(200003-363) MW-1	SAMP	EPA Method 624/SW8260B	Aqueous	Vinyl chloride	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
45	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method SW8015	Aqueous	Nonane	98 4	0	0	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	100	40	153	0		0.3333333	0
46	Alpha	none	00030931-02A	(200003-364) MW-2	SAMP	EPA Method SW8015	Aqueous	TPH E (Diesel)	0	0 5	1 5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
47	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method SW8015	Aqueous	TPH E (Gasoline)	0	0 5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
48	Alpha	none	00030931-02A	(200003 364) MW-2	SAMP	EPA Method SW8015	Aqueous	TPH E (Jet Fuel)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
49	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method SW8015	Aqueous	TPH E (Oil)	0	0.5	1 5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
50	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,1-Trichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
51	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,2,2 Tetrachloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
52	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,2-Trichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
53	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
54	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
55	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
56	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,2-Dichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
57	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichloroethane-d4	9 9	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	67	139	0		1	0
58	Alpha	none	00030931-02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichloropropane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
59	Alpha	none	00030931-02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,3 Dichlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
60	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	1,4 Dichlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
61	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	2 Chloroethylvinylether	0	2	2	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
62	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	4 Bromofluorobenzene	9 88	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	72	128	0		1	0
63	Alpha	none	00030931-02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	Benzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
64	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	Bromodichloromethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
65	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	Bromoform	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
66	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	Bromomethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
67	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	Carbon tetrachloride	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
68	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	Chlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
69	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	Chloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
70	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	Chloroform	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
71	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	Chloromethane	0	2	2	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
72	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	cis 1,2 Dichloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
73	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	cis 1,3 Dichloropropene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
74	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	Dibromochloromethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
75	Alpha	none	00030931 02A	(200003 364) MW-2	SAMP	EPA Method 624/SW8260B	Aqueous	Dichloromethane	0	2	2	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0

Toluene-d8

11/17/200010 17 AM

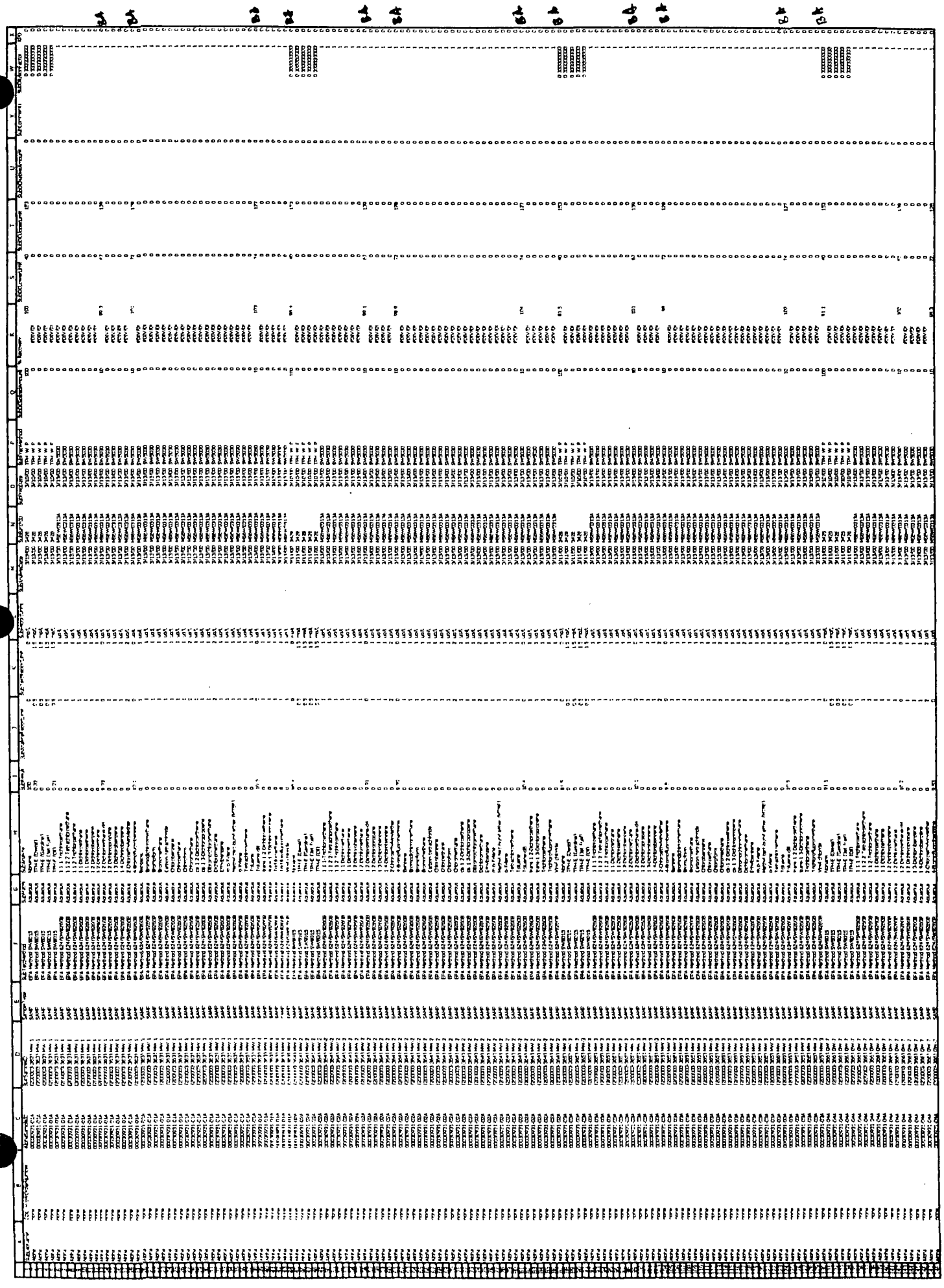
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
76	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	Ethylbenzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
77	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	m,p Xylene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
78	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	Methyl tert butyl ether (MTBE)	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
79	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	o Xylene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
80	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	Tetrachloroethene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
81	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	Toluene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
82	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	Toluene d8	104	0	0	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	74	127	0		1	0
83	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	trans 1,2 Dichloroethene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
84	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	trans 1,3 Dichloropropene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
85	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	Trichloroethene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
86	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	Trichlorofluoromethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
87	Alpha	none	00030931 02A	(200003 364) MW 2	SAMP	EPA Method 624/SW8260B	Aqueous	Vinyl chloride	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
88	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method SW8015	Aqueous	Nonane	81.5	0	0	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	100	40	153	0		0.3333333	0
89	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method SW8015	Aqueous	TPH E (Diesel)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
90	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method SW8015	Aqueous	TPH E (Gasoline)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
91	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method SW8015	Aqueous	TPH E (Jet Fuel)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
92	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method SW8015	Aqueous	TPH E (Oil)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
93	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,1 Trichloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
94	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,2,2 Tetrachloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
95	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,2 Trichloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
96	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
97	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
98	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichlorobenzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
99	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
100	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichloroethane d4	101	0	0	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	67	139	0		1	
101	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,2-Dichloropropane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
102	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,3 Dichlorobenzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
103	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	1,4 Dichlorobenzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
104	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	2 Chloroethylvinylether	0	2	2	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
105	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	4 Bromofluorobenzene	98	0	0	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	72	128	0		1	0
106	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Benzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
107	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Bromodichloromethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
108	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Bromoform	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
109	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Bromomethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
110	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Carbon tetrachloride	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
111	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Chlorobenzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
112	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Chloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
113	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Chloroform	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
114	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Chloromethane	0	2	2	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
115	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	cis 1,2 Dichloroethene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
116	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	cis 1,3 Dichloropropene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
117	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Dibromochloromethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
118	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Dichloromethane	0	2	2	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
119	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Ethylbenzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
120	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	m,p-Xylene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
121	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Methyl tert-butyl ether (MTBE)	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
122	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	o-Xylene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
123	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Tetrachloroethene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
124	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Toluene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
125	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Toluene-d8	103	0	0	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	74	127	0		1	0
126	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	trans 1,2 Dichloroethene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
127	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	trans 1,3 Dichloropropene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
128	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Trichloroethene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
129	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Trichlorofluoromethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
130	Alpha	none	00030931 03A	(200003 365) MW 3	SAMP	EPA Method 624/SW8260B	Aqueous	Vinyl chloride	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
131	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method SW8015	Aqueous	Nonane	91.4	0	0	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	100	40	153	0		0.3333333	
132	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method SW8015	Aqueous	TPH E (Diesel)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	
133	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method SW8015	Aqueous	TPH E (Gasoline)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
134	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method SW8015	Aqueous	TPH E (Jet Fuel)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
135	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method SW8015	Aqueous	TPH E (Oil)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
136	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,1-Trichloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
137	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,2,2 Tetrachloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
138	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,2-Trichloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
139	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,1-Dichloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
140	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,1-Dichloroethene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
141	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,2-Dichlorobenzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
142	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,2-Dichloroethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
143	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,2-Dichloroethane d4	102	0	0	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	67	139	0		1	0
144	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,2-Dichloropropane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
145	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,3 Dichlorobenzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
146	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	1,4-Dichlorobenzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
147	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	2 Chloroethylvinylether	0	2	2	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
148	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	4 Bromofluorobenzene	98.3	0	0	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	72	128	0		1	0
149	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Benzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
150	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Bromodichloromethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
151	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Bromoform	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
152	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Bromomethane	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
153	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Carbon tetrachloride	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
154	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Chlorobenzene	0	1	1	µg/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0

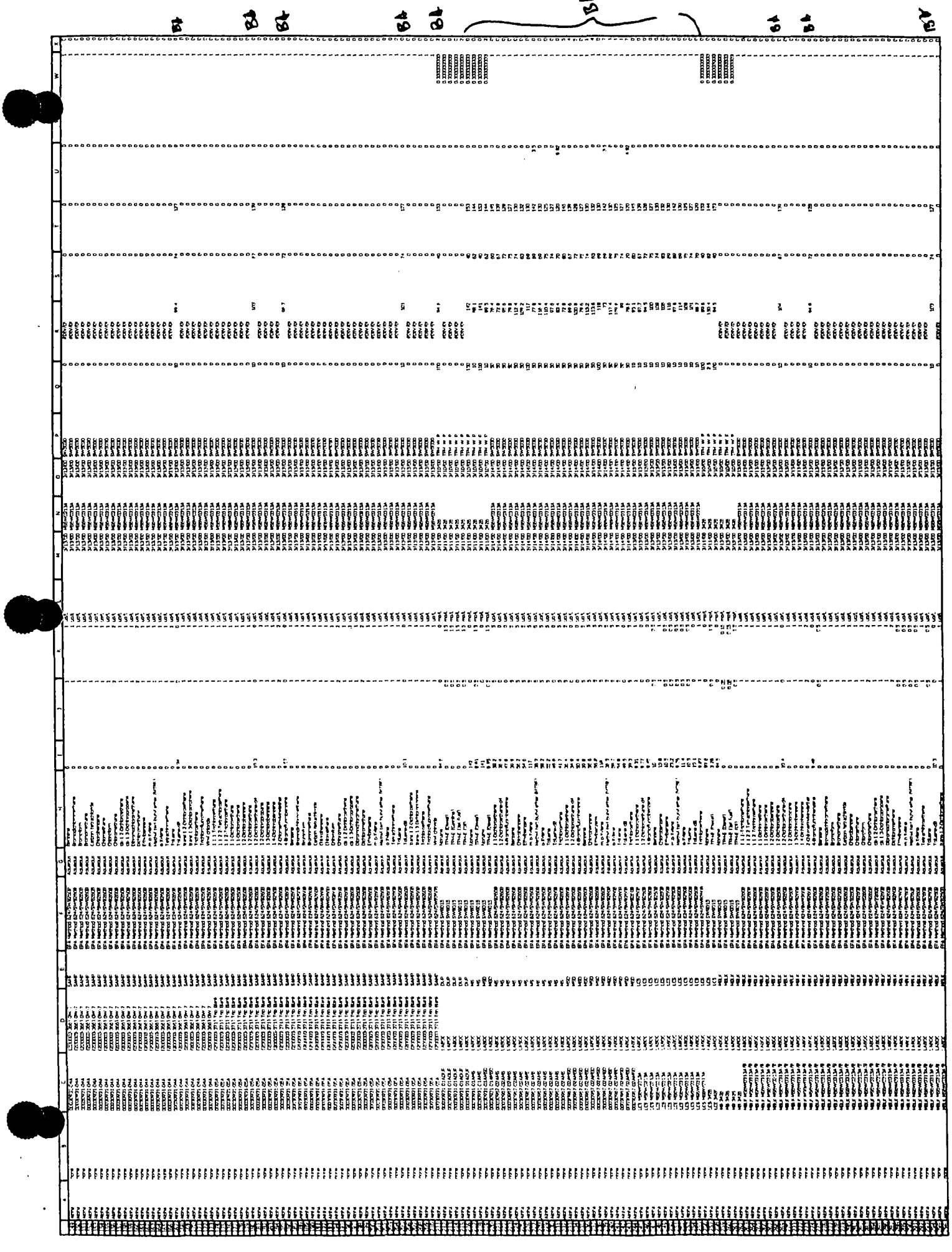
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
59	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Chloroethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
60	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Chloroform	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
61	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Chloromethane	0		2	2 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
62	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	cis 1,2 Dichloroethene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
63	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	cis 1,3 Dichloropropene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
64	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Dibromochloromethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
65	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Dichloromethane	0		2	2 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
66	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Ethylbenzene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
67	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	m,p Xylene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
68	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Methyl tert butyl ether (MTBE)	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
69	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	o Xylene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
70	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Tetrachloroethene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
71	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Toluene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
72	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Toluene d8	9.94		0	0 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	74	127	0		1	0
73	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	trans 1,2 Dichloroethene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
74	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	trans 1,3 Dichloropropene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
75	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Trichloroethene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
76	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Trichlorofluoromethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
77	Alpha	none	00030931 04A	(200003 366) GW 7	SAMP	EPA Method 624/SW8260B	Aqueous	Vinyl chloride	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
78	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,1 Trichloroethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
79	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,2,2 Tetrachloroethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
80	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,1,2 Trichloroethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
81	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
82	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
83	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichlorobenzene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
84	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichloroethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
85	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichloroethane d4	10.3		0	0 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	67	139	0		1	0
86	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,2 Dichloropropane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
87	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,3 Dichlorobenzene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
88	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	1,4 Dichlorobenzene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
89	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	2 Chloroethylvinylether	0		2	2 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
90	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	4 Bromofluorobenzene	9.67		0	0 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	72	128	0		1	0
91	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Benzene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
92	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Bromodichloromethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
93	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Bromoform	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
94	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Bromomethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
95	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Carbon tetrachloride	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
96	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Chlorobenzene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
97	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Chloroethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
98	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Chloroform	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
99	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Chloromethane	0		2	2 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
100	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	cis 1,2 Dichloroethene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
101	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	cis 1,3-Dichloropropene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
102	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Dibromochloromethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
103	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Dichloromethane	0		2	2 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
104	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Ethylbenzene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
105	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	m,p Xylene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
106	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Methyl tert butyl ether (MTBE)	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
107	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	o Xylene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
108	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Tetrachloroethene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
109	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Toluene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
110	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Toluene d8	10.1		0	0 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	74	127	0		1	0
111	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	trans 1,2 Dichloroethene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
112	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	trans 1,3 Dichloropropene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
113	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Trichloroethene	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
114	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Trichlorofluoromethane	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
115	Alpha	none	00030931 05A	(200003 371) Trip B	SAMP	EPA Method 624/SW8260B	Aqueous	Vinyl chloride	0		1	1 ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
116	Alpha	none	00030931 01A	LABQC	DUP	EPA Method SW8015	Aqueous	Nonane	94.6		0	0 mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	100	40	153	0		0.3333333	2
117	Alpha	none	00030931 01A	LABQC	DUP	EPA Method SW8015	Aqueous	TPH-E (Diesel)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
118	Alpha	none	00030931 01A	LABQC	DUP	EPA Method SW8015	Aqueous	TPH-E (Gasoline)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
119	Alpha	none	00030931 01A	LABQC	DUP	EPA Method SW8015	Aqueous	TPH-E (Jet Fuel)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
120	Alpha	none	00030931 01A	LABQC	DUP	EPA Method SW8015	Aqueous	TPH-E (Oil)	0	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	2
121	Alpha	none	00030931 01A	LABQC	MS	EPA Method SW8015	Aqueous	Nonane	142		0	0 mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	100	40	153	0		0.3333333	0
122	Alpha	none	00030931 01A	LABQC	MS	EPA Method SW8015	Aqueous	TPH-E (Diesel)	8.8	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	40	62	144	0		0.3333333	0
123	Alpha	none	00030931 01A	LABQC	MSD	EPA Method SW8015	Aqueous	Nonane	147		0	0 mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	100	40	153	0		0.3333333	0
124	Alpha	none	00030931 01A	LABQC	MSD	EPA Method SW8015	Aqueous	TPH-E (Diesel)	8.95	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	40	62	144	0		0.3333333	2
125	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethene	38.2		5	5 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	60	145	0		1	0
126	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	1,2 Dichloroethane d4	36.4		0	0 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	67	139	0		1	0
127	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	4 Bromofluorobenzene	47.8		0	0 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	72	128	0		1	0
128	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	Benzene	39.9		5	5 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	75	127	0		1	0
129	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	Chlorobenzene	56.2		5	5 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	74	130	0		1	0
130	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	Ethylbenzene	54.6		5	5 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	63	132	0		1	0
131	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	m,p Xylene	117		5	5 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	100	69	130	0		1	0
132	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	Methyl tert butyl ether (MTBE)	38.9		5	5 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	69	142	3.5		1	0
133	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	o-Xylene	58.2		5	5 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	69	130	0		1	0
134	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	Toluene	55.2		5	5 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	75	125	0		1	0
135	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	Toluene d8	48.8		0	0 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	74	127	0		1	0
136	Alpha	none	00030967 02A	LABQC	MS	EPA Method 624/SW8260B	Aqueous	Trichloroethene	41.7		5	5 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	70	120	6.82		1	0
137	Alpha	none	00030967 02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethene	36.4		5	5 ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	60	145	0		1	5

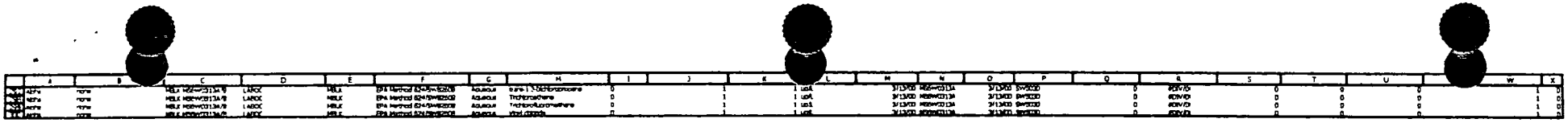
MS = 8.81 / 10 = 88%

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
234	Alpha	none	00030967 02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	1,2 Dichloroethane d4	34.8	0	0	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	67	139	0		1	4
235	Alpha	none	00030967-02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	4 Bromofluorobenzene	50 4	0	0	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	72	128	0		1	5
236	Alpha	none	00030967 02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	Benzene	39 8	5	5	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	75	127	0		1	0
237	Alpha	none	00030967 02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	Chlorobenzene	56 6	5	5	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	74	130	0		1	1
238	Alpha	none	00030967 02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	Ethylbenzene	56 8	5	5	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	63	132	0		1	4
239	Alpha	none	00030967 02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	m,p-Xylene	118	5	5	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	100	69	130	0		1	0
240	Alpha	none	00030967-02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	Methyl tert butyl ether (MTBE)	36.5	5	5	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	69	142	(3.5)		1	7
241	Alpha	none	00030967 02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	o Xylene	58 7	5	5	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	69	130	0		1	1
242	Alpha	none	00030967-02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	Toluene	54.8	5	5	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	75	125	0		1	1
243	Alpha	none	00030967-02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	Toluene dB	49 5	0	0	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	74	127	0		1	1
244	Alpha	none	00030967-02A	LABQC	MSD	EPA Method 624/SW8260B	Aqueous	Trichloroethene	39 3	5	5	ug/L	3/14/2000	MS6W0313A	3/14/2000	SW5030	50	70	120	(6.82)		1	7
245	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	1,1-Dichloroethene	9 31	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	60	145	0		1	0
246	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	1,2-Dichloroethane-d4	9.77	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	67	139	0		1	0
247	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	4-Bromofluorobenzene	9.45	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	72	128	0		1	0
248	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	Benzene	10	0.5	0.5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	75	127	0		1	0
249	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	Chlorobenzene	10 8	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	74	130	0		1	0
250	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	Ethylbenzene	10.5	0.5	0.5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	63	132	0		1	0
251	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	m,p-Xylene	23.2	0.5	0.5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	20	69	130	0		1	0
252	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	Methyl tert-butyl ether (MTBE)	9.76	0.5	0.5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	69	142	0		1	0
253	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	o-Xylene	11 4	0.5	0.5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	69	130	0		1	0
254	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	Toluene	10.5	0.5	0.5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	75	125	0		1	0
255	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	Toluene dB	10.1	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	74	127	0		1	0
256	Alpha	none	LCS MS6W031	LABQC	LCS	EPA Method 624/SW8260B	Aqueous	Trichloroethene	9 87	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	10	70	120	0		1	
257	Alpha	none	LCS 3426	LABQC	LCS	EPA Method SW8015	Aqueous	Nonane	89 6	0	0	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	100	40	153	0		0.3333333	
258	Alpha	none	LCS 3426	LABQC	LCS	EPA Method SW8015	Aqueous	TPH-E (Diesel)	3.26	0.5	1.5	mg/L	3/11/2000	3426	3/10/2000	TPH_W_P	2.5	62	144	0		0.3333333	
259	Alpha	none	MB-3426	LABQC	MBLK	EPA Method SW8015	Aqueous	Nohane	94.5	0	0	mg/L	3/13/2000	3426	3/10/2000	TPH_W_P	100	40	153	0		0 3333333	0
260	Alpha	none	MB 3426	LABQC	MBLK	EPA Method SW8015	Aqueous	TPH E (Diesel)	0	0.05	0 15	mg/L	3/13/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
261	Alpha	none	MB 3426	LABQC	MBLK	EPA Method SW8015	Aqueous	TPH E (Jet Fuel)	0	0 05	0 15	mg/L	3/13/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0.3333333	0
262	Alpha	none	MB 3426	LABQC	MBLK	EPA Method SW8015	Aqueous	TPH E (Oil)	0	0 5	1 5	mg/L	3/13/2000	3426	3/10/2000	TPH_W_P	0	0	0	0		0 3333333	0
263	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,1,1 Trichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
264	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,1,2,2-Tetrachloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
265	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,1,2-Trichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
266	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,1 Dichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
267	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,1-Dichloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
268	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,2-Dichlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
269	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,2 Dichloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
270	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,2-Dichloroethane-d4	10.4	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	(10)	67	139	0		1	0
271	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,2-Dichloropropane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
272	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,3-Dichlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
273	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	1,4 Dichlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
274	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	2 Chloroethylvinylether	0	2	2	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
275	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	4 Bromofluorobenzene	9.48	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	(9)	72	128	0		1	0
276	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Benzene	0	0.5	0 5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
277	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Bromodichloromethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
278	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Bromoform	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
279	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Bromomethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
280	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Carbon tetrachloride	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
281	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Chlorobenzene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
282	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Chloroethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
283	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Chloroform	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
284	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Chloromethane	0	2	2	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
285	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	cis 1,2-Dichloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
286	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	cis 1,3-Dichloropropene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
287	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Dibromochloromethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	n
288	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Dichloromethane	0	2	2	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
289	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Ethylbenzene	0	0 5	0 5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	
290	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	m,p-Xylene	0	0.5	0.5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	-
291	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Methyl tert butyl ether (MTBE)	0	0 5	0 5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
292	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	o-Xylene	0	0.5	0.5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
293	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Tetrachloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
294	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Toluene	0	0.5	0 5	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
295	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Toluene dB	10 3	0	0	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	(10)	74	127	0		1	0
296	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	trans 1,2 Dichloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
297	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	trans 1,3 Dichloropropene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
298	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Trichloroethene	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
299	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Trichlorofluoromethane	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0
300	Alpha	none	MBLK MS6W03	LABQC	MBLK	EPA Method 624/SW8260B	Aqueous	Vinyl chloride	0	1	1	ug/L	3/13/2000	MS6W0313A	3/13/2000	SW5030	0	0	0	0		1	0

All data + comments are approved for data base entry and have been reviewed in accordance w/ Section D1 and D3 of Table 1 QAPP. B. L 12/21/00







All data are approved for data base entry following QAPP Section D1 and D3 guidelines

B. [signature] 12/21/00

Reference	Sampling Quarter	Sample Date	Type	Location	Report
C	Winter 00	3/8/00	Chemical	Lab	Montgomery Watson Report #63872

MONTGOMERY WATSON LABORATORIES
a Division of Montgomery Watson Americas, Inc.
555 East Walnut Street
Pasadena, California 91101
Tel: 626 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Sierra Environmental Monitoring,
Inc.
1135 Financial Blvb.

Reno , NV 89502

Attention: Mike Brisbin
Fax: (775) 857-2404

HDS Hillary Strayer

Report#: 63872
DRINKING

MONTGOMERY WATSON LABORATORIES
a Division of Montgomery Watson Americas, Inc.
555 East Walnut Street
Pasadena, California 91101
Tel: 626 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Laboratory Report #63872

Sierra Environmental Monitoring, Inc.
Mike Brisbin
1135 Financial Blvb.
Reno , NV 89502

Samples Received
13-mar-2000 10:00:00

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MRL	Dilution
(200003-363) MW-1 (2003140494) Sampled on 03/07/00								
				Gross Alpha and Beta Radiation				
	03/23/00	112822	(ML/EPA 900.0)	Alpha, Gross	<1.0	pCi/l	1.0	1
	03/23/00	112822	(ML/EPA 900.0)	Alpha, Two Sigma Error	NA	pCi/l	0.0000	1
	03/23/00	112822	(ML/EPA 900.0)	Alpha, Min Detectable Activity	1.0	pCi/l	1.0	1
	03/23/00	112822	(ML/EPA 900.0)	Beta, Gross	3.9	pCi/l	1.5	1
	03/23/00	112822	(ML/EPA 900.0)	Beta, Two Sigma Error	2.5	pCi/l	0.0000	1
	03/23/00	112822	(ML/EPA 900.0)	Beta, Min Detectable Activity	1.5	pCi/l	1.5	1
(200003-364) MW-2 (2003140495) Sampled on 03/08/00								
				Gross Alpha and Beta Radiation				
	03/23/00	112822	(ML/EPA 900.0)	Alpha, Gross	3.9	pCi/l	1.0	1
	03/23/00	112822	(ML/EPA 900.0)	Alpha, Two Sigma Error	1.9	pCi/l	0.0000	1
	03/23/00	112822	(ML/EPA 900.0)	Alpha, Min Detectable Activity	1.0	pCi/l	1.0	1
	03/23/00	112822	(ML/EPA 900.0)	Beta, Gross	4.0	pCi/l	0.90	1
	03/23/00	112822	(ML/EPA 900.0)	Beta, Two Sigma Error	1.8	pCi/l	0.0000	1
	03/23/00	112822	(ML/EPA 900.0)	Beta, Min Detectable Activity	0.9	pCi/l	0.90	1

Approved for Database entry
[signature] 11/28/00
Env. Specialist

Montgomery Watson Laboratories
555 E. Walnut St., Pasadena, CA 91101
PHONE: 626-568-6400/FAX: 626-568-6324

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Sierra Environmental Monitoring, Inc.
1135 Financial Blvb.
Reno, NV 89502
Attn: Mike Brisbin

Customer Code: SIERRAENV
PO#: 00-113
Group#: 63872
Project#: DRINKING
Proj Mgr: Hillary Strayer

The following samples were received from you on 03/13/00. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Montgomery Watson Laboratories.

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
2003140494	(200003-363)	MW-1 @RAD	Water	03/07/00
2003140495	(200003-364)	MW-2 @RAD	Water	03/08/00

Test Acronym Description

Test Acronym	Description
@RAD	Gross Alpha and Beta Radiation

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MONTGOMERY WATSON LABORATORIES
a Division of Montgomery Watson Americas, Inc.
555 East Walnut Street
Pasadena, California 91101
Tel: 626 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Laboratory
QC Report
#63872

Sierra Environmental Monitoring, Inc.

QC Batch #112822 Gross Alpha and Beta Radiation

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
LCS1	Alpha, Gross	38.9	40.4	103.9	(80.00 - 120.00)	
LCS2	Alpha, Gross	38.9	38.6	99.2	(80.00 - 120.00)	4.6
MS	Alpha, Gross	77.8	77.8	100.0	(80.00 - 120.00)	
LCS1	Beta, Gross	31.9	33.0	103.4	(80.00 - 120.00)	
LCS2	Beta, Gross	31.9	29.5	92.5	(80.00 - 120.00)	11
MS	Beta, Gross	63.5	57.5	90.6	(80.00 - 120.00)	

Approved for Database entry
Brad Lee 11/28/00
Env. Specialist

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and DUP are advisory only and not applicable for ICR monitoring.

1 Mont Watson

SIERRA ENVIRONMENTAL MONITORING, INC.

1135 FINANCIAL BOULEVARD - RENO - NEVADA - 89502

TELEPHONE: (775) 857-2400 TELEFAX: (775) 857-2404

TEMP: 12°C

ICE: NONE

CHAIN OF CUSTODY RECORD

Client Name	Purchase Order	Analyses Requested	Turnaround Time	Compliance Monitoring
Sierra Environ. Monit.	00-113	Volatiles Alpha Beta	Standard: ___ Other: ___	Yes: ___
Address	Phone/Fax #		Rush: 24 Hr ___ 48 Hr ___	No: ___
City State Zip	Report Attention:			Lab Use Only Pres. Verified
Sampled by: Client	Signature:		Remarks	

Date Sampled	Time Sampled	Sample Type *	Sample Identification	Preservative*
3-7-00	1438	3	(200003-363) MW-1	
3-8-00	1300	3	(200003-364) MW-2	

1.8°C

	Signature	Print Name	Company	Date	Time
Relinquished By:		Lisa Lee	S.E.M.	3-9-00	1500
Received By:		Andre Chauncey	MWL	3/13/00	~~10~~ 10:00
Relinquished By:					
Received By:					
Relinquished By:					
Received By Laboratory:					

Custody Seal Intact
Yes ___ No ___ None ___

Sample Temperature
Chilled ___ Ambient ___

Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report.

*** KEY:** Sample Type: 1=Drinking Water, 2=Surface Water, 3=Ground Water, 4=Waste Water, 5=Soil, 6=RCRA, 7=Other
Preservative: 1=NaOH, 2=NaOH + ZnOAC, 3=HNO3, 4=H2SO4, 5=Na2S2O3, 6=None, 7=Other

SEM COC Form Revised 5/98

—— Add RPD(%)

Lab Name (MWL) Project Code	PO Number	Date Received (MM/DD/YY)	Client Sample ID	Date sampled (MM/DD/YY 00:00)	Lab Sample Number	Matrix	Test Code	Parameter Code	Parameter Name	Sample Result/Pound	Unit Name	Det Limit	QC Batch #	QC Type	QC Spike (Actual)	Lower Limit	Upper Limit	QC Yield (%Recovery)	Analyst	Date Analyzed (MM/DD/YY 00:00)	Reference Method	Preparation Date (MM/DD/YY)		
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	ALPHASUM	Alpha+Error	<1.0	pCi/l	0	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	ALPHA	Alpha, Gross	<1.0	pCi/l	1	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	AZMDA	Alpha, Min Detectable Activity	1	pCi/l	1	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	ASIGMA	Alpha, Two Sigma Error	NA	pCi/l	0	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	BETA	Beta, Gross	3.9	pCi/l	1.5	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	BZMDA	Beta, Min Detectable Activity	1.5	pCi/l	1.5	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	BSIGMA	Beta, Two Sigma Error	2.5	pCi/l	0	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	ALPHA	Alpha, Gross	40.4	pCi/l	1	112822	LCS1	38.9	80	120	104	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	ALPHA	Alpha, Gross	38.6	pCi/l	1	112822	LCS2	38.9	80	120	99	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	ALPHA	Alpha, Gross	77.8	pCi/l	1	112822	MS	77.8	80	120	100	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	ALPHA	Alpha, Gross	NA	pCi/l	1	112822	MSD	34.2	80	120	0	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	BETA	Beta, Gross	33	pCi/l	-5	112822	LCS1	31.9	80	120	103	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	BETA	Beta, Gross	29.5	pCi/l	-5	112822	LCS2	31.9	80	120	92	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	BETA	Beta, Gross	57.5	pCi/l	-5	112822	MS	63.5	80	120	91	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-363) MW-1	3/7/2000 14:38	2003140494	WATER	@RAD	BETA	Beta, Gross	NA	pCi/l	-5	112822	MSD	29	80	120	0	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	ALPHASUM	Alpha+Error	7.04	pCi/l	0	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	ALPHA	Alpha, Gross	3.9	pCi/l	1	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	AZMDA	Alpha, Min Detectable Activity	1	pCi/l	1	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	ASIGMA	Alpha, Two Sigma Error	1.9	pCi/l	0	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	BETA	Beta, Gross	4	pCi/l	0.9	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	BZMDA	Beta, Min Detectable Activity	0.9	pCi/l	0.9	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	BSIGMA	Beta, Two Sigma Error	1.8	pCi/l	0	112822						gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	ALPHA	Alpha, Gross	40.4	pCi/l	1	112822	LCS1	38.9	80	120	104	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	ALPHA	Alpha, Gross	38.6	pCi/l	1	112822	LCS2	38.9	80	120	99	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	ALPHA	Alpha, Gross	77.8	pCi/l	1	112822	MS	77.8	80	120	100	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	ALPHA	Alpha, Gross	NA	pCi/l	1	112822	MSD	34.2	80	120	0	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	BETA	Beta, Gross	33	pCi/l	-5	112822	LCS1	31.9	80	120	103	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	BETA	Beta, Gross	29.5	pCi/l	-5	112822	LCS2	31.9	80	120	92	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	BETA	Beta, Gross	57.5	pCi/l	-5	112822	MS	63.5	80	120	91	gne	3/23/2000 19:10	ML/EPA 900.0		1	#
JMM DRINKING	00-113	3/13/2000	(200003-364) MW-2	3/8/2000 13:00	2003140495	WATER	@RAD	BETA	Beta, Gross	NA	pCi/l	-5	112822	MSD	29	80	120	0	gne	3/23/2000 19:10	ML/EPA 900.0		1	#

Approved for Data base Entry. Data have been reviewed per Sections D1 and D3 of QAPP.

Bri [signature] 11/20/00

Env. Specialist

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Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
D	Winter 00	3/8/00	Chemical	Field	EMO Report 1 Bishop34068\WQCP.QA

Bishop Paiute Tribe
WQCP-Chemical-Field Quality Control Report
Winter Quarter 2000 - 3/8/00

Sample	Collector	CollectDate	Param	DetectionLimit	RDL	Reported Result	NumericResult	Analysis Date	RPD	UCL	LCL	Proj. Mang	QA/QC Off.
MW-2	B. Adkins	3/8/00	Ammonia-N	0.1	0.1	<0.1	0.05	23-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Ammonia-N	0.1	0.1	<0.1	0.05	23-Mar-00	0	20	0		
MW-2	B. Adkins	3/8/00	Arsenic - ICP-MS	0.001	0.001	0.004	0.004	20-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Arsenic - ICP-MS	0.001	0.001	0.004	0.004	20-Mar-00	0	20	0		
MW-2	B. Adkins	3/8/00	Barium - ICP-MS	0.001	0.001	0.007	0.007	20-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Barium - ICP-MS	0.001	0.001	0.007	0.007	20-Mar-00	0	20	0		
MW-2	B. Adkins	3/8/00	Boron - ICP-OES	0.05	0.05	<0.05	0.025	15-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Boron - ICP-OES	0.05	0.05	<0.05	0.025	15-Mar-00	0	20	0		
MW-2	B. Adkins	3/8/00	Chromium - ICP-MS	0.001	0.002	< 0.002	0.001	20-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Chromium - ICP-MS	0.001	0.002	< 0.002	0.001	20-Mar-00	0	20	0		
MW-2	B. Adkins	3/8/00	Copper - ICP-MS	0.001	0.002	< 0.002	0.001	20-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Copper - ICP-MS	0.001	0.002	< 0.002	0.001	20-Mar-00	0	20	0		
MW-2	B. Adkins	3/8/00	Hardness, as CACO3	0.1	0.1	34	34	13-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Hardness, as CACO3	0.1	0.1	38	38	14-Mar-00	-11.1	20	0		
MW-2	B. Adkins	3/8/00	Manganese - ICP-MS	0.001	0.002	< 0.002	0.001	20-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Manganese - ICP-MS	0.001	0.002	< 0.002	0.001	20-Mar-00	0	20	0		
MW-2	B. Adkins	3/8/00	Mercury - AA Cold Vapor	0.0005	0.0005	<0.0005	0.00025	15-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Mercury - AA Cold Vapor	0.0005	0.0005	<0.0005	0.00025	15-Mar-00	0	20	0		
MW-2	B. Adkins	3/8/00	Nitrate-N - Ion Chromatography	0.1	0.1	0.3N	0.3	09-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Nitrate-N - Ion Chromatography	0.1	0.1	0.4N	0.4	09-Mar-00	-28.6	20	0		
MW-2	B. Adkins	3/8/00	Silver - ICP-MS	0.001	0.002	< 0.002	0.001	20-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Silver - ICP-MS	0.001	0.002	< 0.002	0.001	20-Mar-00	0	20	0		
SW-2	B. Adkins	3/8/00	Zinc - ICP-MS	0.01	0.02	< 0.02	0.01	20-Mar-00					
MW-2.dup	B. Adkins	3/8/00	Zinc - ICP-MS	0.01	0.02	< 0.02	0.01	20-Mar-00	0	20	0		

All data have been reviewed in accordance w/ Section D3 of QAPP + approved for data entry.
B. Adkins 12/21/00

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Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
E	Winter 00	3/8/00	Bacteria	Lab	BPTEU Data QA Review 4/14/00

MEMO

April 14, 2000

TO: Brian Adkins, Alan Spoonhunters

FR: Marvin Moskowitz, Laboratory Director/Quality Assurance Officer

RE: Review of Bishop Paiute Tribe Environmental Laboratory Data From 10/19/99-3/27/00

I have reviewed the bacteriological monitoring data presented on the *"Drinking Water Sampling And Analysis Report"* and the *"Colilert Data Sheet"* forms from the period of October 19, 1999 through March 27, 2000. All MPN results were accurately transcribed from the MPN Table, and accurately recorded on the data sheets. My opinions and recommendations regarding the data keeping are as follows:

1. The *Drinking Water Sampling and Analysis Report* form being utilized by the samplers and analyzers is designed for drinking water analyses, vs. the surface water monitoring which is being conducted in this program. Since this form is being used, I feel all efforts should be made to enter data as directed on the form. This will provide a clearer picture of the results to whomever may review this data in the future. Sample time (all times, actually) should be in the 24 hour clock format. For instance, in the first block "Sample Time/Date" I would recommend using the format: 1915/022800 for a sample collected at 7:15 pm on February 28, 2000. Under "Sample ID" I would recommend the format: 000228-001, as prompted on the form. Under the middle section, I would recommend filling in the number of Total Coliforms (Pos/Neg) and E. Coli (Pos/Neg) boxes, as directed.
2. When dilutions were utilized, the proper result (diluted or original) was selected for reporting purposes in all cases. Switching to the Quanti-tray 2000 should eliminate or greatly reduce the number of dilutions needed, and will result in greater accuracy.
3. When recording the MPN result, I recommend using the exact MPN number on the table. If you are going to round off numbers to the nearest whole number, this should be done on all analyses however, I would record the MPN to the tenth, as shown on the chart. Also, it is not necessary to record the upper and lower confidence limits.
4. When an error is made, something is crossed out, results are incomplete or obviously in error, it is recommended the sheet be rewritten without any corrections, if possible, or that the results for that particular analysis be discarded.
5. The *Autoclave Sterilization Record*, the *Incubator Temperature Record* and the *Refrigerator Temperature Record* forms were all reviewed. All data was collected at the required frequencies. Once again, it is recommended that 24 hour clock time be used. One comment on the refrigerator temperatures is that when a

temperature above 5° C is encountered, a new line on the chart should be used to indicate when a subsequent temperature check shows 5° C or below.

6. One peculiar item I noted was the Inyo County Health Dept. analysis #002-240 showed more fecal than total coliform (11 vs. 13)!

My comments above are directed towards providing a more standardized format, and providing clear results to the persons reviewing this data. I could develop a new form, similar to the drinking water form, but specific to the surface water sampling being conducted now, if you so desire. It would not take more than an hour to do this.

INVOICE:

Hours Charged: 3 @ $45.00 per hour = $135.00

Please Submit Payment To: Marvin Moskowitz
301 Shepard Lane
Bishop, CA 93514

Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
[illegible]	Winter 00	3/8/00	Bacteria	Field	WQCP BACT QA Report [illegible]

Biahop Paiute Tribe

WQCP-Bacteria-Field Analytical and Quality Control Report

Winter Quarter 2000 (2/28/00 to 3/27/00)

Event	Sample Date	Order	Sample Site	Sample #	MPN Total Coliforms	MPN (E.coli)	RPD(TC)	RPD(E.Coli)	UCL	LCL	Proj Manag	QA/QC Office	Comment
Winter 00	2/28/00	1	SW-4	000228-1	101	6			67.7	0	BA		
Winter 00	2/28/00	1	SW-3	000228-2	95	11			67.7	0	BA		
Winter 00	2/28/00	1	SW-2	000228-3	95	14			67.7	0	BA		
Winter 00	2/28/00	1	**SW-1**	**000228-4**	**83**	**4**			67.7	0	BA		
Winter 00	2/28/00	1	**SW-1.dup**	**000228-5**	**95**	**6**	**-13.48**	**-40.00**	67.7	0	BA		
Winter 00	3/6/00	2	SW-4	000306-1	89	24			67.7	0	BA		
Winter 00	**3/6/00**	**2**	**SW-3**	**000306-2**	**66**	**3**			67.7	0	BA		
Winter 00	**3/6/00**	**2**	**SW-3.dup**	**000306-3**	**74**	**0**	**-11.43**	**200.00**	67.7	0	BA		RPD Exceeds
Winter 00	3/6/00	2	SW-2	000306-4	62	3			67.7	0	BA		
Winter 00	3/6/00	2	SW-1	000306-5	95	8			67.7	0	BA		
Winter 00	**3/13/00**	**3**	**SW-4**	**000313-1**	**166**	**27**			67.7	0	BA		
Winter 00	**3/13/00**	**3**	**SW-4.dup**	**000313-2**	**146**	**25**	**12.90**	**7.69**	67.7	0	BA		
Winter 00	3/13/00	3	SW-3	000313-3	145	4			67.7	0	BA		
Winter 00	3/13/00	3	SW-2	000313-4	145	1			67.7	0	BA		
Winter 00	3/13/00	3	SW-1	000313-5	101	19			67.7	0	BA		
Winter 00	3/13/00	**4**	**SW-4**	**000320-4**	**200.5**	**45.5**			67.7	0	BA		
Winter 00	3/13/00	**4**	**SW-4.dup**	**000320-5**	**200.5**	**36.4**	**0.00**	**22.22**	67.7	0	BA		
Winter 00	3/13/00	4	SW-3	000320-6	129.8	2			67.7	0	BA		
Winter 00	3/13/00	4	SW-2	000320-7	129.8	2			67.7	0	BA		
Winter 00	3/13/00	4	SW-1	000320-8	200.5	34.4			67.7	0	BA		
Winter 00	3/27/00	5	SW-4	000327-1	200	100			67.7	0	BA		
Winter 00	3/27/00	5	SW-3	000327-2	200.5	8.7			67.7	0	BA		
Winter 00	3/27/00	5	SW-2	000327-3	200.5	16.4			67.7	0	BA		
Winter 00	3/27/00	5	SW-1	000327-4	>200.5	109.1			67.7	0	BA		
Winter 00	3/27/00	5	SW-1.dup	000327-5	>200	88.5	#VALUE!	20.85	67.7	0	BA		

I have reviewed all data in accordance with Section D3 of QAPP and approve the entry of all data + comments into database

[signature] 4/21/00

Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
G	Winter 00	3/8/00	Physical-Insitu	Field	WQQP Physical-Insitu QAreport 1

Bishop Paiute Tribe

WQCP-Physical/In-Situ Analytical and Quality Control Report

Winter Quarter 2000 (1/6/99 - 3/8/00)

Site	Date	Type	pH	Cond	Turb	DO	Temp	Stage	Flow	RPD pH	RPD Cond	RPD Turb	RPD DO	RPD Temp	RPD Stage	RPD Flow	RPD UL	RPD LL	Sampler	Project Ma	QA/QC Off
SW-1	06-Jan-99	Physical/In-Situ	6.8	0.06	1	13	4.6										20.0	0.0	BA		
SW-2	06-Jan-99	Physical/In-Situ	6.43	0.06	2	14	4.5										20.0	0.0	BA		
SW-3	06-Jan-99	Physical/In-Situ	6.83	0.05	36	14	4.5										20.0	0.0	BA		
SW-4	06-Jan-99	Physical/In-Situ	6.7	0.06	3	14	4.5										20.0	0.0	BA		
SW-1	20-Jan-99	Physical/In-Situ	6.93	0.063	0	13	5.3										20.0	0.0	BA		
SW-3	20-Jan-99	Physical/In-Situ	6.86	0.06	1	13	4.8										20.0	0.0	BA		
SW-4	20-Jan-99	Physical/In-Situ	6.36	0.061	49	13	5										20.0	0.0	BA		
SW-1	17-Feb-99	Physical/In-Situ	7.04	0.063	1		7.7										20.0	0.0	BA		
SW-2	17-Feb-99	Physical/In-Situ	6.63	0.063	1		7.9										20.0	0.0	BA		
SW-3	17-Feb-99	Physical/In-Situ	7.06	0.06	0	0	7.3										20.0	0.0	BA		
SW-4	17-Feb-99	Physical/In-Situ	6.45	0.06	160		7.8										20.0	0.0	BA		
SW-1	17-Mar-99	Physical/In-Situ	6.77	0.064	0	11	10.4										20.0	0.0	BA		
SW-2	17-Mar-99	Physical/In-Situ	6.53	0.065	4	10	10.7										20.0	0.0	BA		
SW-3	17-Mar-99	Physical/In-Situ	7.34	0.062	1	12	8.9										20.0	0.0	BA		
SW-4	17-Mar-99	Physical/In-Situ	6.79	0.062	0	12	8.5										20.0	0.0	BA		
SW-1	16-Apr-99	Physical/In-Situ	6.88	0.069	6	13	7.5										20.0	0.0	BA		
SW-2	16-Apr-99	Physical/In-Situ	6.64	0.07	0	12	8.5										20.0	0.0	BA		
SW-3	16-Apr-99	Physical/In-Situ	7.81	0.064	3	12	8.8										20.0	0.0	BA		
SW-4	16-Apr-99	Physical/In-Situ	7.26	0.064	4	12	8.5										20.0	0.0	BA		
SW-1	01-Jun-99	Physical/In-Situ	6.27	0.036	6	11	10.2										20.0	0.0	BA		
SW-2	01-Jun-99	Physical/In-Situ	6.18	0.038	5	11	10.2										20.0	0.0	BA		
SW-3	01-Jun-99	Physical/In-Situ	7.2	0.035	4	11	9.9										20.0	0.0	BA		
SW-4	01-Jun-99	Physical/In-Situ	7.13	0.035	3	10	10										20.0	0.0	BA		
SW-1	30-Jun-99	Physical/In-Situ	7.01	0.036	5	9.4	14.2										20.0	0.0	BA		
SW-2	30-Jun-99	Physical/In-Situ	6.97	0.034	2	9.6	13.9										20.0	0.0	BA		
SW-3	30-Jun-99	Physical/In-Situ	7.79	0.031	3	10	13.7										20.0	0.0	BA		
SW-4	30-Jun-99	Physical/In-Situ	7.26	0.033	4	9.7	14.2										20.0	0.0	BA		
SW-3	02-Jul-99	Physical/In-Situ						1.48									20.0	0.0	BA		
SW-4	02-Jul-99	Physical/In-Situ						0.84									20.0	0.0	BA		
SW-1	29-Jul-99	Physical/In-Situ	7.39	0.043	2	9.3	15.4	1.15									20.0	0.0	BA		
SW-2	29-Jul-99	Physical/In-Situ	7.39	0.042	1	9.4	15.2	1.66									20.0	0.0	BA		
SW-3	29-Jul-99	Physical/In-Situ	7.37	0.038	1	9.6	15	0.95									20.0	0.0	BA		
SW-4	29-Jul-99	Physical/In-Situ	7.56	0.039	2	9.7	15.3	0.61									20.0	0.0	BA		
SW-1	01-Sep-99	Physical/In-Situ	8.98	0.043	2	10	12	1.04	12.35								20.0	0.0	BA		
SW-2	01-Sep-99	Physical/In-Situ	8.58	0.047	1	9.8	13.8	1.45	18.51								20.0	0.0	BA		
SW-3	01-Sep-99	Physical/In-Situ	8.9	0.04	2	10	12.6	0.8	17.95								20.0	0.0	BA		
SW-4	01-Sep-99	Physical/In-Situ	8.55	0.041	2	10	11.3	0.56	19.08								20.0	0.0	BA		
SW-1	04-Oct-99	Physical/In-Situ	8.98	0.044	5	10	11.3	1.12	17.95								20.0	0.0	BA		
SW-2	04-Oct-99	Physical/In-Situ	8.65	0.049	0	9.7	13.1	1.48	17.74								20.0	0.0	BA		
SW-3	04-Oct-99	Physical/In-Situ	8.5	0.043	2	10	12	0.82	15.89								20.0	0.0	BA		

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Bishop Paiute Tribe

WQCP-Physical/In-Situ Analytical and Quality Control Report

Winter Quarter 2000 (1/6/99 - 3/8/00)

SW-4	04-Oct-99	Physical/In-Situ	7.54	0.042	2	10	10.5	0.56	19.08								20.0	0.0	BA
SW-1	02-Nov-99	Physical/In-Situ	8.01	0.056	11	11	8.8	1.1	14.22								20.0	0.0	BA
SW-2	02-Nov-99	Physical/In-Situ	7.91	0.07	5	9.1	10.6	1.2	7.95								20.0	0.0	BA
SW-3	02-Nov-99	Physical/In-Situ	8.09	0.057	11	10	8.7	0.5	5.12								20.0	0.0	BA
SW-4	02-Nov-99	Physical/In-Situ	7.9	0.054	12	11	7.4	0.5	15.57								20.0	0.0	BA
SW-1	03-Nov-99	Physical/In-Situ	7.8	0.045	24	11	8.6	1.25									20.0	0.0	BA
SW-2	03-Nov-99	Physical/In-Situ	7.39	0.051	27	10	9.1	1.69									20.0	0.0	BA
SW-3	**03-Nov-99**	Physical/In-Situ	**7.5**	**0.04**	**38**	**11**	**8.4**	**1.1**		**-1.8**	**-3.4**	**-1.3**	**0.2**	**0.0**	**0.0**	**###**	**20.0**	**0.0**	**BA**
SW-3	**03-Nov-99**	Physical/In-Situ	**8**	**0.05**	**40**	**11**	**8.4**	**1.1**									**20.0**	**0.0**	**BA**
SW-4	03-Nov-99	Physical/In-Situ	7.85	0.047	33	11	8										20.0	0.0	BA
SW-4	10-Dec-99	Physical/In-Situ	7.26	0.061	3	9.6	1.3	0.61									20.0	0.0	BA
SW-1	**13-Dec-99**	Physical/In-Situ	**7.3**	**0.07**	**3**	**9**	**4.4**	**1.23**	**###**						**0.2**	**-1.5**	**20.0**	**0.0**	**BA**
SW-1	**13-Dec-99**	Physical/In-Situ						**1.22**	**###**								**20.0**	**0.0**	**BA**
SW-2	13-Dec-99	Physical/In-Situ	7.3	0.065	3	9.1	4	1.75	37.62								20.0	0.0	BA
SW-3	13-Dec-99	Physical/In-Situ	7.39	0.063	3	9.5	3.4	1.14	37.06								20.0	0.0	BA
SW-4	13-Dec-99	Physical/In-Situ	7.16	0.063	6	9.4	9.41	0.61	20.98								20.0	0.0	BA
SW-1	03-Jan-00	Physical/In-Situ	7.42	0.077	3	12	2	1.04	13.14								20.0	0.0	BA
SW-2	03-Jan-00	Physical/In-Situ	7.28	0.077	3	11	2.5	1.44	18.79								20.0	0.0	BA
SW-3	03-Jan-00	Physical/In-Situ	7.6	0.074	3	12	1.5	0.84	18.54								20.0	0.0	BA
SW-4	**03-Jan-00**	Physical/In-Situ	**7.2**	**0.07**	**2**	**11**	**0.9**	**0.51**	**###**						**0.5**	**3.8**	**20.0**	**0.0**	**BA**
SW-4	**03-Jan-00**	Physical/In-Situ						**0.5**	**###**								**20.0**	**0.0**	**AS**
SW-1	**01-Feb-00**	Physical/In-Situ	**7.3**	**0.08**	**2**	**10**	**3.9**	**1.06**		**0.0**	**0.0**	**##**	**0.0**	**0.0**	**0.0**	**###**	**20.0**	**0.0**	**BA**
SW-1	**01-Feb-00**	Physical/In-Situ	**7.3**	**0.08**	**3**	**10**	**3.9**	**1.06**									**20.0**	**0.0**	**BA**
SW-2	01-Feb-00	Physical/In-Situ	7.07	0.078	2	9.7	4.4	1.4									20.0	0.0	BA
SW-3	01-Feb-00	Physical/In-Situ	7.17	0.075	2	11	3.2	0.79									20.0	0.0	
SW-4	01-Feb-00	Physical/In-Situ	6.89	0.076	3	11	2.9	0.5									20.0	0.0	
SW-1	08-Mar-00	Physical/In-Situ	7.48	0.061	3	10	3.9	1.21									20.0	0.0	AS
SW-2	08-Mar-00	Physical/In-Situ	7.27	0.061	3	11	3.5	1.72									20.0	0.0	AS
SW-3	08-Mar-00	Physical/In-Situ	7.48	0.06	2	11	3	1.12									20.0	0.0	AS
SW-4	08-Mar-00	Physical/In-Situ	7.38	0.06	4	11	2.9	0.61									20.0	0.0	AS

I have reviewed all data in accordance with Section D3 of QAPP and approve the entry of all data and comments into data base

12/21/00

Lochsa	Sampling Quarter	Sample Date	Type	Location	Report
H	Spring 00	6/6/00	Chemical	Lab	SEM Report #35300

Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date:	06/22/2000
Client:	BIS-002
Taken by:	B. Adkins
Report:	35300
PO #:	2909

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200006-0226	SW-1	06/06/2000	2:30 PM	06/07/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	17	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Bicarbonate	EPA 310.1	17	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Tretten	06/07/2000
Total Dissolved Solids	EPA 160.1	23	mg/L	7	Rivera	06/12/2000
Suspended Solids	EPA 160.2	<1	mg/L	1	Rivera	06/12/2000
Ammonia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	06/22/2000
Nitrate-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	06/07/2000
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	06/07/2000
Kjeldahl Nitrogen - Digestion An	EPA 351.4	0.14	mg/L	0.1	Hellmann	06/19/2000
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Jones	06/09/2000
Calcium - ICP-OES	EPA 200.7	5.1	mg/L	0.1	Faulstich	06/08/2000
Magnesium - ICP-OES	EPA 200.7	0.45	mg/L	0.1	Faulstich	06/08/2000
Potassium - ICP-OES	EPA 200.7	0.52	mg/L	0.2	Faulstich	06/08/2000
Sodium - ICP-OES	EPA 200.7	1.6	mg/L	0.1	Faulstich	06/08/2000
Chloride - Ion Chromatography	EPA 300.0	0.4	mg/L	0.1	Lowe	06/07/2000
Cyanide,Total	EPA 335.2	< 0.005	mg/L	0.005	Kobza	06/13/2000
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	06/07/2000
Hardness, as CACO3	EPA 130.2	15	mg/L	0.1	Seher	06/20/2000
Sulfate - Ion Chromatography	EPA 300.0	2.9	mg/L	0.1	Lowe	06/07/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	06/12/2000
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Barium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Jones	06/12/2000
Chromium - ICP-MS	EPA 200.8	0.006	mg/L	0.001	Lambert	06/19/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	06/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	06/19/2000

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

John Kobza, Ph.D.
John C. Seher

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 06/22/2000
Client: BIS-002
Taken by: B. Adkins
Report: 35300
PO #: 2909

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200006-0227	SW-2	06/06/2000	1:30 PM	06/07/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	17	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Bicarbonate	EPA 310.1	17	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Tretten	06/07/2000
Total Dissolved Solids	EPA 160.1	26	mg/L	7	Rivera	06/12/2000
Suspended Solids	EPA 160.2	<1	mg/L	1	Rivera	06/12/2000
[illegible]nia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	06/22/2000
[illegible]-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	06/07/2000
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	06/07/2000
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	<0.1	mg/L	0.1	Hellmann	06/19/2000
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Jones	06/09/2000
Calcium - ICP-OES	EPA 200.7	4.8	mg/L	0.1	Faulstich	06/08/2000
Magnesium - ICP-OES	EPA 200.7	0.36	mg/L	0.1	Faulstich	06/08/2000
Potassium - ICP-OES	EPA 200.7	<0.5	mg/L	0.5	Faulstich	06/08/2000
Sodium - ICP-OES	EPA 200.7	1.5	mg/L	0.1	Faulstich	06/08/2000
Chloride - Ion Chromatography	EPA 300.0	0.4	mg/L	0.1	Lowe	06/07/2000
Cyanide,Total	EPA 335.2	< 0.005	mg/L	0.005	Kobza	06/13/2000
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	06/07/2000
Hardness, as CACO3	EPA 130.2	13	mg/L	0.1	Seher	06/20/2000
Sulfate - Ion Chromatography	EPA 300.0	2.9	mg/L	0.1	Lowe	06/07/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	06/12/2000
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Barium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Jones	06/12/2000
Chromium - ICP-MS	EPA 200.8	0.006	mg/L	0.001	Lambert	06/19/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	06/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	06/19/2000

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

John Kobza, Ph.D.
John C. Seher
Managers

Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 06/22/2000
Client: BIS-002
Taken by: B. Adkins
Report: 35300
PO #: 2909

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200006-0228	SW-3	06/06/2000	11:00 AM	06/07/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	12	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Bicarbonate	EPA 310.1	12	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Tretten	06/07/2000
Total Dissolved Solids	EPA 160.1	38	mg/L	7	Rivera	06/12/2000
Suspended Solids	EPA 160.2	2	mg/L	1	Rivera	06/12/2000
[illegible]onia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	06/22/2000
[illegible]e-N - Ion Chromatography	EPA 300.0	0.5N	mg/L	0.1	Lowe	06/07/2000
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	06/07/2000
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	<0.1	mg/L	0.1	Hellmann	06/19/2000
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Jones	06/09/2000
Calcium - ICP-OES	EPA 200.7	4.2	mg/L	0.1	Faulstich	06/12/2000
Magnesium - ICP-OES	EPA 200.7	0.45	mg/L	0.1	Faulstich	06/12/2000
Potassium - ICP-OES	EPA 200.7	<0.5	mg/L	0.5	Faulstich	06/12/2000
Sodium - ICP-OES	EPA 200.7	2.2	mg/L	0.1	Faulstich	06/12/2000
Chloride - Ion Chromatography	EPA 300.0	0.3	mg/L	0.1	Lowe	06/07/2000
Cyanide,Total	EPA 335.2	< 0.005	mg/L	0.005	Kobza	06/13/2000
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	06/07/2000
Hardness, as CACO3	EPA 130.2	12	mg/L	0.1	Seher	06/20/2000
Sulfate - Ion Chromatography	EPA 300.0	2.8	mg/L	0.1	Lowe	06/07/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	06/12/2000
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Barium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Jones	06/12/2000
Chromium - ICP-MS	EPA 200.8	0.007	mg/L	0.001	Lambert	06/19/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	06/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	06/19/2000

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

William F. Pillsbury
President

John Kobza, Ph.D.
John C. Seher
Managers

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 06/22/2000
Client: BIS-002
Taken by: B. Adkins
Report: 35300
PO #: 2909

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200006-0229	SW-4	06/06/2000	10:00 AM	06/07/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	15	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Bicarbonate	EPA 310.1	15	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Tretten	06/07/2000
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Tretten	06/07/2000
Total Dissolved Solids	EPA 160.1	19	mg/L	7	Rivera	06/12/2000
Suspended Solids	EPA 160.2	6	mg/L	1	Rivera	06/12/2000
[redacted]nia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	06/22/2000
[redacted]-N - Ion Chromatography	EPA 300.0	0.4N	mg/L	0.1	Lowe	06/07/2000
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	06/07/2000
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	<0.1	mg/L	0.1	Hellmann	06/19/2000
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Jones	06/09/2000
Calcium - ICP-OES	EPA 200.7	5	mg/L	0.1	Faulstich	06/12/2000
Magnesium - ICP-OES	EPA 200.7	0.48	mg/L	0.1	Faulstich	06/12/2000
Potassium - ICP-OES	EPA 200.7	0.72	mg/L	0.2	Faulstich	06/12/2000
Sodium - ICP-OES	EPA 200.7	1.6	mg/L	0.1	Faulstich	06/12/2000
Chloride - Ion Chromatography	EPA 300.0	0.3	mg/L	0.1	Lowe	06/07/2000
Cyanide,Total	EPA 335.2	< 0.005	mg/L	0.005	Kobza	06/13/2000
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	06/07/2000
Hardness, as CACO3	EPA 130.2	12	mg/L	0.1	Seher	06/20/2000
Sulfate - Ion Chromatography	EPA 300.0	2.8	mg/L	0.1	Lowe	06/07/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	06/12/2000
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Barium - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Jones	06/12/2000
Chromium - ICP-MS	EPA 200.8	0.007	mg/L	0.001	Lambert	06/19/2000
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Manganese - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	06/19/2000
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Jones	06/15/2000
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	06/19/2000

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

John Kobza, Ph.D.
John C. Seher
Managers

Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
Paiute Professional Bldg; 50 TU SU Lane
Bishop, CA 93514

Date: 06/22/2000
Client: BIS-002
Taken by: B. Adkins
Report: 35300
PO #: 2909

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
200006-0230	Duplicate	06/06/2000	2:40 PM	06/07/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Total Dissolved Solids	EPA 160.1	27	mg/L	7	Rivera	06/12/2000
Suspended Solids	EPA 160.2	<1	mg/L	1	Rivera	06/12/2000
Ammonia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	06/22/2000
Nitrate-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	06/07/2000
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1N	mg/L	0.1	Lowe	06/07/2000
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	<0.1	mg/L	0.1	Hellmann	06/19/2000
[redacted]orus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Jones	06/09/2000
[redacted] - Ion Chromatography	EPA 300.0	0.4	mg/L	0.1	Lowe	06/07/2000
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	06/07/2000
Sulfate - Ion Chromatography	EPA 300.0	2.8	mg/L	0.1	Lowe	06/07/2000
Total Recoverable Metals - Acid	EPA 200.2	Completed			Kleinworth	06/12/2000
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Jones	06/12/2000

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
200006-0231	Field Blank	06/06/2000	3:00 PM	06/07/2000

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Ammonia-N	EPA 350.3	<0.1	mg/L	0.1	Hellmann	06/22/2000

Approved By: _____
Sierra Environmental Monitoring, Inc

Date: 6-22-00

This report is applicable only to the sample received by the laboratory. The liability of the laboratory is limited to the amount paid for this report. This report is for the exclusive use of the client to whom it is addressed and upon the condition that the client assumes all liability for the further distribution of the report or its contents.

I have reviewed all data in accordance w/ Section D1 + D3 of QAPP and approved all data + comments for the entry into database

E. [redacted] 12/21/00

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

John Kobza, Ph.D.
John C. Seher
Managers

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SIERRA ENVIRONMENTAL MONITORING, INC.

1135 FINANCIAL BOULEVARD - RENO - NEVADA - 89502

TELEPHONE: (775) 857-2400 TELEFAX: (775) 857-2404

CHAIN OF CUSTODY RECORD

Client Name: Bishop Paiute Tribe

Purchase Order: 2909

Address: 50-A TUSU Lane

Phone/Fax #: 760-873-3076/x4143 Fax

City: Bishop State: CA Zip: 93514

Report Attention: Brian Adkins

Sampled by: Brian Adkins

Signature:

Analyses Requested: See attached list

Turnaround Time: Standard: ___ Other: ___ Rush: 24 Hr ___ 48 Hr ___

Compliance Monitoring: Yes: ___ No: ___

Lab Use Only Pres. Verified

Date Sampled	Time Sampled	Sample Type *	Sample Identification	Preservative*	Analyses	Remarks
6,00	2:30		SW-1	3,4,6	X	Please send QA/QC
	1:30pm		SW-2	3,4,6	X	From this and
	11:00		SW-3	3,4,6	X	previous samplings.
	10:00		SW-4	3,4,6	Y	JS-6-7-00
	2:40		Duplicate	3,4,6	Y	
	3:00pm		Field Blank	B 4	Y	

Signature	Print Name	Company	Date	Time
Relinquished By:	Brian Adkins	Bishop Paiute Tribe	~~6/7/00~~ 6-6-00	4:00pm
Received By:	Alan Spoonhunter	Bishop Paiute Tribe	~~6/7/00~~ 6-6-00	4:00 PM
Relinquished By:	Alan Spoonhunter	Bishop Paiute Tribe	6-6-00	4:15 PM
Received By:	Drew Stephens	Sierra West Express	6/6/00	16:15
Relinquished By:		SWE		
Received By Laboratory:	RoAn	SEM	6-7-00	9:30

Custody Seal Intact: Yes X No ___ None ___

Sample Temperature: Chilled [illegible] Ambient ___

Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report.

*KEY: Sample Type: 1=Drinking Water, 2=Surface Water, 3=Ground Water, 4=Waste Water, 5=Soil, 6=RCRA, 7=Other
Preservative: 1=NaOH, 2=NaOH + Z[illegible], 3=HNO3, 4=H2SO4, 5=Na2S2O3, 6=None, 7=Other

SEM COC Form Revised 5/98

FY 2000 Sampling-Spring Quarter										
Parameter		**Price**	**SW-1**	**SW-2**	**SW-3**	**SW-4**	**Dup**	**T. Blank**	**F. Blank**	
pH (Hydrogen Ion)	EPA 150.1	**10**								
Alkalinity	EPA 310.1	**15**	15	15	15	15				
Turbidity	EPA 180.1	**10**								
Total Dissolved Solids	EPA 160.1	**16**	16	16	16	16	16			
Total Suspended Solids		**16**	16	16	16	16	16			
Calcium	EPA 200.7	**15**	15	15	15	15				
Magnesium	EPA 200.7	**15**	15	15	15	15				
Potassium	EPA 200.7	**15**	15	15	15	15				
Sodium	EPA 200.7	**15**	15	15	15	15				
Chloride	EPA 300.0	**16**	16	16	16	16	16			
Sulfate	EPA 300.0	**16**	16	16	16	16	16			
Fluoride	EPA 300.0	**16**	16	16	16	16	16			
Arsenic	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Barium	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Chromium	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Copper	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Manganese	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Mercury	EPA 245.2	**40**	40	40	40	40				
Silver	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Zinc	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
[illegible]n	EPA 200.7	**15**	15	15	15	15	15			
Cyanide	EPA 335.2	**55**	55	55	55	55				
Hardness	EPA 130.2	**20**	20	20	20	20				
Silica	EPA 370.1	**25**								
Ammonia Nitrogen	EPA 350.3	**25**	25	25	25	25	25	25	25	
Total Kjeldahl Nitrogen	EPA 350.3	**35**	35	35	35	35	35			
Nitrate Nitrogen	EPA 300.0	**16**	16	16	16	16	16			
Nitrite Nitrogen	EPA 300.0	**16**	16	16	16	16	16			
Ortho Phosphate	EPA 365.3	**20**	20	20	20	20	20			
Volatile Organic Compounds	EPA 624	**250**								
Semivolatile Organic Compds.	EPA 625	**350**								
Pesticides & Herbicides	EPA 608,62	**1200**								
Total Petroleum Hydrocarbons	EPA 8015	**87**								
Gross Alpha	EPA 900	**75**								
Gross Beta	EPA 900	**75**								
Sampling			**Sum**	**Sum**	**Sum**	**Sum**	**Sum**	**Sum**	**Sum**	**Total**
$$ per sample			**526.5**	**526.5**	**526.5**	**526.5**	**207**	**25**	**25**	
# Samples			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Total			**526.5**	**526.5**	**526.5**	**526.5**	**207**	**25**	**25**	**2363**

completeness = $\frac{\text{Total collected ESTs}}{\text{Total expected tests}} = \frac{127}{117} = 1.08 > 80\%$

Quality Control Report

An Addendum to SEM Report Number: 35300

Sierra
Environmental
Monitoring, Inc.

Parameter	*LCS, % Recovery*	*MS, % Recovery*	*MSD, % Recovery*	*RPD, %*	*Method Blank*	
Alkalinity, Total				2.18		
Alkalinity/Bicarbonate				2.18		
Alkalinity/Carbonate				0.00		
Alkalinity/Hydroxide				0.00		
Ammonia-N	92.8	90.0	107.0	17.26	<0.1	mg/L
Arsenic - ICP-MS	104.0	93.6	92.3	1.40	< 0.002	mg/L
Barium - ICP-MS	98.9	97.9	97.0	0.92	< 0.002	mg/L
Boron - ICP-OES	98.2	94.4	94.2	0.21	<0.05	mg/L
Calcium - ICP-OES	98.6	102.2	106.6	0.00	<0.1	mg/L
Calcium - ICP-OES	98.6	102.2	106.6	4.21	<0.1	mg/L
Chloride - Ion Chromatography	97.1	92.8	93.8	1.07	<0.1	mg/L
Chromium - ICP-MS	111.0	106.4	104.4	1.90	< 0.002	mg/L
Copper - ICP-MS	113.0	99.9	98.1	1.82	< 0.002	mg/L
Cyanide,Total	98.0	103.0	103.5	0.48	< 0.005	mg/L
Fluoride - Ion Chromatography	95.7	105.0	105.0	0.00	<0.1	mg/L
Kjeldahl Nitrogen - Digestion/Anal	98.4	85.8	93.6	8.70	<0.1	mg/L
Magnesium - ICP-OES	100.8	99.4	100.8	0.00	<0.1	mg/L
Magnesium - ICP-OES	100.8	99.4	100.8	1.99	<0.1	mg/L
Manganese - ICP-MS	114.0	105.0	105.0	0.00	< 0.002	mg/L
Mercury - AA Cold Vapor	97.8	103.2	106.0	2.68	<0.0005	mg/L
Nitrate-N - Ion Chromatography	99.1	101.0	103.0	1.96	<0.1	mg/L
Nitrite-N - Ion Chromatography	102.5	101.0	101.0	0.00	<0.1	mg/L
Phosphorus - Ortho	98.7	98.5	101.5	3.00	<0.02	mg/L
Potassium - ICP-OES	97.4	90.0	90.0	0.00	<0.5	mg/L
Potassium - ICP-OES	97.4	90.0	90.0	1.67	<0.5	mg/L

...end: LCS, Laboratory Control Standard; MS, Matrix Spike; MSD, Matrix Spike Duplicate; ...D, Relative Percent Difference

...riday, June 23, 2000

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
...com@...net

John Kobza, Ph.D.
John C. Seher
Managers

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Quality Control Report

An Addendum to SEM Report Number: 35300

Sierra
Environmental
Monitoring, Inc.

Parameter	*LCS, % Recovery*	*MS, % Recovery*	*MSD, % Recovery*	*RPD, %*	*Method Blank*	
Silver - ICP-MS	98.2	104.0	104.0	0.00	< 0.002	mg/L
Sodium - ICP-OES	98.8	91.8	91.8	0.00	<0.1	mg/L
Sodium - ICP-OES	98.8	91.8	91.8	1.72	<0.1	mg/L
Sulfate - Ion Chromatography	100.0	80.0	81.0	1.24	<0.1	mg/L
Suspended Solids	———	———	—	0.00		
Total Dissolved Solids		106.0		3.64		
Zinc - ICP-MS	121.0	99.5	99.0	0.50	< 0.02	mg/L

I have reviewed all data in accordance with Sections D1 and D3 of QAPP and approved all data + comments to be entered into database.

B. [signature] 12/21/00

Legend: LCS, Laboratory Control Standard; MS, Matrix Spike; MSD, Matrix Spike Duplicate; RPD, Relative Percent Difference

Friday, June 23, 2000

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
[redacted]

John Kobza, Ph.D.
John C. Seher
Managers

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SIERRA ENVIRONMENTAL MONITORING, INC.

	OrderID	Param	LCS % Recovery	LCS Upper Control	LCS Lower Control	MS % Recovery	MS Upper Control	MS Lower Control	MSD % Recovery	MSD Upper Control	MSD Lower Control	RPD	UCL	LCL
BA	35300	Alkalinity, Total										2.178649237	20	0
BA	35300	Alkalinity/Bicarbonate										2.178649237	20	0
BA	35300	Alkalinity/Carbonate										0	20	0
BA	35300	Alkalinity/Hydroxide										0	20	0
BA	35300	Ammonia-N	92.8	115	85	90	120	80	107	120	80	17.25888325	20	0
BA	35300	Arsenic - ICP-MS	104	110	90	93.6	130	70	92.3	130	70	1.398601399	20	0
BA	35300	Barium - ICP-MS	98.9	110	90	97.9	130	70	97	130	70	0.923550539	20	0
BA	35300	Boron - ICP-OES	98.2	110	90	94.4	130	70	94.2	130	70	0.212089077	20	0
BA	35300	Calcium - ICP-OES	98.6	110	90	88.8	130	70	88.8	130	70	0	20	0
BA	35300	Chloride - Ion Chromatography	97.14285714	110	90	92.8	110	90	93.8	110	90	1.071811361	20	0
BA	35300	Chromium - ICP-MS	111	110	90	106.4	130	70	104.4	130	70	1.897533207	20	0
BA	35300	Copper - ICP-MS	113	110	90	99.9	130	70	98.1	130	70	1.818181818	20	0
BA	35300	Cyanide,Total	98	115	85	103	115	85	103.5	115	85	0.484261501	20	0
BA	35300	Fluoride - Ion Chromatography	95.66666667	110	90	105	110	90	105	110	90	0	20	0
BA	35300	Kjeldahl Nitrogen - Digestion/Analysis	98.4	115	85	85.8	120	80	93.6	120	80	8.695652174	20	0
BA	35300	Magnesium - ICP-OES	100.8	110	90	99.4	130	70	100.8	130	70	1.992031873	20	0
BA	35300	Manganese - ICP-MS	114	110	90	105	130	70	105	130	70	0	20	0
BA	35300	Mercury - AA Cold Vapor	97.80487805	110	90	103.2	120	80	106	120	80	2.676864245	20	0
BA	35300	Nitrate-N - Ion Chromatography	99.05882353	110	90	101	110	90	103	110	90	1.960784314	20	0
BA	35300	Nitrite-N - Ion Chromatography	102.5	110	90	101	110	90	101	110	90	0	20	0
BA	35300	Phosphorus - Ortho	98.69158879	110	90	98.5	120	80	101.5	120	80	3	20	0
BA	35300	Potassium - ICP-OES	97.4	110	90	90	130	70	90	130	70	0	20	0
BA	35300	Silver - ICP-MS	98.2	110	90	104	130	70	104	130	70	0	20	0
BA	35300	Sodium - ICP-OES	98.8	110	90	91.8	130	70	91.8	130	70	0	20	0
BA	35300	Sulfate - Ion Chromatography	100	110	90	80	110	90	81	110	90	1.242236025	20	0
BA	35300	Suspended Solids										0	20	0
BA	35300	Total Dissolved Solids				106	120	80				3.636363636	10	0
BA	35300	Zinc - ICP-MS	121	110	90	99.5	130	70	99	130	70	0.503778338	20	0

The above QA data has been reconciled with the QAPP (July 30, 1999) & approved entry of all data & comments into data base.

12/7/00

203

Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
1	Spring 00	6/6/00	Chemical	Field	EMQ Report # Bishop35300WQCP.QA

Bishop Paiute Tribe

WQCP - Chemical-Field Quality Control Report

Spring Quarter 2000 - (6/7/00)

Sample	Collector	CollectDate	Param	RDL	Reported Result	NumericResult	RPD	UCL	LCL	Proj. Manag	QA/QC Off.	Comment
SW-1	B.Adkins	6/7/00	Total Dissolved Solids	7	23	23						
Dup	B.Adkins	6/7/00	Total Dissolved Solids	7	27	27	-16.00	20	0	BA		
SW-1	B.Adkins	6/7/00	Suspended solids	1	<1	0.5						
Dup	B.Adkins	6/7/00	Suspended solids	1	<1	0.5	0.00	20	0	BA		
SW-1	B.Adkins	6/7/00	Nitrate-N	0.1	<0.1	0.05						
Dup	B.Adkins	6/7/00	Nitrate-N	0.1	<0.1N	0.05	0.00	20	0	BA		
SW-1	B.Adkins	6/7/00	Nitrite-N	0.1	<0.1	0.05						
Dup	B.Adkins	6/7/00	Nitrate-N	0.1	<0.1N	0.05	0.00	20	0	BA		
SW-1	B.Adkins	6/7/00	Kjeldahl Nitrogen	0.1	0.14	0.14						
Dup	B.Adkins	6/7/00	Kjeldahl Nitrogen	0.1	<0.1	0.05	94.74	20	0	BA		RPD Exceeded
SW-1	B.Adkins	6/7/00	Phoshorus-Orto	0.02	<0.02	0.01						
Dup	B.Adkins	6/7/00	Phoshorus-Orto	0.02	<0.02	0.01	0.00	20	0	BA		
SW-1	B.Adkins	6/7/00	Chloride	0.1	0.4	0.4						
Dup	B.Adkins	6/7/00	Chloride	0.1	0.4	0.2	66.67	20	0	BA		RPD Exceeded
SW-1	B.Adkins	6/7/00	Flouride	0.1	<0.1	0.05						
Dup	B.Adkins	6/7/00	Flouride	0.1	<0.1	0.05	0.00	20	0	BA		
SW-1	B.Adkins	6/7/00	Sulfate	0.1	2.9	2.9						
Dup	B.Adkins	6/7/00	Sulfate	0.1	2.8	2.8	3.51	20	0	BA		
SW-1	B.Adkins	6/7/00	Boron	0.05	<0.05	0.025						
Dup	B.Adkins	6/7/00	Boron	0.05	<0.05	0.025	0.00	20	0	BA		

I have reviewed all data in accordance with Sections D1 and D3 of QAPP and approved the entry of all data + comments into data base

B. A 12/21/00

205

Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
[illegible]	Spring 00	6/6/00	Bacteria	Lab	BETEL Data QA Review 8/23/00

MEMO

August 25, 2000

TO: Brian Adkins, Alan Spoonhunter

FR: Marvin Moskowitz, Laboratory Director/Quality Assurance Officer

RE: Review of Bishop Paiute Tribe Environmental Laboratory Data and QA/QC Records From 4/18/00 – 6/26/00

I have reviewed the bacteriological monitoring data presented on the *"Drinking Water Sampling And Analysis Report"* and the *"Colilert Data Sheet"* forms from the period of April 18, 2000 through June 26, 2000. All MPN results were accurately transcribed from the MPN Table and accurately recorded on the data sheets. The switch to the Quanti-tray 2000 method should improve laboratory accuracy and efficiency. I have also reviewed the assorted forms and records that are part of the quality control program. My observations and recommendations on the subject issues are as follows:

1. Data generated in the laboratory is being recorded and stored in accordance with the "*Quality Assurance Plan, Bishop Paiute Tribe, Drinking Water Laboratory, rev. 2/4/00 (QAP)*". The data is presented in a concise and legible manner.
2. The *"Colilert Data Sheet"* for the sampling day May 26, 2000 incorrectly assigned sample ID numbers of 000619-1 through 000619-8, and should have been assigned numbers of 000626-1 through 000626-8. ✓
3. Water quality assurance/quality control procedures are being conducted in a manner that assures the data being entered into the Water Quality Database is in substantial compliance with the *"Quality Assurance Project Plan: Bishop Paiute Tribe Water Quality Control Program (QAPP)"*. ✓
4. The *Autoclave Sterilization Record, the Autoclave Maintenance Form,* the *Incubator Temperature Record*, the *Thermometer Calibration Record*, the *Refrigerator Temperature Record*, the *Colilert Media Quanti-cult Suitability Check* and the *Drinking Water Sample Bottle Sterility and Volume Check Colilert 100ml Bottles* forms were all reviewed and found to be in compliance with the QAP and QAPP. Once again, it is recommended when refrigerator temperature is monitored at 5° C or higher, the refrigerator should be adjusted accordingly, and remonitored and rerecorded, as specified in #9, Corrective Action Contingencies, of the QAP. ✓
5. The *Autoclave Sterilization Record* indicates several durations of greater than one month between sterility checks (most recently 4/3/00 – 5/31/00). These checks should be conducted at a frequency of no greater than 30 days, as per the QAC. [Gap due to no analyses taking place during this time]
6. One duplicate sample was collected and analyzed during each sampling day. Eight quality control standards were analyzed on April 24, 2000. Results on this series are pending. These procedures are in accordance with the QAPP.

INVOICE:

Hours Charged:	Data & Record Review	1.5 hrs
	QAP/QAPP Review	0.5 hrs
	Report Preparation	1.0 hrs
	Total Hours	3.0 hrs

3 hrs. @ $45.00 per hour = $135.00

Please Submit Payment To: Marvin Moskowitz
301 Shepard Lane
Bishop, CA 93514

APPROVED FOR PAYMENT

9/6/00

charge to Acct # 5262.81

Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
1	Spring 00	6/6/00	Bacteria	Field	WQCP BACT QA Report

Bishop Paiute Tribe

WQCP-Bacteria-Field Analytical and Quality Control Report

Spring Quarter 2000 5/13/00-6/26/00

Event	Sample Date	Order	Sample Site	Sample #	N Total Coliforms	MPN (E.coli)	RPD(TC)	RPD(E.Coli)	UCL	LCL	Proj. Manag	QA/QC Office	Comments
Spring 00	5/31/00	1	Indian Ditch-West	000531-1	420	12.4			67.7	0	BA		
Spring 00	5/31/00	1	SW-4	000531-2	>200.5	73.8			67.7	0	BA		
Spring 00	5/31/00	1	SW-3	000531-3	>200.5	40.6			67.7	0	BA		
Spring 00	5/31/00	1	SW-2	000531-4	>200.5	118.4			67.7	0	BA		
Spring 00	5/31/00	1	Matlick East	000531-5	1240	144.5			67.7	0	BA		
Spring 00	5/31/00	1	SW-1	000531-6	>200.5	88.5			67.7	0	BA		
Spring 00	5/31/00	1	SW-1.dup	000531-7	>200.5	56	#VALUE!	44.98	67.7	0	BA		
Spring 00	5/31/00	1	Indian Ditch-East	000531-8	1780	47.8			67.7	0	BA		
Spring 00	6/7/00	2	Indian Ditch-West	000607-1	579	39.9			67.7	0	BA		
Spring 00	6/7/00	2	SW-4	000607-2	>2419.2	307.6			67.7	0	BA		
Spring 00	6/7/00	2	SW-3	000607-3	1732.87	461.1			67.7	0	BA		
Spring 00	6/7/00	2	SW-2	000607-4	1553.07	56.5			67.7	0	BA		
Spring 00	6/7/00	2	Matlick East	000607-5	>2419.2	579.4			67.7	0	BA		
Spring 00	6/7/00	2	SW-1	000607-6	>2419.2	160.7			67.7	0	BA		
Spring 00	6/7/00	2	SW-1.dup	000607-7	>2419.2	172.5	#VALUE!	-7.08	67.7	0	BA		
Spring 00	6/7/00	2	Indian Ditch-East	000607-8	2419.17	387.3			67.7	0	BA		
Spring 00	6/12/00	3	Indian Ditch-West	000612-1	2419.17	198.9			67.7	0	BA		
Spring 00	6/12/00	3	SW-4	000612-2	>2419.2	112.6			67.7	0	BA		
Spring 00	6/12/00	3	SW-3	000612-3	>2419.2	108.6			67.7	0	BA		
Spring 00	6/12/00	3	SW-2	000612-4	>2419.2	166.9			67.7	0	BA		
Spring 00	6/12/00	3	Matlick East	000612-5	>2419.2	151.5			67.7	0	BA		
Spring 00	6/12/00	3	SW-1	000612-6	>2419.2	85.7			67.7	0	BA		
Spring 00	6/12/00	3	SW-1.dup	000612-7	>2419.2	83.6	#VALUE!	2.48	67.7	0	BA		
Spring 00	6/12/00	3	Indian Ditch-East	000612-8	2419.17	161.6			67.7	0	BA		
Spring 00	6/19/00	4	Indian Ditch-West	000619-1	>2419.2	31.6			67.7	0	BA		
Spring 00	6/19/00	4	SW-4	000619-2	2419.17	101.7			67.7	0	BA		
Spring 00	6/19/00	4	SW-3	000619-3	>2419.2	25.1			67.7	0	BA		
Spring 00	6/19/00	4	SW-2	000619-4	>2419.2	52			67.7	0	BA		
Spring 00	6/19/00	4	Matlick East	000619-5	>2419.2	228.2			67.7	0	BA		
Spring 00	6/19/00	4	SW-1	000619-6	>2419.2	261.3			67.7	0	BA		
Spring 00	6/19/00	4	SW-1.dup	000619-7	>2419.2	206.3	#VALUE!	23.52	67.7	0	BA		
Spring 00	6/19/00	4	Indian Ditch-East	000619-8	>2419.2	111.2			67.7	0	BA		
Spring 00	6/26/00	5	Indian Ditch-West	000626-1	>2419.2	28.5			67.7	0	BA		
Spring 00	6/26/00	5	SW-4	000626-2	>2419.2	36.8			67.7	0	BA		
Spring 00	6/26/00	5	SW-3	000626-3	1413.6	69.1			67.7	0	BA		
Spring 00	6/26/00	5	SW-2	000626-4	>2419.2	105			67.7	0	BA		
Spring 00	6/26/00	5	Matlick East	000626-5	>2419.2	461.1			67.7	0	BA		
Spring 00	6/26/00	5	SW-1	000626-6	>2419.2	73.8			67.7	0	BA		
Spring 00	6/26/00	5	SW-1.dup	000626-7	>2419.2	104.6	#VALUE!	-34.53	67.7	0	BA		
Spring 00	6/26/00	5	Indian Ditch-East	000626-8	>2419.2	71.7			67.7	0	BA		

I have reviewed all data in accordance with Sections D1 and B D3 of QAPP and approve the entry of all data + comments into data base.

12/13/00

2 of 2

Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
T	Spring 00	6/6/00	Physical Instit	Field	WQQR Physical Instit (Argon)

Bishop Paiute Tribe

WQCP-Physical/In-Situ Analytical and Quality Control Report

Spring Quarter 2000 (4/3/00-6/6/00)

Site	Date	Type	pH	Cond	Turb	DO	Temp	Stage	Flow	RPD pH	RPD Cond	RPD Turb	RPD DO	RPD Temp	RPD Stage	RPD Flow	RPD UL	RPD LL	Sampler	Proj. Mana
SW-1	03-Apr-00	Physical/In-Situ	7.57	0.071	7	11.37	9.2	1.2	18.00								20.0	0.0	BA	
SW-2	03-Apr-00	Physical/In-Situ	7.37	0.071	4	11.45	8.3	1.65	34.00								20.0	0.0	BA	
SW-3	03-Apr-00	Physical/In-Situ	7.72	0.069	4	11.92	7.3	1.03	33.00								20.0	0.0	BA	
SW-4	**03-Apr-00**	Physical/In-Situ	**7.3**	**0.07**	**4**	**10.2**	**6.7**	**0.64**	**24.00**	**0.0**	**0.0**	**-5.6**	**0.8**	**0.0**	**0.0**	**1.1**	**20.0**	**0.0**	**BA**	
SW-4	**03-Apr-00**	Physical/In-Situ	**7.3**	**0.07**	**5**	**9.9**	**6.7**	**0.64**	**23.00**								**20.0**	**0.0**	**BA**	
SW-1	01-May-00	Physical/In-Situ	7.51	0.063	4	8.8	11.5	1.03	17.97								20.0	0.0	BA	
SW-2	01-May-00	Physical/In-Situ	7.03	0.062	3	8.99	10.8	1.64	29.55								20.0	0.0	BA	
SW-3	**01-May-00**	Physical/In-Situ	**7**	**0.06**	**3**	**9.05**	**9.8**	**1.01**	**30.02**						**0.0**	**0.4**	**20.0**	**0.0**	**BA**	
SW-3	**01-May-00**	Physical/In-Situ						**1.01**	**29.59**								**20.0**	**0.0**	**BA**	
SW-4	01-May-00	Physical/In-Situ	6.54	0.059	5	9.64	8.9	0.65	23.29								20.0	0.0	BA	
SW-1	**06-Jun-00**	Physical/In-Situ	**6.7**	**0.05**	**4**	**8.67**	**15**	**1.22**	**22.66**	**0.0**	**0.5**	**0.0**	**0.3**	**0.0**	**0.0**	**-0.3**	**20.0**	**0.0**	**BA**	
SW-1	**06-Jun-00**	Physical/In-Situ	**6.7**	**0.05**	**4**	**8.58**	**15**	**1.22**	**22.95**								**20.0**	**0.0**	**BA**	
SW-2	06-Jun-00	Physical/In-Situ	6.6	0.043	3	9.56	13.7	1.9	52.43								20.0	0.0	BA	
SW-3	06-Jun-00	Physical/In-Situ	6.65	0.041	2	10.17	12.2	1.27	57.81								20.0	0.0	BA	
SW-4	06-Jun-00	Physical/In-Situ	6.53	0.043	4	10.16	11.8	0.74	30.83								20.0	0.0	BA	

I have reviewed all data in accordance with Sections D1 and D3 of QAPP and approve of the entry of all data + comments into data base

S. [signature] 12/14/00

2/2

Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
M	Fall 00	9/11/00	Chemical	Lab	SEM Report # 36750

Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
50-A TU SU Lane
Bishop, CA 93514

Date: 10/5/00
Client: BIS-002
Taken by: B. Adkins/D. H.
Report: 36750
PO #: 3326

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200009-0398	SW-4	9/11/00	8:50 AM	9/12/00

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	18	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Bicarbonate	EPA 310.1	18	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Farrell	9/15/00
Total Dissolved Solids	EPA 160.1	35	mg/L	7	Eastwood	9/18/00
Suspended Solids	EPA 160.2	2	mg/L	1	Eastwood	9/13/00
Ammonia-N	EPA 350.3	<0.1	mg/L N	0.1	Hellmann	9/20/00
Nitrate-N - Ion Chromatography	EPA 300.0	<0.1	mg/L N	0.1	Lowe	9/13/00
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1	mg/L N	0.1	Lowe	9/13/00
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	0.14	mg/L N	0.1	Hellmann	9/22/00
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Kleinworth	9/13/00
Calcium - ICP-OES	EPA 200.7	6.3	mg/L	0.1	Tretten	9/18/00
Magnesium - ICP-OES	EPA 200.7	0.5	mg/L	0.1	Tretten	9/18/00
Potassium - ICP-OES	EPA 200.7	<0.5	mg/L	0.5	Tretten	9/18/00
Sodium - ICP-OES	EPA 200.7	1.9	mg/L	0.1	Tretten	9/18/00
Chloride - Ion Chromatography	EPA 300.0	0.4	mg/L	0.1	Lowe	9/13/00
Cyanide,Total	EPA 335.2	< 0.005	mg/L	0.005	Kobza	9/18/00
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	9/13/00
Hardness, as CACO3	EPA 130.2	18	mg/L	0.1	Seher	9/21/00
Sulfate - Ion Chromatography	EPA 300.0	3.7	mg/L	0.1	Lowe	9/13/00
Total Recoverable Metals - Acid	EPA 200.2	Completed			Tretten	9/13/00
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Barium - ICP-MS	EPA 200.8	0.003	mg/L	0.001	Lambert	9/14/00
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Tretten	9/14/00
Chromium - ICP-MS	EPA 200.8	< 0.01	mg/L	0.01	Lambert	9/14/00
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Manganese - ICP-MS	EPA 200.8	0.004	mg/L	0.001	Lambert	9/14/00
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Rivera	9/18/00
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	9/14/00

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
sem@sem-analytical.com

William F. Pillsbury
President

John Kobza, Ph.D.
John C. Seher
Managers

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
50-A TU SU Lane
Bishop, CA 93514

Date: 10/5/00
Client: BIS-002
Taken by: B. Adkins/D. H.
Report: 36750
PO #: 3326

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200009-0399	SW-3	9/11/00	10:15 AM	9/12/00

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	18	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Bicarbonate	EPA 310.1	18	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Farrell	9/15/00
Total Dissolved Solids	EPA 160.1	33	mg/L	7	Eastwood	9/18/00
Suspended Solids	EPA 160.2	1	mg/L	1	Eastwood	9/13/00
Ammonia-N	EPA 350.3	<0.1	mg/L N	0.1	Hellmann	9/20/00
Nitrate-N - Ion Chromatography	EPA 300.0	<0.1	mg/L N	0.1	Lowe	9/13/00
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1	mg/L N	0.1	Lowe	9/13/00
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	<0.1	mg/L N	0.1	Hellmann	9/22/00
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Kleinworth	9/13/00
Calcium - ICP-OES	EPA 200.7	6.2	mg/L	0.1	Tretten	9/18/00
Magnesium - ICP-OES	EPA 200.7	0.5	mg/L	0.1	Tretten	9/18/00
Potassium - ICP-OES	EPA 200.7	<0.5	mg/L	0.5	Tretten	9/18/00
Sodium - ICP-OES	EPA 200.7	1.9	mg/L	0.1	Tretten	9/18/00
Chloride - Ion Chromatography	EPA 300.0	0.4	mg/L	0.1	Lowe	9/13/00
Cyanide,Total	EPA 335.2	< 0.005	mg/L	0.005	Kobza	9/18/00
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	9/13/00
Hardness, as CACO3	EPA 130.2	18	mg/L	0.1	Seher	9/21/00
Sulfate - Ion Chromatography	EPA 300.0	3.7	mg/L	0.1	Lowe	9/13/00
Total Recoverable Metals - Acid	EPA 200.2	Completed			Tretten	9/13/00
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Barium - ICP-MS	EPA 200.8	0.003	mg/L	0.001	Lambert	9/14/00
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Tretten	9/14/00
Chromium - ICP-MS	EPA 200.8	< 0.01	mg/L	0.01	Lambert	9/14/00
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Manganese - ICP-MS	EPA 200.8	0.003	mg/L	0.001	Lambert	9/14/00
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Rivera	9/18/00
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	9/14/00

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
sem@sem-analytical.com

William F. Pillsbury
President

John Kobza, Ph.D.
John C. Seher
Managers

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
50-A TU SU Lane
Bishop, CA 93514

Date: 10/5/00
Client: BIS-002
Taken by: B. Adkins/D. H.
Report: 36750
PO #: 3326

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200009-0400	SW-2	9/11/00	11:00 AM	9/12/00

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	22	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Bicarbonate	EPA 310.1	22	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Farrell	9/15/00
Total Dissolved Solids	EPA 160.1	25	mg/L	7	Eastwood	9/18/00
Suspended Solids	EPA 160.2	1	mg/L	1	Eastwood	9/13/00
Ammonia-N	EPA 350.3	<0.1	mg/L N	0.1	Hellmann	9/20/00
Nitrate-N - Ion Chromatography	EPA 300.0	<0.1	mg/L N	0.1	Lowe	9/13/00
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1	mg/L N	0.1	Lowe	9/13/00
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	0.12	mg/L N	0.1	Hellmann	9/22/00
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Kleinworth	9/13/00
Calcium - ICP-OES	EPA 200.7	7.2	mg/L	0.1	Tretten	9/18/00
Magnesium - ICP-OES	EPA 200.7	0.7	mg/L	0.1	Tretten	9/18/00
Potassium - ICP-OES	EPA 200.7	0.6	mg/L	0.2	Tretten	9/18/00
Sodium - ICP-OES	EPA 200.7	2.1	mg/L	0.1	Tretten	9/18/00
Chloride - Ion Chromatography	EPA 300.0	0.5	mg/L	0.1	Lowe	9/13/00
Cyanide,Total	EPA 335.2	< 0.005	mg/L	0.005	Kobza	9/18/00
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	9/13/00
Hardness, as CACO3	EPA 130.2	21	mg/L	0.1	Seher	9/21/00
Sulfate - Ion Chromatography	EPA 300.0	3.9	mg/L	0.1	Lowe	9/13/00
Total Recoverable Metals - Acid	EPA 200.2	Completed			Tretten	9/13/00
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Barium - ICP-MS	EPA 200.8	0.004	mg/L	0.001	Lambert	9/14/00
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Tretten	9/14/00
Chromium - ICP-MS	EPA 200.8	< 0.01	mg/L	0.01	Lambert	9/14/00
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Manganese - ICP-MS	EPA 200.8	0.006	mg/L	0.001	Lambert	9/14/00
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Rivera	9/18/00
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	9/14/00

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
sem@sem-analytical.com

William F. Pillsbury
President

John Kobza, Ph.D.
John C. Seher
Managers

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
50-A TU SU Lane
Bishop, CA 93514

Date: 10/5/00
Client: BIS-002
Taken by: B. Adkins/D. H.
Report: 36750
PO #: 3326

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200009-0401	SW-1	9/11/00	12:13 PM	9/12/00

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Alkalinity, Total	EPA 310.1	20	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Bicarbonate	EPA 310.1	20	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Carbonate	EPA 310.1	<1	mg/L CaCO3	1	Farrell	9/15/00
Alkalinity/Hydroxide	EPA 310.1	<1	mg/L CaCO3	1	Farrell	9/15/00
Total Dissolved Solids	EPA 160.1	32	mg/L	7	Eastwood	9/18/00
Suspended Solids	EPA 160.2	24	mg/L	1	Eastwood	9/13/00
mmonia-N	EPA 350.3	<0.1	mg/L N	0.1	Hellmann	9/20/00
itrate-N - Ion Chromatography	EPA 300.0	<0.1	mg/L N	0.1	Lowe	9/13/00
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1	mg/L N	0.1	Lowe	9/13/00
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	0.64	mg/L N	0.1	Hellmann	9/22/00
Phosphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Kleinworth	9/13/00
Calcium - ICP-OES	EPA 200.7	6.8	mg/L	0.1	Tretten	9/18/00
Magnesium - ICP-OES	EPA 200.7	0.7	mg/L	0.1	Tretten	9/18/00
Potassium - ICP-OES	EPA 200.7	1.1	mg/L	0.2	Tretten	9/18/00
Sodium - ICP-OES	EPA 200.7	2.4	mg/L	0.1	Tretten	9/18/00
Chloride - Ion Chromatography	EPA 300.0	0.6	mg/L	0.1	Lowe	9/13/00
Cyanide,Total	EPA 335.2	< 0.005	mg/L	0.005	Kobza	9/18/00
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	9/13/00
Hardness, as CACO3	EPA 130.2	20	mg/L	0.1	Seher	9/21/00
Sulfate - Ion Chromatography	EPA 300.0	4.3	mg/L	0.1	Lowe	9/13/00
Total Recoverable Metals - Acid	EPA 200.2	Completed			Tretten	9/13/00
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Barium - ICP-MS	EPA 200.8	0.003	mg/L	0.001	Lambert	9/14/00
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Tretten	9/14/00
Chromium - ICP-MS	EPA 200.8	< 0.01	mg/L	0.01	Lambert	9/14/00
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Manganese - ICP-MS	EPA 200.8	0.005	mg/L	0.001	Lambert	9/14/00
Mercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Rivera	9/18/00
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	9/14/00

1135 Financial Blvd.
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President

John Kobza, Ph.D.
John C. Seher
Managers

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
50-A TU SU Lane
Bishop, CA 93514

Date: 10/5/00
Client: BIS-002
Taken by: B. Adkins/D. H.
Report: 36750
PO #: 3326

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200009-0402	Dup	9/11/00	12:13 PM	9/12/00

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Total Dissolved Solids	EPA 160.1	28	mg/L	7	Eastwood	9/18/00
Suspended Solids	EPA 160.2	13	mg/L	1	Eastwood	9/13/00
Ammonia-N	EPA 350.3	<0.1	mg/L N	0.1	Hellmann	9/20/00
Nitrate-N - Ion Chromatography	EPA 300.0	<0.1	mg/L N	0.1	Lowe	9/13/00
Nitrite-N - Ion Chromatography	EPA 300.0	<0.1	mg/L N	0.1	Lowe	9/13/00
Kjeldahl Nitrogen - Digestion/An	EPA 351.4	0.62	mg/L N	0.1	Hellmann	9/26/00
[redacted]sphorus - Ortho	EPA 365.3	<0.02	mg/L	0.02	Kleinworth	9/13/00
[redacted]loride - Ion Chromatography	EPA 300.0	0.5	mg/L	0.1	Lowe	9/13/00
Fluoride - Ion Chromatography	EPA 300.0	<0.1	mg/L	0.1	Lowe	9/13/00
Sulfate - Ion Chromatography	EPA 300.0	4	mg/L	0.1	Lowe	9/13/00
Total Recoverable Metals - Acid	EPA 200.2	Completed			Tretten	9/13/00
Boron - ICP-OES	EPA 200.7	<0.05	mg/L	0.05	Tretten	9/14/00

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200009-0403	SW-4 Filt	9/11/00	8:50 AM	9/12/00

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Ammonia-N	EPA 350.3	<0.1	mg/L N	0.1	Hellmann	9/26/00

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
[redacted]@sem-analytical.com

William F. Pillsbury
President

John Kobza, Ph.D.
John C. Seher
Managers

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Laboratory Analysis Report

Sierra Environmental Monitoring, Inc.

Bishop Paiute Tribal Council
Attn: Brian Adkins
50-A TU SU Lane
Bishop, CA 93514

Date: 10/5/00
Client: BIS-002
Taken by: B. Adkins/D. H.
Report: 36750
PO #: 3326

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received
S200009-0404	SW-1 Filt	9/12/00	12:13 PM	9/12/00

Parameter	Method	Result	Units Of Measure	Detection Limit	Analyst	Date Analyzed
Total Recoverable Metals - Acid	EPA 200.2	Completed			Tretten	9/13/00
Arsenic - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Barium - ICP-MS	EPA 200.8	0.003	mg/L	0.001	Lambert	9/14/00
Chromium - ICP-MS	EPA 200.8	< 0.01	mg/L	0.01	Lambert	9/14/00
Silver - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
Copper - ICP-MS	EPA 200.8	< 0.002	mg/L	0.002	Lambert	9/14/00
[redacted]nganese - ICP-MS	EPA 200.8	0.005	mg/L	0.001	Lambert	9/14/00
[redacted]ercury - AA Cold Vapor	EPA 245.1	<0.0005	mg/L	0.0005	Rivera	9/18/00
Zinc - ICP-MS	EPA 200.8	< 0.02	mg/L	0.02	Lambert	9/14/00

Approved By: J. Seher **Date:** 10-5-00
Sierra Environmental Monitoring, Inc

This report is applicable only to the sample received by the laboratory. The liability of the laboratory is limited to the amount paid for this report. This report is for the exclusive use of the client to whom it is addressed and upon the condition that the client assumes all liability for the further distribution of the report or its contents.

I have reviewed all data in accordance w/ Sections D1 and D3 of QAPP and approve all data + counts to be entered into data base B. [redacted] 12/21/00

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
sem@sem-analytical.com

William F. Pillsbury
President

John Kobza, Ph.D.
John C. Seher
Managers

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SIERRA ENVIRONMENTAL MONITORING, INC.

1135 FINANCIAL BOULEVARD - RENO - NEVADA - 89502

TELEPHONE: (775) 857-2400 TELEFAX: (775) 857-2404

36150

CHAIN OF CUSTODY RECORD

220

Client Name: Bishop Paiute Tribe	Purchase Order: 3326	Analyses Requested	Turnaround Time: Standard: X Other: ___ Rush: 24 Hr ___ 48 Hr ___
Address: 50-A Tu Su Lane	Phone/Fax #: 760-873-3665/4143		Compliance Monitoring: Yes: ___ No: ___
City: Bishop State: CA Zip: 93514	Report Attention: B. Adkins		
Sampled by: B. Adkins / D. Heil	Signature:		Lab Use Only Pres. Verified

Date Sampled	Time Sampled	Sample Type*	Sample Identification	Preservative*	See Attached List	Remarks
9/11/00	~~12:13~~ 8:50	3	SW-4	1,3,4,6,7	X	6 bottles
9/11/00	10:15	3	SW-3	1,3,4,6,7	X	6 bottles
9/11/00	11:00	3	SW-2	1,3,4,6,7	X	6 bottles
9/11/00	12:13	3	SW-1	1,3,4,6,7	X	6 bottles
9/11/00	12:13	3	Dup	1,3,4,6,7	X	6 bottles
9/11/00	8:50	3	SW-4 ~~Filt~~ Filt	4		1 bottle
9/11/00	12:13	3	SW-1 Filtered	3		1 bottle
			~~SW-1 T~~			

Signature	Print Name	Company	Date	Time
Relinquished By:	Brian Adkins	Bishop Paiute Tribe	9/11/00	4:40 pm
Received By:	Dawn Stephan	Sierra West Express	9/11/00	16:40
Relinquished By:				
Received By:				
Relinquished By:				
Received By Laboratory:	Jamie Ward	SEM	9/12/00	1100

Custody Seal Intact
Yes ___ No ___ None ___

Sample Temperature
Chilled ___ Ambient ___

Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report.

* **KEY:** Sample Type: 1=Drinking Water, 2=Surface Water, 3=Ground Water, 4=Waste Water, 5=Soil, 6=RCRA, 7=Other
Preservative: 1=NaOH, 2=NaOH + Zn, 3=HNO3, 4=H2SO4, 5=Na2S2O3, 6=None, 7=Other

SEM COC Form Revised 5/98

Y 2000 Sampling-Summer Quarter													
arameter		Price	SW-1	SW-2	SW-3	SW-4	Dup	SW-4-Filt	SW-1-Filtered	T. Blank	F. Blank		
H (Hydrogen Ion)	EPA 150.1	10											
lkalinity	EPA 310.1	15	15	15	15	15							
urbidity	EPA 180.1	10											
otal Dissolved Solids	EPA 160.1	16	16	16	16	16	16						
otal Suspended Solids		16	16	16	16	16	16						
alcium	EPA 200.7	15	15	15	15	15							
agnesium	EPA 200.7	15	15	15	15	15							
otassium	EPA 200.7	15	15	15	15	15							
odium	EPA 200.7	15	15	15	15	15							
hloride	EPA 300.0	16	16	16	16	16	16						
ulfate	EPA 300.0	16	16	16	16	16	16						
luoride	EPA 300.0	16	16	16	16	16	16						
rsenic	EPA 200.8	18.5	18.5	18.5	18.5	18.5				18.5			
arium	EPA 200.8	18.5	18.5	18.5	18.5	18.5				18.5			
hromium	EPA 200.8	18.5	18.5	18.5	18.5	18.5				18.5			
opper	EPA 200.8	18.5	18.5	18.5	18.5	18.5				18.5			
anganese	EPA 200.8	18.5	18.5	18.5	18.5	18.5				18.5			
ercury	EPA 245.2	40	40	40	40	40				40			
ver	EPA 200.8	18.5	18.5	18.5	18.5	18.5				18.5			
nc	EPA 200.8	18.5	18.5	18.5	18.5	18.5				18.5			
ron	EPA 200.7	15	15	15	15	15	15						
anide	EPA 335.2	55	55	55	55	55							
rdness	EPA 130.2	20	20	20	20	20							
ica	EPA 370.1	25											
mmonia Nitrogen	EPA 350.3	25	25	25	25	25	25	25					
tal Kjeldahl Nitrogen	EPA 350.3	35	35	35	35	35	35						
trate Nitrogen	EPA 300.0	16	16	16	16	16	16						
rite Nitrogen	EPA 300.0	16	16	16	16	16	16						
ho Phosphate	EPA 365.3	20	20	20	20	20	20						
latile Organic Compounds	EPA 624	250											
nvolatile Organic Compds	EPA 625	350											
sticides & Herbicides	EPA 608,625	1200											
tal Petroleum Hydrocarbons	EPA 8015	87											
oss Alpha	EPA 900	75											
oss Beta	EPA 900	75											
mpling			Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Sum	Total	
per sample			526.5	526.5	526.5	526.5	207	25	169.5	0	0		
amples			1	1	1	1	1	1	1	1	1		
tal			526.5	526.5	526.5	526.5	207	25	169.5	0	0	2507.5	

CustomerName	Customer ID	Order ID	Customer PO	Project ID	Customer Sample Number	Site	Collector	CollectDate	SampleNumber	Matrix	Param	Method	Detection Limit	RDL	Reported Result	Numeric Result	Units	Analysis Employee	Analysis Date
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Alkalinity, Total	EPA 310.1	1	1	18	18	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Alkalinity/Bicarbonate	EPA 310.1	1	1	18	18	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Alkalinity/Carbonate	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Alkalinity/Hydroxide	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05	mg/L N	Hellmann	20-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.001	0.003	0.003	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025	mg/L	Tretten	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Calcium - ICP-OES	EPA 200.7	0.1	0.1	6.3	6.3	mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	0.4	0.4	mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.01	< 0.01	0.005	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Cyanide,Total	EPA 335.2	0.005	0.005	< 0.005	0.0025	mg/L	Kobza	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05	mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	18	18	mg/L	Seher	21-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Kjeldahl Nitrogen - Digestion/Analysis	EPA 351.4	0.1	0.1	0.14	0.14	mg/L N	Hellmann	22-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Magnesium - ICP-OES	EPA 200.7	0.1	0.1	0.5	0.5	mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.001	0.004	0.004	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025	mg/L	Rivera	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05	mg/L N	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Nitrite-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05	mg/L N	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01	mg/L	Kleinworth	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Potassium - ICP-OES	EPA 200.7	0.2	0.5	<0.5	0.25	mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Sodium - ICP-OES	EPA 200.7	0.1	0.1	1.9	1.9	mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	3.7	3.7	mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Suspended Solids	EPA 160.2	1	1	2	2	mg/L	Eastwood	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	35	35	mg/L	Eastwood	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-4		B. Adkins/D. H	9/11/2000	S200009-0398	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Alkalinity, Total	EPA 310.1	1	1	18	18	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Alkalinity/Bicarbonate	EPA 310.1	1	1	18	18	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Alkalinity/Carbonate	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Alkalinity/Hydroxide	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05	mg/L N	Hellmann	20-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.001	0.003	0.003	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025	mg/L	Tretten	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Calcium - ICP-OES	EPA 200.7	0.1	0.1	6.2	6.2	mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	0.4	0.4	mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.01	< 0.01	0.005	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Cyanide,Total	EPA 335.2	0.005	0.005	< 0.005	0.0025	mg/L	Kobza	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05	mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	18	18	mg/L	Seher	21-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Kjeldahl Nitrogen - Digestion/Analysis	EPA 351.4	0.1	0.1	<0.1	0.05	mg/L N	Hellmann	22-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Magnesium - ICP-OES	EPA 200.7	0.1	0.1	0.5	0.5	mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.001	0.003	0.003	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025	mg/L	Rivera	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05	mg/L N	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Nitrite-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05	mg/L N	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01	mg/L	Kleinworth	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Potassium - ICP-OES	EPA 200.7	0.2	0.5	<0.5	0.25	mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Sodium - ICP-OES	EPA 200.7	0.1	0.1	1.9	1.9	mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	3.7	3.7	mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Suspended Solids	EPA 160.2	1	1	1	1	mg/L	Eastwood	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	33	33	mg/L	Eastwood	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-3		B. Adkins/D. H	9/11/2000	S200009-0399	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-2		B. Adkins/D. H	9/11/2000	S200009-0400	Clean Water	Alkalinity, Total	EPA 310.1	1	1	22	22	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-2		B. Adkins/D. H	9/11/2000	S200009-0400	Clean Water	Alkalinity/Bicarbonate	EPA 310.1	1	1	22	22	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-2		B. Adkins/D. H	9/11/2000	S200009-0400	Clean Water	Alkalinity/Carbonate	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-2		B. Adkins/D. H	9/11/2000	S200009-0400	Clean Water	Alkalinity/Hydroxide	EPA 310.1	1	1	<1	0.5	mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326		SW-2		B. Adkins/D. H	9/11/2000	S200009-0400	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05	mg/L N	Hellmann	20-Sep-00

Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.001	0.004	0.004 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025 mg/L	Tretten	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Calcium - ICP-OES	EPA 200.7	0.1	0.1	7.2	7.2 mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	0.5	0.5 mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.01	< 0.01	0.005 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Cyanide,Total	EPA 335.2	0.005	0.005	< 0.005	0.0025 mg/L	Kobza	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05 mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	21	21 mg/L	Seher	21-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Kjeldahl Nitrogen - Digestion/Analysis	EPA 351.4	0.1	0.1	0.12	0.12 mg/L N	Hellmann	22-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Magnesium - ICP-OES	EPA 200.7	0.1	0.1	0.7	0.7 mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.001	0.006	0.006 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025 mg/L	Rivera	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05 mg/L N	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Nitrite-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05 mg/L N	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01 mg/L	Kleinworth	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Potassium - ICP-OES	EPA 200.7	0.2	0.2	0.6	0.6 mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Sodium - ICP-OES	EPA 200.7	0.1	0.1	2.1	2.1 mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	3.9	3.9 mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Suspended Solids	EPA 160.2	1	1	1	1 mg/L	Eastwood	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	25	25 mg/L	Eastwood	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-2	B. Adkins/D. H.	9/11/2000	S200009-0400	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Alkalinity, Total	EPA 310.1	1	1	20	20 mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Alkalinity/Bicarbonate	EPA 310.1	1	1	20	20 mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Alkalinity/Carbonate	EPA 310.1	1	1	<1	0.5 mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Alkalinity/Hydroxide	EPA 310.1	1	1	<1	0.5 mg/L CaCO3	Farrell	15-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05 mg/L N	Hellmann	20-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.001	0.003	0.003 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025 mg/L	Tretten	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Calcium - ICP-OES	EPA 200.7	0.1	0.1	6.8	6.8 mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	0.6	0.6 mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.01	< 0.01	0.005 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Cyanide,Total	EPA 335.2	0.005	0.005	< 0.005	0.0025 mg/L	Kobza	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05 mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Hardness, as CACO3	EPA 130.2	0.1	0.1	20	20 mg/L	Seher	21-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Kjeldahl Nitrogen - Digestion/Analysis	EPA 351.4	0.1	0.1	0.64	0.64 mg/L N	Hellmann	22-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Magnesium - ICP-OES	EPA 200.7	0.1	0.1	0.7	0.7 mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.001	0.005	0.005 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04	<0.0005	0.00025 mg/L	Rivera	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05 mg/L N	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Nitrite-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05 mg/L N	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01 mg/L	Kleinworth	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Potassium - ICP-OES	EPA 200.7	0.2	0.2	1.1	1.1 mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002	< 0.002	0.001 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Sodium - ICP-OES	EPA 200.7	0.1	0.1	2.4	2.4 mg/L	Tretten	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	4.3	4.3 mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Suspended Solids	EPA 160.2	1	1	24	24 mg/L	Eastwood	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	32	32 mg/L	Eastwood	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1	B. Adkins/D. H.	9/11/2000	S200009-0401	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02	< 0.02	0.01 mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05 mg/L N	Hellmann	20-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Boron - ICP-OES	EPA 200.7	0.05	0.05	<0.05	0.025 mg/L	Tretten	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Chloride - Ion Chromatography	EPA 300.0	0.1	0.1	0.5	0.5 mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Fluoride - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05 mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Kjeldahl Nitrogen - Digestion/Analysis	EPA 351.4	0.1	0.1	0.62	0.62 mg/L N	Hellmann	26-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Nitrate-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05 mg/L N	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Nitrite-N - Ion Chromatography	EPA 300.0	0.1	0.1	<0.1	0.05 mg/L N	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Phosphorus - Ortho	EPA 365.3	0.02	0.02	<0.02	0.01 mg/L	Kleinworth	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Sulfate - Ion Chromatography	EPA 300.0	0.1	0.1	4.0	4 mg/L	Lowe	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Suspended Solids	EPA 160.2	1	1	13	13 mg/L	Eastwood	13-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	Dup	B. Adkins/D. H.	9/11/2000	S200009-0402	Clean Water	Total Dissolved Solids	EPA 160.1	10	7	28	28 mg/L	Eastwood	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-4 Filt	B. Adkins/D. H.	9/11/2000	S200009-0403	Clean Water	Ammonia-N	EPA 350.3	0.1	0.1	<0.1	0.05 mg/L N	Hellmann	26-Sep-00

Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1 Filt	B. Adkins/D	H	9/12/2000	S200009-0404	Clean Water	Arsenic - ICP-MS	EPA 200.8	0.001	0.002 < 0.002	0.001	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1 Filt	B. Adkins/D	H	9/12/2000	S200009-0404	Clean Water	Barium - ICP-MS	EPA 200.8	0.001	0.001 0.003	0.003	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1 Filt	B. Adkins/D	H	9/12/2000	S200009-0404	Clean Water	Chromium - ICP-MS	EPA 200.8	0.001	0.01 < 0.01	0.005	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1 Filt	B. Adkins/D	H	9/12/2000	S200009-0404	Clean Water	Copper - ICP-MS	EPA 200.8	0.001	0.002 < 0.002	0.001	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1 Filt	B. Adkins/D	H	9/12/2000	S200009-0404	Clean Water	Manganese - ICP-MS	EPA 200.8	0.001	0.001 0.005	0.005	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1 Filt	B. Adkins/D	H	9/12/2000	S200009-0404	Clean Water	Mercury - AA Cold Vapor	EPA 245.1	0.0005	5E-04 <0.0005	0.00025	mg/L	Rivera	18-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1 Filt	B. Adkins/D	H	9/12/2000	S200009-0404	Clean Water	Silver - ICP-MS	EPA 200.8	0.001	0.002 < 0.002	0.001	mg/L	Lambert	14-Sep-00
Bishop Paiute Tribal Council	BIS-002	36750	3326	SW-1 Filt	B. Adkins/D	H	9/12/2000	S200009-0404	Clean Water	Zinc - ICP-MS	EPA 200.8	0.01	0.02 < 0.02	0.01	mg/L	Lambert	14-Sep-00

I have reviewed all data in accordance with Sections D1 and D3 of QAPP and approve entry of all data + comments into database

S. [signature] 12/21/00

224

Quality Control Report

Sierra
Environmental
Monitoring, Inc.

An Addendum to SEM Report Number: 36750 *Project ID: SW-1*

Parameter	*LCS, % Recovery*	*MS, % Recovery*	*MSD, % Recovery*	*RPD, %*	*Method Blank*	
Alkalinity, Total				0.00		
Alkalinity/Bicarbonate				0.00		
Alkalinity/Carbonate				0.00		
Alkalinity/Hydroxide				0.00		
Ammonia-N	105.6	100.0	107.0	0.00	<0.1	mg/L
Ammonia-N	105.6	100.0	107.0	0.80	<0.1	mg/L
Arsenic - ICP-MS	92.7	90.0	93.2	3.49	< 0.002	mg/L
Barium - ICP-MS	101.0	99.3	96.3	3.07	< 0.002	mg/L
Boron - ICP-OES	104.0	101.4	98.8	2.60	<0.05	mg/L
Calcium - ICP-OES	95.0	84.0	88.0	2.35		
Calcium - ICP-OES	95.0	84.0	88.0	4.65		
Chloride - Ion Chromatography	97.7	100.0	101.0	1.00	<0.1	mg/L
Chromium - ICP-MS	100.0	101.0	99.1	1.90	< 0.01	mg/L
Copper - ICP-MS	97.8	96.3	97.3	1.03	< 0.002	mg/L
Fluoride - Ion Chromatography	97.7	99.0	100.0	1.01	<0.1	mg/L
Kjeldahl Nitrogen - Digestion/Anal	97.7	105.0	105.0	0.00	<0.1	mg/L
Magnesium - ICP-OES	101.2	102.8	105.2	3.07		
Magnesium - ICP-OES	101.2	102.8	105.2	0.38		
Manganese - ICP-MS	97.6	96.7	96.0	0.73	< 0.002	mg/L
Mercury - AA Cold Vapor	105.6	125.6	102.2	20.54	<0.0005	mg/L
Nitrate-N - Ion Chromatography	98.4	99.0	100.0	1.01	<0.1	mg/L
Nitrite-N - Ion Chromatography	101.3	102.0	101.0	0.99	<0.1	mg/L
Phosphorus - Ortho	96.7	105.0	107.5	2.35		
Potassium - ICP-OES	99.6	96.8	98.0	1.23		
Potassium - ICP-OES	99.6	96.8	98.0	3.16		

Legend: LCS, Laboratory Control Standard; MS, Matrix Spike; MSD, Matrix Spike Duplicate; RPD, Relative Percent Difference

Thursday, November 02, 2000

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404

John Kobza, Ph.D.
John C. Seher
Managers

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Quality Control Report

Sierra
Environmental
Monitoring, Inc.

An Addendum to SEM Report Number: 36750 *Project ID: SW-1*

Parameter	*LCS, % Recovery*	*MS, % Recovery*	*MSD, % Recovery*	*RPD, %*	*Method Blank*
Silver - ICP-MS	97.4	99.5	98.5	1.01	< 0.002 mg/L
Sodium - ICP-OES	94.2	95.0	92.8	2.34	
Sodium - ICP-OES	94.2	95.0	92.8	0.21	
Sulfate - Ion Chromatography	100.9	90.0	93.0	3.28	<0.1 mg/L
Suspended Solids				0.00	
Total Dissolved Solids		106.0		3.43	
Zinc - ICP-MS	105.0	94.5	95.5	1.05	< 0.02 mg/L

I have reviewed all data in accordance with Sections D1 and D3 of QAPP and approve electronic entry of all data into data base.

B. [signature] 12/21/00

Legend: LCS, Laboratory Control Standard; MS, Matrix Spike; MSD, Matrix Spike Duplicate; RPD, Relative Percent Difference

William F. Pillsbury
President

1135 Financial Blvd.
Reno, NV 89502-2348
Phone (775) 857-2400
FAX (775) 857-2404
sem@sem-analytical.com

John Kobza, Ph.D.
John C. Seher
Managers

SIERRA ENVIRONMENTAL MONITORING, INC.

OrderID	Param	LCS % Recovery	LCS Upper Control	LCS Lower Control	MS % Recovery	MS Upper Control Limit	MS Lower Control	MSD % Recovery	MSD Upper Control	MSD Lower Control	RPD	UCL	LCL	
36750	Alkalinity, Total										0	20	0	SA
36750	Alkalinity/Bicarbonate										0	20	0	BA
36750	Alkalinity/Carbonate										0	20	0	BA
36750	Alkalinity/Hydroxide										0	20	0	BA
36750	Ammonia-N	105.647841	115	85	100	120	80	99.2	120	80	0.803212851	20	0	?
36750	Arsenic - ICP-MS	92.7	110	90	90	130	70	93.2	130	70	3.493449782	20	0	BA
36750	Barium - ICP-MS	101	110	90	99.3	130	70	96.3	130	70	3.067484663	20	0	BA
36750	Boron - ICP-OES	104	110	90	101.4	130	70	98.8	130	70	2.597402597	20	0	BA
36750	Calcium - ICP-OES	95	110	90	84	130	70	86	130	70	2.352941176	20	0	BA
36750	Chloride - Ion Chromatography	97.7142857	110	90	100	110	90	101	110	90	0.995024876	20	0	BA
36750	Chromium - ICP-MS	100	110	90	101	130	70	99.1	130	70	1.899050475	20	0	BA
36750	Copper - ICP-MS	97.8	110	90	96.3	130	70	97.3	130	70	1.033057851	20	0	BA
36750	Fluoride - Ion Chromatography	97.6666667	110	90	99	110	90	100	110	90	1.005025126	20	0	BA
36750	Kjeldahl Nitrogen - Digestion/Analysis	97.7027027	115	85	105	120	80	105	120	80	0	20	0	BA
36750	Magnesium - ICP-OES	101.2	110	90	102.8	130	70	105.2	130	70	3.0651341	20	0	BA
36750	Manganese - ICP-MS	97.6	110	90	96.7	130	70	96	130	70	0.726517903	20	0	BA
36750	Mercury - AA Cold Vapor	105.609756	110	90	125.6	120	80	102.2	120	80	20.54433714	20	0	RPD exceed
36750	Nitrate-N - Ion Chromatography	98.3529412	110	90	99	110	90	100	110	90	1.005025126	20	0	BA
36750	Nitrite-N - Ion Chromatography	101.25	110	90	102	110	90	101	110	90	0.985221675	20	0	BA
36750	Phosphorus - Ortho	96.7407407	110	90	105	120	80	107.5	120	80	2.352941176	20	0	BA
36750	Potassium - ICP-OES	99.6	110	90	96.8	130	70	98	130	70	1.232032854	20	0	BA
36750	Silver - ICP-MS	97.4	110	90	99.5	130	70	98.5	130	70	1.01010101	20	0	BA
36750	Sodium - ICP-OES	94.2	110	90	95	130	70	92.8	130	70	2.342917998	20	0	BA
36750	Sulfate - Ion Chromatography	100.888889	110	90	90	110	90	93	110	90	3.278688525	20	0	BA
36750	Suspended Solids										0	20	0	BA
36750	Total Dissolved Solids				106	120	80				3.432137285	10	0	BA
36750	Zinc - ICP-MS	105	110	90	94.5	130	70	95.5	130	70	1.052631579	20	0	BA

No QA data

NO QA data

Note: The above QA data have been reconciled with the Data Quality Objectives (Section D3) of Bishop Paiute Tribe QAPP (July 30, 1999). [signature] 11/28/00

I approve entry into data base of all data + comments [signature] 12/21/00

BISHOP TRIBAL COUNCIL

September 5, 2000

Mr. John Seher
Sierra Environmental Monitoring
1135 Financial Blvd.
Reno, NV 89502

RE: Summer Quarter Sampling – Bishop Paiute Tribe

Please find attached list of sample parameters for our Summer Quarter Sampling which will occur September 11, 2000. We request the following:

1. Sample bottles (with appropriate preservative) to accommodate all requested parameters (Note: Would you please put sample number (i.e. SW-1, SW-2, SW-3, SW-4, Duplicate, Field Blank) on the respective bottles.)
2. Extra sample bottles for mistakes
3. Coolers for return shipment to your lab
4. Chain –of-Custody paperwork
5. Extra preservative for samples
6. Laboratory organic free high quality water for field blank (500 ml prob sufficent)

We plan to ship the coolers full of samples via Sierra West Express. Pick up will be Monday afternoon, September 11 with deliver by 12 noon the following day 9/12/00.

If you have any questions, please contact me at 760-873-3665.

Thanks for your help.

Brian Adkins

Enclosure: Excel worksheet – Summer quanter sampling 2000.

CC: file

PAIUTE PROFESSIONAL BUILDING • 50 TU SU LANE • BISHOP, CA 93514
PHONE (760) 873-3584 • FAX (760) 873-4143

FY 2000 Sampling-Summer Quarter										
Parameter		**Price**	**SW-1**	**SW-2**	**SW-3**	**SW-4**	**Dup**	**T. Blank**	**F. Blank**	
pH (Hydrogen Ion)	EPA 150.1	**10**								
Alkalinity	EPA 310.1	**15**	15	15	15	15				
Turbidity	EPA 180.1	**10**								
Total Dissolved Solids	EPA 160.1	**16**	16	16	16	16	16			
Total Suspended Solids		**16**	16	16	16	16	16			
Calcium	EPA 200.7	**15**	15	15	15	15				
Magnesium	EPA 200.7	**15**	15	15	15	15				
Potassium	EPA 200.7	**15**	15	15	15	15				
Sodium	EPA 200.7	**15**	15	15	15	15				
Chloride	EPA 300.0	**16**	16	16	16	16	16			
Sulfate	EPA 300.0	**16**	16	16	16	16	16			
Fluoride	EPA 300.0	**16**	16	16	16	16	16			
Arsenic	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Barium	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Chromium	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Copper	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Manganese	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Mercury	EPA 245.2	**40**	40	40	40	40				
Silver	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Zinc	EPA 200.8	**18.5**	18.5	18.5	18.5	18.5				
Iron	EPA 200.7	**15**	15	15	15	15	15			
Cyanide	EPA 335.2	**55**	55	55	55	55				
Hardness	EPA 130.2	**20**	20	20	20	20				
Silica	EPA 370.1	**25**								
Ammonia Nitrogen	EPA 350.3	**25**	25	25	25	25	25		(25	← did not submit
Total Kjeldahl Nitrogen	EPA 350.3	**35**	35	35	35	35	35			
Nitrate Nitrogen	EPA 300.0	**16**	16	16	16	16	16			
Nitrite Nitrogen	EPA 300.0	**16**	16	16	16	16	16			
Ortho Phosphate	EPA 365.3	**20**	20	20	20	20	20			
Volatile Organic Compounds	EPA 624	**250**								
Semivolatile Organic Compds.	EPA 625	**350**								
Pesticides & Herbicides	EPA 608,62	**1200**								
Total Petroleum Hydrocarbons	EPA 8015	**87**								
Gross Alpha	EPA 900	**75**								
Gross Beta	EPA 900	**75**								
Sampling			**Sum**	**Sum**	**Sum**	**Sum**	**Sum**	**Sum**	**Sum**	**Total**
$$ per sample			**526.5**	**526.5**	**526.5**	**526.5**	**207**	**0**	**25**	
# Samples			**1**	**1**	**1**	**1**	**1**	**1**	**1**	
Total			**526.5**	**526.5**	**526.5**	**526.5**	**207**	**0**	**25**	**2338**

completeness = Total actual tests / Total expected tests = 26/26 26/26 20/20 20/20 11/11

Note: Also submitted SW-4 and SW-1 Filtered (100% complete

All the data is 100% complete [signature] (12/21/00)

Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
N	Fall '00	9/11/00	Chemical	Field	EMC Report # Bishop36750WQCP.QA

Bishop Paiute Tribe

WQCP -Chemical-Field Quality Control Report

Summer Quarter 2000- (9/11/00)

Sample	Collector	CollectDate	Param	DetectionLimit	RDL	Reported Result	NumericResult	RPD	UCL	LCL	Proj. Manag	QA/QC Off.	Comments
SW-1	B. Adkins/D. H.	9/11/00	Ammonia-N	0.1	0.1	<0.1	0.05				–		
Dup	B. Adkins/D. H.	9/11/00	Ammonia-N	0.1	0.1	<0.1	0.05	0.00	20	0	BA		
SW-1	B. Adkins/D. H.	9/11/00	Boron - ICP-OES	0.05	0.05	<0.05	0.025				–		
Dup	B. Adkins/D. H.	9/11/00	Boron - ICP-OES	0.05	0.05	<0.05	0.025	0.00	20	0	BA		
SW-1	B. Adkins/D. H.	9/11/00	Chloride - Ion Chromatography	0.1	0.1	0.6	0.6				–		
Dup	B. Adkins/D. H.	9/11/00	Chloride - Ion Chromatography	0.1	0.1	0.5	0.5	18.18	20	0	BA		
SW-1	B. Adkins/D. H.	9/11/00	Fluoride - Ion Chromatography	0.1	0.1	<0.1	0.05				–		
Dup	B. Adkins/D. H.	9/11/00	Fluoride - Ion Chromatography	0.1	0.1	<0.1	0.05	0.00	20	0	BA		
SW-1	B. Adkins/D. H.	9/11/00	Kjeldahl Nitrogen - Digestion/Analysis	0.1	0.1	0.64	0.64				–		
Dup	B. Adkins/D. H.	9/11/00	Kjeldahl Nitrogen - Digestion/Analysis	0.1	0.1	0.62	0.62	3.17	20	0	BA		
SW-1	B. Adkins/D. H.	9/11/00	Nitrate-N - Ion Chromatography	0.1	0.1	<0.1	0.05				–		
Dup	B. Adkins/D. H.	9/11/00	Nitrate-N - Ion Chromatography	0.1	0.1	<0.1	0.05	0.00	20	0	BA		
SW-1	B. Adkins/D. H.	9/11/00	Nitrite-N - Ion Chromatography	0.1	0.1	<0.1	0.05				–		
Dup	B. Adkins/D. H.	9/11/00	Nitrite-N - Ion Chromatography	0.1	0.1	<0.1	0.05	0.00	20	0	BA		
SW-1	B. Adkins/D. H.	9/11/00	Phosphorus - Ortho	0.02	0.02	<0.02	0.01				–		
Dup	B. Adkins/D. H.	9/11/00	Phosphorus - Ortho	0.02	0.02	<0.02	0.01	0.00	20	0	BA		
SW-1	B. Adkins/D. H.	9/11/00	Sulfate - Ion Chromatography	0.1	0.1	4.3	4.3				–		
Dup	B. Adkins/D. H.	9/11/00	Sulfate - Ion Chromatography	0.1	0.1	4.0	4	7.23	20	0	BA		
SW-1	B. Adkins/D. H.	9/11/00	Suspended Solids	1	1	24	24				–		
Dup	B. Adkins/D. H.	9/11/00	Suspended Solids	1	1	13	13	59.46	20	0	BA		RPD Exceed.
SW-1	B. Adkins/D. H.	9/11/00	Total Dissolved Solids	10	7	32	32				–		
Dup	B. Adkins/D. H.	9/11/00	Total Dissolved Solids	10	7	28	28	13.33	10	0	BA		RPD Exceed

I have reviewed all data in accordance w/ Sections D1 and D3 of QAPP and approve entry of all data + comments into data base. B. Adkins 2/21/00

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Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
O	Fall 00	9/11/00	Bacteria	Lab	BPTEC Data QA Review 11/17/00

MEMO

November 17, 2000

TO: Brian Adkins, Alan Spoonhunter

FR: Marvin Moskowitz, Laboratory Director/Quality Assurance Officer MM

RE: Review of Bishop Paiute Tribe Environmental Laboratory Data and QA/QC Records From 6/26/00 – 11/2/00 (3rd Quarter, 2000)

I have reviewed the bacteriological monitoring data presented on the *"Drinking Water Sampling And Analysis Report"* and the *"Colilert Data Sheet"* forms from the period of July 13, 2000 through October 16, 2000. Two errors were discovered in transferring the data from the MPN Table to the data sheet. Sample number 001009-1 should have an MPN value for *E. Coli* of 105.0, not 129.1, as shown. Sample number 000911-4 should show Total Coliform MPN of 1119.85, instead of >2419.2, unless the number of small wells positive was written down incorrectly. The initiation of a Chain-of-Custody protocol for in-house sampling and analysis, beginning on 9/26/00, is to be commended. Other observations and recommendations after reviewing the data sheets and the assorted forms and records that comprise a major part of the quality control program are as follows:

1. Data generated in the laboratory is being recorded and stored in accordance with the "*Quality Assurance Plan, Bishop Paiute Tribe, Drinking Water Laboratory, rev. 2/4/00 (QAP)*". The data is presented in a concise and legible manner.
2. The *"Drinking Water Sampling and Analysis Report"* forms for October 9, 2000 include two separate forms using the same sample number: 001009-3. One is for sample location SW-2 and the other is for sample location SW-3. The one in error should be removed and discarded.
3. The "Analysis Result Date/Time" and "Analyst" boxes in the *"Drinking Water Sampling and Analysis Report"* forms for sample numbers 000919-1,2,3 & 4; and 00911-2,3,4, & 5 were either omitted or incompletely filled out. It is important to fill these boxes out completely as a check to assure correct incubation times were achieved.
4. Samples collected from July 13 through July 17, 2000 were from drinking water sources and were collected in 100ml. bottles. Comments on the data sheets dated July 17, 2000 indicated reagent lot 540 ES had expired. It is unclear whether the reagent expiration date included the whole time period for these samples, or just for that day. In any case, analyses utilizing expired reagents should be invalidated.
5. Some drinking water sample results indicated positive total coliform results. This may or may not require public notification however, all efforts should be made to remedy the situation and to successfully resample as necessary. Procedures are described on page 5 of the QAP.
6. Proper sampling procedures for sampling of drinking water in a residence would include removing the aerator prior to sampling an indoor fixture. It is also

recommended that sampling from outside hosebibbs be discouraged as false positives can occur from the generally dirty environment and the fact that a hosebibb not pointing straight down, i.e. at an angle pointing down, tends to allow the flow of water to run along the outside threads before collection. These are both potential avenues of contamination.

7. Water quality assurance/quality control procedures are being conducted in a manner that assures the data being entered into the Water Quality Database is in substantial compliance with the *"Quality Assurance Project Plan: Bishop Paiute Tribe Water Quality Control Program (QAPP)"*.
8. The *Autoclave Sterilization Record, the Autoclave Maintenance Form,* the *Incubator Temperature Record,* the *Thermometer Calibration Record,* the *Refrigerator Temperature Record,* the *Colilert Media Quanti-cult Suitability Check* and the *Drinking Water Sample Bottle Sterility and Volume Check Colilert 100ml Bottles* forms were all reviewed and found to be in compliance with the QAP and QAPP. On a very few occasions it was noted that refrigerator and incubator temperatures varied slightly out of the acceptable ranges. The refrigerator/incubator should be adjusted accordingly, and remonitored and rerecorded, as specified in #9, Corrective Action Contingencies, of the QAP.
9. One duplicate sample was collected and analyzed during each sampling day, in accordance with the QAPP.
10. A review of the *Lab Proficiency* form shows the information and data to be properly entered.

INVOICE:

Hours Charged:

Data & Record Review	1.0 hrs
QAP/QAPP Review	0.5 hrs
Report Preparation	1.0 hrs
Total Hours	2.5 hrs

2.5 hrs. @ $45.00 per hour = $112.50

Please Submit Payment To: Marvin Moskowitz
301 Shepard Lane
Bishop, CA 93514

APPROVED FOR PAYMENT

EPA CWA 106
Acct # 5262.81

Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
P1	Fall 00	9/11/00	Bacteria	Field	WQCP.BACT.QAReport.3

Bishop Paiute Tribe

WQCP-Bacteria-Field Analytical and Quality Control Report

Summer Quarter 2000 (9/11/00 to 10/16/00)

Event	Sample Date	Order	Sample Site	Sample #	MPN Total Coliforms	MPN (E.coli)	RPD(TC)	RPD(E.Coli)	UCL	LCL	Proj. Manag	QA/QC Office	Comment
Summer 00	9/11/00	1	SW-4	000911-1	>2419.2	64.4			67.7	0	BA		
Summer 00	9/11/00	1	SW-3	000911-2	1986.28	95.8			67.7	0	BA		
Summer 00	9/11/00	1	SW-2	000911-3	>2419.2	68.9			67.7	0	BA		
Summer 00	9/11/00	1	SW-1	000911-4	>2419.2	1046.24			67.7	0	BA		
Summer 00	9/11/00	1	SW-1	000911-5	>2419.2	238.2			67.7	0	BA		
Summer 00	9/11/00	1	SW.dup	000911-6	>2419.2	261.3	#VALUE!	-9.25	67.7	0	BA		
Summer 00	9/19/00	2	SW-4	000919-1	>2419.2	172.5			67.7	0	BA		
Summer 00	9/19/00	2	SW-3	000919-2	1553.07	55.6			67.7	0	BA		
Summer 00	9/19/00	2	SW-2	000919-3	>2419.2	56.3			67.7	0	BA		
Summer 00	9/19/00	2	SW-2.dup	000919-4	>2419.2	68.3	#VALUE!	-19.26	67.7	0	BA		
Summer 00	9/19/00	2	SW-1	000919-5	>2419.2	17.1			67.7	0	BA		
Summer 00	9/26/00	3	SW-4	000926-1	>2419.2	307.6			67.7	0	BA		
Summer 00	9/26/00	3	SW-3	000926-2	2419.7	73.8			67.7	0	BA		
Summer 00	9/26/00	3	SW-2	000926-3	>2419.2	410.6			67.7	0	BA		
Summer 00	9/26/00	3	SW-1	000926-4	>2419.2	82.3			67.7	0	BA		
Summer 00	9/26/00	3	SW-1.dup	000926-5	>2419.2	58.3	#VALUE!	34.14	67.7	0	BA		
Summer 00	10/9/00	4	SW-4	001009-1	2419.17	129.1			67.7	0	BA		
Summer 00	10/9/00	4	SW-3	001009-2	2419.17	8.3			67.7	0	BA		
Summer 00	10/9/00	4	SW-2	001009-3	>2419.2	71.7			67.7	0	BA		
Summer 00	10/9/00	4	SW-2.dup	001009-4	>2419.2	78.4	#VALUE!	-8.93	67.7	0	BA		
Summer 00	10/9/00	4	SW-1	001009-5	>2419.2	290.9			67.7	0	BA		
Summer 00	10/16/00	5	SW-4	001016-1	>2419.2	74.3			67.7	0	BA		
Summer 00	10/16/00	5	SW-3	001016-2	1119.85	41.9			67.7	0	BA		
Summer 00	10/16/00	5	SW-2	001016-3	>2419.2	48.8			67.7	0	BA		
Summer 00	10/16/00	5	SW-1	001016-4	>2419.2	32.7			67.7	0	BA		
Summer 00	10/16/00	5	SW-1.dup	001016-5	>2419.2	38.9	#VALUE!	-17.32	67.7	0	BA		

I have reviewed all data in accordance with Sections D1 and D3 of QAPP and approve entry of all data + comments into data base. B. [illegible]

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Reference	Sampling Quarter	Sample Date	Type	Location	Report
Q	Fall 00 Q	9/11/00	Physical-Instit	Field	WCQR Physical-Instit QAreport

Bishop Paiute Tribe

WQCP-Physical/In-Situ Analytical and Quality Control Report

Summer Quarter (7/6/00-10/27/00)

Site	Date	Type	pH	Cond	Turb	DO	Temp	Stage	Flow	RPD pH	RPD Cond	RPD Turb	RPD DO	RPD Temp	RPD Stage	RPD Flow	RPD UL	RPD LL	Sample	Proj. Man QA/QC Offi
SW-1	**06-Jul-00**	Physical/In-Situ	**7.1**	**0.04**	**4**	**8.18**	**14.2**	**1.73**	**23.23**	**0.7**	**1.9**	**0.0**	**-2.0**	**2.8**	**0.0**	**-1.9**	**20.0**	**0.0**	**BA**	
SW-1	**06-Jul-00**	Physical/In-Situ						**1.73**	**25.09**								**20.0**	**0.0**	**BA**	
SW-2	06-Jul-00	Physical/In-Situ	6.87	0.037	4	8.85	12.7	2	62.80								20.0	0.0	BA	
SW-3	06-Jul-00	Physical/In-Situ	6.75	0.035	3	9.33	12.1	1.3	62.02								20.0	0.0	BA	
SW-4	06-Jul-00	Physical/In-Situ	6.65	0.037	4	9.12	12	0.8	35.19								20.0	0.0	BA	
SW-1	**04-Aug-00**	Physical/In-Situ	**7.2**	**0.04**	**2**	**8.64**	**17.7**	**0.93**	**14.87**						**0.0**	**-1.6**	**20.0**	**0.0**	**BA**	
SW-1	**04-Aug-00**	Physical/In-Situ						**0.93**	**15.84**											
SW-2	04-Aug-00	Physical/In-Situ	7.04	0.038	2	9.37	16.6	1.59	24.44								20.0	0.0	BA	
SW-3	04-Aug-00	Physical/In-Situ	7.1	0.034	2	10.01	16.1	0.96	28.08								20.0	0.0	BA	
SW-4	04-Aug-00	Physical/In-Situ	6.97	0.035	6	10.07	14.2	0.58	19.62								20.0	0.0	BA	
SW-1	11-Sep-00	Physical/In-Situ	7.2	0.066		7.12	13.8										20.0	0.0	BA	
SW-2	11-Sep-00	Physical/In-Situ	7.02	0.068	2	7.64	14.2	1.27	9.59								20.0	0.0	BA	
SW-3	11-Sep-00	Physical/In-Situ	7.24	0.57	2	7.75	13.1	0.67	9.34								20.0	0.0	BA	
SW-4	11-Sep-00	Physical/In-Situ	7.29	0.57	2	8.15	12.1	0.45	14.34								20.0	0.0	BA	
SW-1	06-Oct-00	Physical/In-Situ	7.5	0.87	2	10.15	13.5										20.0	0.0	BA	
SW-2	**06-Oct-00**	Physical/In-Situ	**7.2**	**0.07**	**1**	**7.9**	**12.5**	**1.24**	**7.35**						**0.0**		**20.0**	**0.0**	**BA**	
SW-2	**06-Oct-00**	Physical/In-Situ						**1.24**												
SW-3	06-Oct-00	Physical/In-Situ	7.39	0.065	2	8.4	11.4										20.0	0.0	BA	
SW-4	06-Oct-00	Physical/In-Situ	7.28	0.064	2	8.34	10.6	0.25	3.40								20.0	0.0	BA	
SW-1	27-Oct-00	Physical/In-Situ	7.46	0.103		10.68	9.1	0.75	5.66								20.0	0.0	BA	
SW-2	**27-Oct-00**	Physical/In-Situ	**7.2**	**0.08**	**2**	**8.87**	**9**	**1.22**	**7.59**						**0.0**	**-1.7**	**20.0**	**0.0**	**BA**	
SW-2	**27-Oct-00**	Physical/In-Situ						**1.22**	**8.11**											
SW-3	**27-Oct-00**	Physical/In-Situ	**7.4**	**0.07**	**2**	**9.45**	**6.8**	**0.57**	**6.26**						**0.0**	**-5.9**	**20.0**	**0.0**	**BA**	
SW-3	**27-Oct-00**	Physical/In-Situ						**0.57**	**7.94**											
SW-4	27-Oct-00	Physical/In-Situ	7.71	0.069	3	10.03	6.2	0.39	8.72								20.0	0.0	BA	

I have reviewed all data in accordance with Sections D1 and D3 of QAPP and approve entry of all data + comments into the data base

B. [signature] 12/21/00

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No.	Enclosure	Sampling Quarter	Sample Date	Type	Location	Report
[illegible]	R[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Copy of 11-30-00 letter to SEM

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From: Dominic Gregorio
To: Wilson, Jill
Date: Wed, May 23, 2001 4:07 PM
Subject: TRAM data

Jill:
Another thought, non-snapshot related: Do you think you could submit the TRAM raw data, even though it would be late, for the solicitation that ended on May 15. I talked to Chuck and Judith and they didn't see a big problem with it, although it would need to be recorded as being late. Maybe it doesn't have to be a formal submittal, since you and Cadie work for the R. Board and you're both involved in the group and already have a working knowledge of the TRAM work. As I understand it the TRAM data is all "raw" at this point without any conclusions. I'm thinking that this is just a way to get the TRAM data into the game. I'm really thinking more in terms of the 305 b report at this point.
Dominic

CC: Cadie MacDonald; Chuck Curtis; Stefan Lorenzato; Unsicker, Judith

From: Jill Wilson
To: gregd@dwq.swrcb.ca.gov,
Date: Wed, May 23, 2001 5:37 PM
Subject: Re: TRAM data

All of TRAMs surveyed streams have habitat forms filled out. A few have the Index of Biologic Integrity completed (IBI), the remaining samples are currently being professionally ID'd to obtain an IBI. I think it would be appropriate to submit the IBIs TRAM has completed AND the habitat forms. Judy, are you interested in this info?

<<< Dominic Gregorio 5/23 4:07p >>>
Jill:
Another thought, non-snapshot related: Do you think you could submit the TRAM raw data, even though it would be late, for the solicitation that ended on May 15. I talked to Chuck and Judith and they didn't see a big problem with it, although it would need to be recorded as being late. Maybe it doesn't have to be a formal submittal, since you and Cadie work for the R. Board and you're both involved in the group and already have a working knowledge of the TRAM work. As I understand it the TRAM data is all "raw" at this point without any conclusions. I'm thinking that this is just a way to get the TRAM data into the game. I'm really thinking more in terms of the 305 b report at this point.
Dominic

CC: LORES@dwq.swrcb.ca.gov, , Curtc@rb6s.swrcb.ca.gov, , MacdC@rb6s.swrcb.ca.gov, , Unsij@rb6s.swrcb.ca.gov,

From: Harold Singer
To: tporta@govmail.state.nv.us
Date: Thu, Jun 7, 2001 9:50 AM
Subject: 303d list

Tom

The Lahontan Regional Board would like to receive information on Nevada's efforts to adopt guidance for placing / removing water bodies from the 303d list and development of the next 303d list. Would you send me a schedule for these two activities, if one is available. If this e-mail is sufficient, please put me on your mailing list to receive any information pertaining to the above and the distribution list for development / adoption of any TMDLs for waters which have tributaries or originate in California. If you need something more formal , let me know and I will send you a letter.

We will place you on our distribution list for the same including waters which flow to Nevada.

As you know, California has listed Lake Tahoe on the 303d list. I believe that it is essential that our two states be consistent in determining whether or not Lake Tahoe should be on the next 303d list. I believe a meeting on this issue would be very constructive. Once I know your schedule for adoption of 303d listing criteria and the 303d list, I will arrange for such a meeting.

We are in the process of gathering information for our next listing cycle. The Regional Board should be considering the list in the fall of 2001 which would be sent to the State Water Resources Control Board. The State Board will consider adoption of a statewide list in early 2002 to meet USEPA's April 2002 deadline for receiving a list from the states.

thanks
harold

Harold J. Singer
Executive Officer
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

530/ 542-5412

Harold J. Singer
Executive Officer
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

phone (530) 542-5412
facsimile (530) 544-2271
singh@rb6s.swrcb.ca.gov

From: "Randy Pahl" <rpahl@govmail.state.nv.us>
To: <Singh@rb6s.swrcb.ca.gov>
Date: Fri, Jun 8, 2001 2:11 PM
Subject: 303d list methodology

Harold,

Tom Porta asked me to respond to your inquiry. We are in the process of developing draft listing/delisting methodology. Our hope is to have statewide workshops this summer and finalize the methodology this fall.

I hope this answers your questions. Also, I will put you on our mailing list for 303(d) Listing, TMDLs etc.

Randy Pahl
TMDL Program Engineer

-----Original Message-----
From: Tom Porta [mailto:tporta@govmail.state.nv.us]
Sent: Friday, June 08, 2001 10:55 AM
To: Randy Pahl
Subject: FW: 303d list

Randy,

I think you could answer this better than I could.

Tom

-----Original Message-----
From: Harold Singer [mailto:Singh@rb6s.swrcb.ca.gov]
Sent: Thursday, June 07, 2001 9:50 AM
To: tporta@govmail.state.nv.us
Subject: 303d list

Tom

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thanks
harold

Harold J. Singer
Executive Officer
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

530/ 542-5412

The energy challenge facing California is real.
Every Californian needs to take immediate action to reduce energy consumption.
For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

Harold J. Singer
Executive Officer
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

phone (530) 542-5412
facsimile (530) 544-2271
singh@rb6s.swrcb.ca.gov

Lahontan Regional Water Quality
Control Board

EXECUTIVE OFFICER'S REPORT

July 2001

NORTH BASIN

1. ***Symposium on " Groundwater Contaminants – Characterization and Remediation of Emerging and Recalcitrant Contaminants" San Jose, California –*** *Richard Booth*

The Groundwater Resources Association of California and the Santa Clara Valley Water District sponsored a two-day symposium in June. About 200 people from industry, consulting, and the regulatory community attended.

The first technical session focused on the threat of solvent stabilizers to groundwater quality. The most common solvent stabilizer is 1,4-dioxane (not related to dioxin) and is commonly added to trichloroethene (TCE) in amounts up to 8% by volume to prevent TCE from chemically degrading. The California Drinking Water Action Level for 1,4-dioxane is 3 micrograms per liter. Solvent stabilizers are emerging as a class of chemicals with potentially harmful effects to groundwater quality because their remediation is not amenable to conventional pump and treat technologies and is generally resistant to in-situ biodegradation.

Researchers at the second technical session showed how improved techniques are used to obtain details of the geology of the subsurface on a basin-wide basis. The presentations demonstrated how techniques, such as borehole geophysics and aquifer testing, allow geologists to characterize the subsurface as hydrostratigraphic units. With knowledge of the locations, dimensions, and characteristics of the hydrostratigraphic units, geologists can more accurately model, hence predict, plume flow. Researchers are able to simulate MTBE contaminant transport and predict when MTBE would reach water supply wells and to calculate the uncertainty associated with the prediction.

In the third session, bioremediation was presented as the most promising advance in remediation of MTBE-contaminated groundwater. Natural aerobic (i.e., in the presence of oxygen) biodegradation of MTBE is less common than biodegradation of benzene, toluene, ethylbenzene, and xylenes (BTEX). Bacteria cultures that degrade BTEX compounds are present in most soils, but there are only about 20 naturally occurring bacteria cultures capable of degrading MTBE. Aerobic MTBE biodegradation is often limited by the availability of oxygen and can be enhanced by introducing air or oxygen releasing compounds into the subsurface. Enhanced anaerobic biodegradation is not generally feasible because anaerobic conditions are harder to characterize. Consequently, it is difficult to determine the limiting factor of

anaerobic bacteria that are capable of degrading hydrocarbons.
Innovative in-situ groundwater treatments, the topic of the fourth session, included theoretical and case studies of many different methods. Viable methods discussed included using molasses to stimulate growth of bacteria that degrade chlorinated hydrocarbons, dechlorination of chlorinated hydrocarbons using lactic acid (produced from fermentation of diary products), and chemical oxidation using hydrogen peroxide. One of the speakers, from Region 2 staff, encouraged using innovative technologies if the responsible party considers the consequences of failure and conducts a pilot test, if possible.

A common theme throughout the symposium was the role of the Regional Water Quality Control Boards as governing bodies to approve the use of groundwater remediation techniques, especially concerning innovative technology. Attendees generally agreed that innovation in groundwater characterization and remediation will be severely hampered if regulators do not approve new techniques. However, inappropriate use of remediation techniques, as a result of ignorance or exaggerated vendor claims, will waste money and will leave contamination in the groundwater.

After the four technical sessions, two panel discussions provided lively debate over MCL issue: derivation, use in the regulatory arena, and public perception. State Water Board staff and DHS argued MCLs are generally too conservative while attorneys for plaintiffs affected by groundwater contamination argued that drinking water should not contain concentrations of naturally-occurring chemicals above background and that drinking water should not contain any detectable quantities of man-made chemicals.

2. ***Tahoe Tom's Gas Station, El Dorado County*** - *Lisa Dernbach*

In June, Board staff submitted comments to the responsible parties for the Tahoe Tom's Gas Station concerning the report *Final Remedial Action Plan*. The report discussed implementing additional corrective actions, such as advanced oxidation and bioremediation, to restore groundwater quality to background conditions. The comments stated the report was incomplete because it does not contain discussions required in the cleanup and abatement order. The parties were advised to submit the missing information to be considered in compliance with Board directives.

In addition, I issued a letter of non-compliance to the responsible parties in July. The letter informed the parties that they were in violation with two provisions in the CAO: submittal of information demonstrating plume containment and submittal of soil contamination maps. The letter contained an August 3 deadline for the parties to submit information to the Regional Board showing compliance with these CAO sections.

3. ***Water Quality Assessment Section 303(d) List-Judith Unsicker***

Several comment letters and sets of data were received from the public in response to the March 2001 solicitation of information for use in the Section 303(d) list update. Staff will use this and other readily available sources of information to prepare recommendations for changes in the list. A report summarizing the rationale for the

recommendations will be circulated for public review and responses to written public comments will be prepared. The Board will be asked to approve recommendations to the State Water Resources Control Board for changes in the list at its regular November 2001 meeting. The State Board will hold its own public participation process, and consider final recommendations to the U.S. Environmental Protection Agency, in early 2002.

The State Board does not plan to issue any formal guidance to Regional Boards on criteria to be used in the 2001-2002 listing/delisting recommendations. However, justification for proposed changes must be included in the administrative record. Region 6 staff have discussed and will use the following criteria to propose listing and delisting, as summarized below.

Data quantity and quality. Some states establish minimum requirements for the quality and quantity of data for use in listing decisions. Developing specific data quantity/quality thresholds for the Lahontan Region would be a lengthy, complex process. Such thresholds could probably better be addressed in the listing criteria policy which the State Board plans to adopt before the 2004 list update cycle. Region 6 staff will evaluate the data available for the current list update on a case by case basis, and make recommendations using a weight of evidence approach. Impairments due to single event (e.g. spill) which is not likely to reoccur will not be considered sufficient evidence for listing.

Antidegradation. U.S. Environmental Protection Agency (USEPA) guidance directs that antidegradation be considered in listing decisions. It could be argued that the presence of any non-natural chemicals in a water body is degradation (assuming that findings to allow degradation have not been made), and that such waters should be listed. Examples include monitored boat fuel chemicals from boat fuel in Lake Tahoe, and Donner Lake, and the presence of pesticides and PCBs, probably from atmospheric deposition, in some "pristine" waters of the Lake Tahoe Basin. Regional Board staff propose not to recommend listing for violations of the nondegradation objective unless a pollutant is present in a concentration which violates another water quality objective or adversely affects beneficial uses.

"Pollution" vs. "pollutants". The Clean Water Act distinguishes between "pollutants" (measurable physical or chemical parameters including sediment, and thermal discharges) and "pollution" ("the man-made or man-induced alteration of the chemical, physical, and biological, and radiological integrity of a waterbody"). "Pollution" may not always involve "pollutants"; for example, channelization of a stream, or human alteration of streamflows, may impair its biological integrity without involving pollutants, assuming that sediment is not a problem. Current federal TMDL regulations (40 CFR 130.7) indicate that TMDLs are required only for waters impaired by pollutants, Staff's conclusion is that waters impaired by "pollution" (including flow alterations) without "pollutants" should not be listed.

Toxic Substances Monitoring Program (TSMP) results. Under the State Board's TSMP, fish tissue samples are collected annually and analyzed for a variety of toxic

metals and organic compounds. TSMP samples involve a relatively small number of fish and are not statistically representative of the entire fish population. Previous State Board guidance resulted in listing of some waters where TSMP tissue concentrations exceeded human fish consumption criteria. Staff's belief is that waters should not be listed based on TSMP results alone, and that additional monitoring (of water, sediment and fish tissue) should be done to verify whether an impairment exists.

"Natural" impairment. The Clean Water Act definitions of "pollutants" and "pollution" reference human causes. These definitions appear to justify not listing water bodies which are impaired entirely by natural (e.g., geothermal) sources of chemicals, or by the impacts of natural phenomena such as floods or drought. Where there are no known human sources of pollutants in a watershed but it is unknown whether the impairment is natural, recommendations for listing will be made on a case-by-case basis.

Adequacy of standards. Some of Region 6's numerical water quality objectives were established in 1975 based on very limited monitoring data or on older published water quality criteria, and may not reflect natural background conditions of the affected water bodies or current scientific criteria for protection of beneficial uses. Staff's proposed approach is to recommend listing for waters where objectives have been consistently exceeded, but to consider update of the objectives, and possibly delisting, as resources permit.

Listing when attainment is likely. There are violations of the fecal coliform bacteria objective in streams of the Upper Truckee River watershed which appear to be strongly linked to the presence of cattle. The U.S. Forest Service, Lake Tahoe Basin Management Unit, has made a commitment in writing to manage grazing in this area so as to prevent future violations of standards. Since this commitment should lead to attainment of standards by the next listing cycle (in 2004) staff will not recommend listing the monitored streams. A similar approach will be taken with other impaired waters where attainment of standards by 2004 seems probable.

Intermittent waters. The Mojave River was listed in the 1980s due to the subsurface impacts of the "Barstow slug". Staff's current recommendation is that intermittent streams be listed only on the basis of data from water flowing on the surface.

4. ***Appeal of Decision Notice, Noxious Weed Control Program, Humboldt-Toiyabe National Forest*** – *Jason Churchill*

On June 18, 2001, the Executive Officer sent a Notice of Appeal in response to a Decision Notice/Finding of No Significant Impact (DN/FONSI) issued by the U.S. Forest Service, Humboldt-Toiyabe National Forest (HTNF) for its Noxious Weed Control Program. The HTNF encompasses parts of Mono, Alpine, Nevada, Plumas, Lassen, and Sierra Counties. The appeal was based on failure of the DN/FONSI (issued May 9, 2001) and associated Environmental Assessment (EA) to address Regional Board staff comments and concerns. The Noxious Weed Control Program would rely heavily on the use of herbicides. Specifically, the DN/FONSI and EA do not include adequate mitigation and monitoring requirements to ensure compliance with water quality

standards contained in the Basin Plan. The Basin Plan contains a regionwide water quality objective for pesticides (defined to include herbicides) stating that, "Pesticide concentrations . . . shall not exceed the lowest detectable levels . . ."

Regional Board staff met with HTNF staff on July 12, 2001 to discuss the appeal and seek a mutually acceptable resolution. HTNF staff proposed to issue a revised DN/FONSI, stipulating the following: 1) The HTNF will undertake chemical control of weeds only where there is a high likelihood that State water quality standards can be met; 2) a mutually acceptable programmatic Monitoring Plan to verify compliance with State water quality standards must be developed and approved by me in writing before any herbicide applications may proceed; and 3) the HTNF will provide an annual report to the Regional Board describing monitoring results, evaluating compliance with water standards, and explaining why alternatives to chemical treatment were deemed infeasible for specific projects. I have tentatively agreed to withdraw the appeal provided that HTNF reissues the DN/FONSI with the proposed language.

At the meeting, HTNF staff indicated that they do not expect to commence herbicide applications in the California under the Noxious Weed Control Program until next field season (2002). Details of the Monitoring Plan will be worked out between Regional Board and HTNF staffs prior to my approval.

5. ***Trout Creek Restoration Project*** - *Mary Fiore-Wagner*

On July 10, 2001 the South Lake Tahoe City Council voted 4 to1 in favor of awarding the contract for the final phase of the Trout Creek Restoration Project. The first phases of the Project involved constructing approximately 10,000 linear feet of stream channel, constructing access roads, and stabilizing the stream banks with sod and willows harvested from the Project site. The final phase of the Project (Phase III) consists of constructing tie-ins to the new channel, diverting flow into the new channel, partial filling of the existing channel, and creating 18 various wet ponds in the meadows.

Phase III of the Project met with some opposition because this phase of the project involves filling a portion of the existing Trout Creek that runs adjacent to several Ormsby Drive residences. The Ormsby residents are concerned that moving the creek will compromise the property and aesthetic values associated with their parcels. The Ormsby residents are also concerned that the wet ponds may create mosquito breeding grounds. To meet the Ormsby residents' concerns, the City of South Lake Tahoe analyzed various alternatives to the proposed Project. Alternatives included maintaining some flow in the portion of the existing Trout Creek running nearest the Ormsby parcels and eliminating three of the proposed floodplain wetlands closest to the Ormsby properties. The Council voted to support the Project that included eliminating three of the 18 wet ponds.

On June 13, 2001 the Regional Board granted an exception to a prohibition for the Trout Creek Restoration Project that included the creation of 18 floodplain

wetlands. Since the revised project will not result in any additional SEZ disturbance, fill, or excavation than specified in the Board's exception, the revised Project may proceed without additional Regional Board action.

6. ***Update on Squaw Valley Public Service District, Water Supply Well No. 3 and the Opera House UST Diesel Contamination, Placer County*** – *Tammy Lundquist*

Squaw Valley Ski Corporation (Ski Corp) installed a mid-level groundwater monitoring well, MW-9, in March 2001 to check potential migration of diesel contamination into a deeper zone. Plume migration into the deeper zone is a concern because the Squaw Valley Public Services District (SVPSD) Supply Well No. 3 is screened in the deeper zone.

Over that last several months, total petroleum hydrocarbons as diesel (TPHd) concentrations in MW-9 has declined from 120 ppb in March to 91 ppb in April to non-detect in May. However, the June 2001 water sample showed an increase to 110 ppb TPHd. Staff has requested Ski Corp to identify the specific hydrocarbon constituents detected in the groundwater monitoring wells to determine if the TPH reading is from either naturally decaying plant material or degraded diesel fuel.
Although the TPHd concentrations are only slightly above the taste and odor threshold of 100 ppb, Ski Corp and SVPSD have recently been discussing the possibility of wellhead treatment if TPHd migrates into SVPSD's Well No. 3. The well has been off-line since October 2000 because of the TPHd threat.

7. ***Fireworks Sampling in Lake Tahoe on the Fourth of July***- *Mary Fiore-Wagner*

After receiving citizen complaints that firework activity may contribute to the nutrient loading at Lake Tahoe, the Regional Board initiated a sampling event on July 4, 2001. Regional Board staff consulted with Dr. Glenn Miller of the University of Nevada, Reno to design a sampling routine that would evaluate the chemicals of concern found in fireworks. Dr. Miller referenced journal articles and various textbooks on pyrotechnic chemistry to determine that water samples should be analyzed for perchlorate (an oxidizing agent that generates a controlled explosion), various metals, mineral constituents, nitrate, and ammonia.

Regional Board staff collected a time series of samples before, during, and after the fireworks display. Of special concern was the amount of debris and spent firework casings observed floating in the water after the fireworks. Although preliminary data indicate that concentrations of Nitrate appear elevated after the fireworks display, the concentrations measured are still below the Receiving Water Objectives developed to protect Lake Tahoe. The results for perchlorate, metals, and minerals have not yet been received. This information will be used to evaluate pollutant loading and the significance of any water quality impacts from the firework events.

8. ***Update of Upper Truckee River and Trout Creek Fecal Coliform Monitoring Program, Summer 2001*** - *Abigail O'Keefe*

Regional Board staff are continuing to monitor non-point sources (NPS) of fecal

coliform in the Lake Tahoe Basin. Samples are being taken five times a month at nine locations on the Upper Truckee River and Trout Creek. Because of the current low water level, station 9 in the Truckee Marsh (sampled summer 2000) cannot be sampled. In order to identify pre and post-grazing trends, samples will be taken before the cattle are present on W.M. Cattle Corporation property and one month after they are gone.

Regional Board staff conducted a pre-season on-site meeting on June 14, 2001 to discuss grazing management for the summer. Sixty cow/calf pairs and four bulls (approximately half as many as summer 2000) were brought onto the property on July 23, 2001. Cattle will not be allowed to water in the Upper Truckee River. Water will be pumped from the river to troughs in those paddocks that lack water supply. The grazing will be monitored and cattle will be moved to new lots when one-inch vegetation stands are attained.

Concentrations of fecal coliform ranged from 1/100 ml to 75/100 ml from samples taken since June 2001. According to the Water Quality Control Plan for the Lahontan Region, "fecal concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of the samples taken within a 30-day period exceed 40/100 ml. " No violations were noted during the month of June. On July 10, 2001 fecal coliform concentrations reached 75/100 ml, but staff conclude that the increase should not necessarily be attributed to the cows. All fencing was intact and no cows were near surface waters. Possible other sources include dogs, or people recreating, or wildlife mammals in the area. If significant violations are noted this summer, staff will continue to work with the ranchers to improve Best Management Practices (BMPs) where needed to achieve compliance, in accordance with provisions of the "California Range Land Water Quality Management Plan" (SWRCB, 1995).

9. ***McKinney-Rubicon Springs Road***
Kara Russell

Lahontan staff participated in a field meeting on June 6, 2001 with Placer County, California State Parks – Off-Highway Motor Vehicle Recreation Division, the USFS, the League to Save Lake Tahoe, Friends of the Rubicon (a volunteer work force), and California Association of Four-Wheel Drive Clubs. The meeting was held to discuss the road repair/ reconstruction work and drainage improvements needed on the Rubicon Road to control erosion and prevent earthen discharges to adjacent surface waters. Placer County has submitted plans and a construction schedule to Lahontan detailing the repairs agreed upon at the field meeting. Placer County staff has scheduled several volunteer work weekends throughout the summer with Trustee Crew labor and Friends of the Rubicon to construct the improvements. The TRPA Erosion Control Team and the USFS are also assisting Placer County with the work.

A final field inspection has been tentatively scheduled for September 26, 2001 to review the completed repair work and discuss any remaining work to be done the following summer. Placer County Road Maintenance crews and Friends of the Rubicon are

scheduled to perform maintenance of the improvements in the Summer of 2002.

On December 1, 2000 the Executive Officer issued a Notice of Violation (NOV) to Placer County for violations of Cease and Desist Order No. 6-94-20. The Regional Board adopted the Cease and Desist Order (CDO) for unauthorized discharges of waste earthen materials from the McKinney-Rubicon Springs Road (Rubicon Road) to McKinney Creek. The NOV recognized that the County would need a year or two to complete all needed road improvements. The County completed approximately 80% of the work on time. Placer County is in compliance with the Notice of Violation, but not the CDO.

10. ***Lake Tahoe Interagency Monitoring Program – Nutrient and Suspended Sediment Loads, Yield, Trends, and Streamflow Data in Selected Watersheds, Tahoe Basin*** *- Bruce Warden*

The U.S. Geological Survey (USGS), in partnership with University of California-Davis (UCD) Tahoe Research Group (TRG), has collected water quality and flow data for selected watersheds tributary to Lake Tahoe beginning in 1988 under the Lake Tahoe Interagency Monitoring Program (LTIMP). Currently the program has 32 monitoring sites in 14 of 63 Lake Tahoe tributaries accounting for 152 square miles of the total 314 square miles of watershed area in the Lake Tahoe Basin.

A 1999 Regional Board contract with TRG provided funding to assist the USGS in: collating all LTIMP data into a standardized format for statistical and other quantitative analyses, rechecking the decade-plus database for Quality Assurance/Quality Control purposes (since both sampling design and chemical analyses have varied over the years), and calculating nutrient and sediment loads using the most current standardized state-of-the-art techniques. In 2000 a Regional Board contract was executed with the USGS to provide matching funds for the following tasks:

- Compare surface water hydrology and water quality data for the 20 primary and secondary gauged sites and 12 miscellaneous sites,
- Evaluate significant statistical relationships between water quality and streamflow,
- Compare upstream and downstream sites for nutrient and sediment loads and yields per square mile and rank all the watersheds,
- Conduct statistical trend analyses for both concentration and load of nutrients and sediments for 10 watersheds,
- Prepare a draft and final report for all the above tasks. The draft report has been supplied to Regional Board staff.

Results from these studies provide information for Regional Board Basin Plan waterbody-specific water quality objectives and for developing Total Maximum Daily Loads (TMDLs) for Lake Tahoe and its tributaries.

LTIMP Study Results-

The Upper Truckee River had the largest median monthly load for suspended sediment (34,200 kg), total nitrogen (413 kg), total phosphorus (101 kg), dissolved nitrate (64 kg) and dissolved ammonium (10.5). Trout

Creek had the largest median monthly load for Soluble Reactive Phosphorus (16.9 kg). These results are not surprising, since the Upper Truckee River and Trout Creek watersheds account collectively for approximately 60% of both drainage area and streamflow of the tributaries analyzed. However, data normalized for drainage area show that Third Creek in Nevada had the highest monthly yield (by area) for suspended sediment (3,590 kg/mi^2), total nitrogen (19.4 kg/mi^2), and total phosphorus (4.83 kg/mi^2). Incline Creek in Nevada had the highest monthly yield for nitrate (1.44 kg/mi^2) and soluble reactive phosphate (0.77 kg/mi^2). Edgewood Creek in Nevada had the highest monthly yield for ammonium (0.31 kg/mi^2).

The "good news" is that water quality trends for all nutrients indicated either decreasing or no change in concentrations for all 10 watersheds assessed. Trends in suspended sediment concentrations were either decreasing or unchanged in 7 of the 10 watersheds. However, three of the watersheds showed increasing trends in suspended sediment concentrations—Blackwood, General, and Ward Creeks, all on the west shore of Lake Tahoe.

These results suggest that the Regional Board should continue vigorous efforts to reduce nutrient and sediment loading to Lake Tahoe, since it is probable these efforts have been a factor in the generally positive trend in nutrient and sediment loading.

11. ***Lake Tahoe Basin Executives Meeting-*** *Lauri Kemper*

On June 20, 2001, the Tahoe Basin Executives met to discuss improvements to implementing the Lake Tahoe Environmental Improvement Program (EIP). The Lake Tahoe Basin Executives are the executives from all the public agencies involved in the EIP at Lake Tahoe including local governments, federal and state agencies. The Executives heard two independent reports on the problems with implementing and coordinating the EIP. Reports were presented by *Jones and Stokes* Consulting firm and the Tahoe Basin Science Advisory Group.

Consultants from *Jones and Stokes* (under contract with the Tahoe Regional Planning Agency) presented information gathered from several stakeholder meetings held within the Lake Tahoe Basin to identify constraints in implementing the EIP. Their report, *Evaluation of Constraints Affecting Implementation of the EIP*, identified two key challenges:

- "In the next 20 years, the number of EIP projects will increase 8 to 10-fold, compared to the number of projects completed between 1997 and 2000.
- Some agencies currently estimate that the costs for planning and permitting projects in the Basin are equivalent to 50% of project costs, compared to an engineering industry standard of 15-20% of project costs."

Jones and Stokes also identified six major areas of constraints or concerns: mission and thresholds, leadership, capacity, permit process, adaptive management, and maintenance funding. Additionally, they reviewed several regional programs around the nation and presented alternatives and improvements that could be implemented in the Lake Tahoe Basin to address the problems and constraints identified.

The Tahoe Basin Science Advisory Group presented a report, *Institutional Options for Policy, Science and Adaptive Management in the Lake Tahoe Basin.* The report focused on issues regarding the science behind the EIP and the need for an adaptive management ("learning by doing") process or program. The scientists and others have emphasized the need to ensure EIP effectiveness through rigorous evaluation and feedback.

Both presenters offered alternatives that included 1) improvements to the status quo, 2) TRPA as the lead agency responsible for EIP implementation and adaptive management and 3) Basin-wide collaborative leadership (formal interagency program management) recommended strategies involving increase collaboration.

The Basin Executives agreed that improvements in coordination and implementation were needed. They did not select an alternative but agreed to meet in smaller settings to begin addressing issues raised. Harold Singer agreed to lead a subcommittee to explore future direction in the areas of regulatory issues, research and monitoring and adaptive management. Dennis Machida, California Tahoe Conservancy, agreed to lead a sub-committee to evaluate solutions to resolve problems associated with project implementation. The sub-committees will present their recommendations to the entire Basin Executive Group at a future meeting to be held in August 2001.

12. ***Caltrans Tahoe Basin Construction Project Update-Quarterly Partnering Meeting-*** *Robert Erlich*

Several Caltrans District 3 personnel met with Regional Board, TRPA and City of South Lake Tahoe (CSLT) staff at a quarterly Caltrans partnering and project status meeting on July 10, 2001. Caltrans has been working with our staff and other agencies to identify design and construction issues. Caltrans expects to provide their next submittals for RWQCB review of three major Environmental Improvement Program (EIP) projects near the end of July. Caltrans currently plans to start construction in 2002 for Highway 50: Pioneer Trail to South Lake Tahoe Airport, and in 2003 for the Highway 50: CSLT-Ski Run Blvd-Trout Creek and State Route 89 Silvertip Drive to Meeks Creek projects.

Caltrans has also met with staff for early input on a planned 2003 project to reconstruct and enlarge infiltration basins along SR 267 near Brockway Summit. Planning for large projects along State Route 28 between Tahoe City and the Nevada State Line has begun. Since there is limited room for water quality treatment basins between SR 28 and Lake Tahoe, we have requested that Caltrans consider alternatives such as regional stormwater treatment facilities. Caltrans expects to complete a focussed feasibility study for treatment alternatives for Placer SR 28 later this summer. This year, Caltrans will construct a small project a Burton Creek and Watson Creek to repair damage from 1997 storms.

Tahoe Basin Winter Operations and Maintenance for Highways

Working with the Tahoe Basin Interagency Road Maintenance and Operations Committee (TBIRMOC) Winter Maintenance and Operations Subcommittee, Board staff has suggested developing basin-

wide specifications for sand, salt, and cinders. Board staff and other agencies have been compiling information on existing specifications used within the Tahoe Basin and in other states, such as Colorado, where air quality requirements mandate a reduction in fine particulates. Caltrans and CSLT have already analyzed several potential and existing sources of sand and cinders. Differences in sample preparation, extraction and analytical methods need to be resolved before agencies can accurately compare sample results and adopt specifications. The Subcommittee also needs to select an appropriate method to describe the durability of abrasives. To better assess water quality impacts from fine particulates and nutrients used in winter road operations, Board staff sent a letter requesting information from Caltrans and municipal NPDES permitees in California on 1) specifications, 2) sampling, extraction, and analytical methods used, and 3) expected quantities of abrasives and deicers to be ordered for use in the 2001-2002 snow year.

After contacting current and potential suppliers, Caltrans District 3 has adopted a new traction sand specification for fiscal year 2001-2002. The new specification includes a maximum Total Phosphorus content of 10 ppm for sand used within the Tahoe Basin. The specification also reduces the allowable percentage passing through a #200 sieve (0.075 mm) from 5% to 3 %, and establishes new limitations on allowable percentages passing through #50 (0.297mm) and #16 (1.18mm) sieves. The Caltrans specifications should help control water quality impacts from phosphorus and fine sediments. Staff will continue to work with Caltrans and other agencies in the Tahoe Basin to identify and reduce nutrient and sediment loading by promoting tighter specifications for nutrient content, size gradation, and durability for abrasives and deicers to be used in 2002-2003.

SOUTH BASIN

13. ***Molycorp, Human Health and Ecological Risk Assessment (HHERA) for the Mine Site at Mountain Pass*** – *Curt Shifrer*

On June 20, 2001, Regional Water Quality Control Board staff (Board staff) attended a public meeting in Baker. San Bernardino County held the meeting to present the conclusions and recommendations for the final Mine Site HHERA Report. Tetra Tech, a consulting firm hired by the County, completed the Report in June 2001. The County hired Tetra Tech to assess potential environmental impacts associated with the proposed future mining operations over the next 30-years. The County is also overseeing the preparation of an Environmental Impact Report (EIR) for the 30-year mine plan. The HHERA will be an important part of the EIR. The County plans to circulate the Draft EIR for comment in September 2001. Questions from members of the public, present at the June 20, 2001 meeting, indicate more concern with risks to school children and residents than with risks to plants and wildlife (ecological risks).

The HHERA Report includes estimates of both cancer and non-cancer risks that could result from exposure to substances associated with the mining operation, including lanthanide metals, heavy metals, radionuclides as well as diesel and gasoline combustion products. The study found the risk of cancer for offsite residents and school children to be within the range determined by both the U.S. and California Environmental

Protection Agencies to be acceptable. The estimate of non-cancer risks using air modeling showed a possible inhalation risk to some offsite residents due to lanthanide metals. Molycorp prevents human exposure to mine-related pollutants in underlying ground water by providing residents alternate sources of domestic supply water. The risk assessment found several areas, consisting of surface impoundment's, contaminated soil (wind-blown tailings) and wastewater seeps that may pose a significant risk to plants and animals.

The HHERA Report proposes actions to reduce risks and monitor effectiveness of these actions. These recommended actions and monitoring will be addressed further in the Draft EIR. Molycorp is currently under a Cleanup and Abatement Order (CAO) requiring it to clean-up pollutants in ground water and soils. Currently, Molycorp is in compliance with the schedules contained in the CAO.

14. ***Regional Board Issues a Cleanup and Abatement Order (CAO) to Pacific Gas & Electric (PG&E) Hinkley, San Bernardino County*** – *Joe Koutsky*

On June 29th I issued a CAO ordering PG&E to cease creating a threatened condition of nuisance from irrigating alfalfa fields in Hinkley. The California Air Resources Board (CARB) detected trace amounts of airborne hexavalent chromium during air monitoring near the irrigation site.

Since 1991 PG&E has been removing chromium from ground water by pumping ground water from the aquifer and spraying the water on two alfalfa fields located north of PG&E's compressor station. During this irrigation process the hexavalent chromium is converted to trivalent chromium and is chemically bound within the upper few feet of soil in the fields.

As a result of the Hinkley community's concerns expressed in a public meeting, and the recommendations presented in a Public Health Assessment (PHA), the California Department of Health Services, Environmental Health Investigations Branch (CDHS-EHIB), requested the CARB to conduct ambient air monitoring of the area near PG&E's East LTU. In April and May 2001, as part of a follow-up to the PHA, CARB sampled air and detected airborne hexavalent chromium levels at the fence lines and at the nearest residence of the East LTU. No measurements were taken further than 1/8 mile from the field.

As a precautionary measure, I ordered PG&E to "immediately abate the creation of a threatened nuisance by eliminating any air-born discharges of hexavalent chromium originating from the ground water remediation system." PG&E voluntarily turned off the irrigation systems.

As a result of this action, the California Environmental Protection Agency, Office of the Secretary issued a press release outlining the findings, actions, and reasons for the CAO. CDHS-EHIB also mailed a Fact Sheet to all residents in Hinkley providing

questions and answers about the air sampling.

15. ***Alternate Sampling and Reporting Program for Stormwater*** - *Gene Rondash*

Three mining companies in the region (National Cement, Portland Cement, and Briggs Mine) have coordinated on a proposed pilot program for stormwater sampling and reporting. The proposed pilot program would last 16-24 months and allow the dischargers to evaluate and report ground water data trends of selected constituents nearest their current stormwater discharge points during the wet and dry seasons.

Each of the participants are in an area that has produced only one qualifying stormwater sampling event in the past three years. The statewide general permit allows for the Regional Boards to approve alternate sampling and reporting programs that have the potential to improve the effectiveness of the region's stormwater urban runoff program.

Analyses of ground water data from near the storm water discharge points would allow the dischargers to determine if there are impacts from stormwater runoff and propose Best Management Practices (BMPs) or changes to current BMPs in their annual report. The proposed pilot project will establish data on the effectiveness of the alternate sampling program. If successful, the alternate sampling program could be approved as part of stormwater sampling program requirements with clearly defined criteria for each participant.

16. ***Air Force Plant No. 42 Site-Wide Remedial Investigation/Feasibility Study*** - *Tim Post*

Air Force Plant No. 42 announced at the June 2001 Environmental Restoration Advisory Board (ERAB) meeting, that the Remedial Investigation/Feasibility Study encompassing all five Operable Units is scheduled for release in August 2001. The document covers all the environmental investigations that have been completed, presents the results of the site-wide risk assessment and, proposes cleanup alternatives for the sites determined to pose an unacceptable risk.

This document is the result of culmination of many years' work on the site and represents a major milestone in the characterization and cleanup of the facility. Regional Board and the Department of Toxic Substances Control staff, members of the ERAB, and members of the public will all have 60 days to comment on the draft document.

17. ***IMC Chemicals, Trona*** - *Kai Dunn*

Improving Technology - IMCC continues to investigate alternative methods to support site-specific analytical monitoring and compliance testing as required in the Waste Discharge Requirements (WDRs). On June 27, 2001, a Laboratory Technical Peer Review Group started to review the analytical data during biweekly conference calls to ensure that the study is rigorous and technically valid. Board staff will continue to participate in the Peer Review Group to review the analytical studies and to provide comments to the data evaluation.

Compliance with Board Orders - Daily reporting data from IMCC shows that the interim effluent limitations set forth in the WDRs were not exceeded during the months of May and June 2001, but nine and nineteen, respectively, bird deaths were reported during the same time period. IMCC has completed

construction of the bird resting pool and is evaluating bird use of the pool. As part of work required under the Board's Cleanup and Abatement Order, IMCC and its consultants have conducted activities for characterization of areas of concern on Searles Dry Lake. The characterization activities contain a series of investigations to: 1) characterize the horizontal and vertical distribution of Constituents of Concern (COCs) in process ponds and channels and sediments, and 2) characterize and confirm the remediation of surface spills identified by previous investigations. Work will occur over the summer and into the fall of this year. Board staff will continue to review information submitted to ensure progress is made toward reaching complete site characterization.

Basin Plan Beneficial Uses - IMCC is in the process of collecting information to support work scheduled for this fiscal year, regarding potential site-specific beneficial use designations for Searles Lake. Board staff may recommend that the Regional Board consider at the September 2001 meeting, amending WDRs for the facility, allowing an implementation schedule for final effluent compliance limits consistent with the schedule for determining appropriate beneficial uses. This would extend the existing WDR schedule for setting and enforcing final effluent limits. Interim effluent limits would be in effect until final limits are adopted by the Regional Board.

18. ***Owens Lake Southern Zones Dust Control Project*** – *Joe Kenny*

The Environmental Protection Agency and the Great Basin Unified Air Pollution Control District have classified the southern Owens Valley as a Serious Non-attainment Area for air quality, due mainly to particulate emissions from Owens (Dry) Lake. The City of Los Angeles Department of Water and Power (LADWP) is constructing facilities to implement dust control mitigation measures. The dust control project is being designed and constructed in phases. Construction for Phase I began last year, and Phase II, which covers the southern zones, is scheduled for construction in October 2001.

The proposed project will combine the dust control strategies of shallow flooding, managed vegetation and gravel cover. Shallow flooding with water from the Los Angeles Aqueduct will raise the shallow ground water level to the level of the lakebed surface, saturate the surface and control dust emissions. Managed vegetation will consist of irrigation of areas to grow salt tolerant grasses. Irrigation tail water will be captured and stored for recycling in the irrigation system. Potential water quality impacts from construction of the dust control measures are regulated under the Statewide General NPDES Construction Storm Water Permit. The City must identify appropriate Best Management Practices (BMPs) it will use as part of its Storm Water Pollution Prevention Plan (SWPPP) that is required to be submitted to the Regional Board staff.

Regional Board staff have participated in meetings with LADWP regarding the project and have requested the City to file a Report of Waste Discharge (ROWD) for the long-term operation of phase II of the project. Monitoring will be required as a part of the General NPDES Permit for the construction and post-construction activities, within the Owens Lake Dry Lake Bed.

From: "Linda Jones" <ljones@scap.occoxmail.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: Tue, Jul 3, 2001 10:12 AM
Subject: 305b/303d Workshops

We would like to receive the workshop(s) schedule and the process that will be used to do the 305 (b) report and the 303 (d) list. Is it possible to receive this information by July 9th? Please advise by contacting us at SCAP at 949 489-7676 or respond via e-mail to kris@scap.occoxmail.com with any dates for scheduled public meetings on these topics. SCAP would like to be included on the mailing list for any meetings on these topics.

→ July 4th

SCAP
SOUTHERN CALIFORNIA ALLIANCE OF
PUBLICLY OWNED TREATMENT WORKS

July 3, 2001

Hisam A. Baqui
Lahontan Regional Water Quality Control Board
15428 Civic Drive, Suite 100
Victorville, CA 92392

Re: SCAP Comments on 2002 Water Quality Assessment and Update of the 303 (d) List of Impaired Waterbodies

Dear Mr. Baqui:

On behalf of the Southern California Alliance of Publicly Owned Treatment Works (SCAP), I am pleased to submit comments on the pending 305 (b) Water Quality Assessment and the 303 (d) list. SCAP's fifty-six public agency members provide wastewater and water services to over sixteen million residents in Southern California. The following comments were prepared by a workgroup of SCAP members.

1. SCAP encourages the Regional Board to carefully read and consider all comments submitted individually by our member agencies.
2. Under the Clean Water Act, as part of their biennial water quality assessments required under Section 305 (b), states are supposed to prepare analyses, among other things, of the extent to which "fishable/swimmable" uses have been or will be achieved, and what additional actions are necessary to achieve them; an estimate of the environmental impact, the economic and social costs, the economic and social benefits, and the estimated date of achievement; and a description of the nature and extent of nonpoint sources of pollutants, recommendations as to the programs which must be undertaken to control each category of such sources, and an estimate of the costs of implementing such programs. *33 U.S.C. Sec. 1315* The Regional Board must complete the required analyses during its water quality assessment, and we recommend that this be done prior to the 303 (d) listing process. We also request that a draft of the 305 (b) report be made available to the public for comment prior to being finalized and submitted to the State Water Resources Control Board.
3. SCAP supports the idea of a "preliminary list" or "watch list, on which waterbodies with inadequate or insufficient data would be placed in lieu of the 303 (d) list. Waters on the watch list would be targeted for further data gathering and assessment before either being placed on the 303 (d) list or designated as supporting the beneficial use(s). The National Research Council suggested such a list in their 2001 report assessing the effectiveness of TMDLs.[1] This has the potential to greatly reduce

[1] Assessing the TMDL Approach to Water Quality Management, prepublication copy, 2001.

30200 Rancho Viejo Road, Suite B
San Juan Capistrano, CA 92675
Fax: 949/489-0150 Tel: 949/489-7676

260

the burden caused by allocating valuable resources to addressing waters that may not truly be impaired, and focus funding and effort on true impairments.

4. SCAP urges caution regarding extrapolation of impacts on a specific waterbody based on data from a different body of water. Regional data, which have been generalized from limited data, when used, must be utilized appropriately.

5. SCAP believes that the Regional Board must only use adopted water quality standards, such as water quality objectives that have legally been adopted in the Basin Plan and approved by the State Water Resources Control Board, the Office of Administrative Law, and EPA, as the basis for the 305 (b) report or 303 (d) listings. Informal criteria that have not been formally adopted in accordance with Water Code requirements and the Administrative Procedures Act are known as "underground regulations" and cannot be legally used as the basis for the water quality assessment or 303 (d) listing.[2]

6. The Regional Board should specify what factors (including those listed below) are considered as "evidence," and how such evidence is weighted in making use of support/non-support decisions.

    a. Consider spatial, temporal (at several scales), and hydrologic variations and their effects on water quality when preparing the 2002 303 (d) list. We recommend that the Regional Board adopt a "weight of evidence" approach in preparing the 303 (d) list. Among other things, this will necessitate an understanding of variability in water quality data. In Southern California, stream flow is one of the largest sources of variability in water quality data. Stream flow is dependent on spatial, temporal (especially seasonal), and hydrologic variations. Not accounting for the effects of stream flow on water quality can bias the data set with respect to making impairment determinations. For the weight of evidence approach, one also will need to know how spatial variation was assessed, especially as it relates to effluent-dependent waterbodies. A good weight of evidence approach needs sample sets that are spatially and temporally representative of conditions in the waterbody. Sample locations should be characteristic of the main water mass or distinct hydrologic areas.

    b. For uses related to aquatic life, consider biological indicators as having a greater weight than pollutant concentration levels, to the extent that some waters may have unimpaired beneficial uses even though some chemical criteria have been exceeded. Among other reasons, this may occur because water quality objectives or criteria that are based on national guidance may not be reflective of local or site-specific conditions.

[2] Cal. Gov. Code Sec. 11340 defines "regulation," in relevant part, as "every rule, regulation, order, or standard of general application or the amendment, supplement, or revision of any rule, regulation, order, or standard adopted by any state agency to implement, interpret, or make specific the law enforced or administered by it." Cal. Gov. Code Sec. 11342 An "underground regulation" is invalid and unenforceable because it has not been promulgated in accordance with the Administrative Procedures Act. *Frankel v. Kizer*, 21 Cal. App. 4th 743, 747 (Cal. App. 2d Dist., Dec. 13, 1993).

c. Consider on a case-by-case basis, whether or not a waterbody is oligotrophic, mesotrophic, or eutrophic and provide criteria for each type.

d. Eliminate subjective criteria such as "significant amount observed."

7. In the 1997 interagency 303 (d) listing guidance, EPA and SWRCB directed the Regional Boards to delist waters if certain factors were met. One guideline that does not appear to have been fully implemented called for recognition of control measures already in place – or expected to be installed within the next listing cycle – that will result in protection of beneficial uses. Control measures that should be considered an adequate basis for delisting include permits, clean up and abatement, cease and desist, or time schedule orders, and watershed management plans that are enforceable and include a time schedule for compliance with objectives. Prior EPA 303 (d) guidance also recommended this be taken into account. For example, within the Los Angeles Region, many inland waters are listed as being impaired by ammonia, yet all of the publicly owned treatment works are under compliance schedules to meet the ammonia water quality objectives contained in the Basin Plan in the next 1-2 years. Presumably, these waters will come into compliance with the ammonia objective when these dischargers meet this requirement. Therefore, we recommend that the Regional Board review these and other 303 (d) listings for which enforceable requirements have been adopted during this listing cycle.

8. In reviewing your prior staff reports regarding adoption of water quality assessment and/or 303 (d) listing, there has been very little explanation provided regarding how assessment decisions were made. Therefore, the following items reflect SCAP's recommendations that we believe are essential for the 2002 water quality assessment process.

In a recent Draft EPA Consolidated Assessment and Listing Methodology (CALM) report, several good recommendations are made for how states should conduct their listing processes. We are including several items based on CALM, as well as some additional items, that summarize the analytical and public review process we recommend the Regional Board follow. These comments supplement the comments previously submitted by SCAP regarding opportunities for public participation in the water quality assessment process.

- A thorough explanation of the thinking process that went into each decision should be made available in writing.
- The Regional Board should document each of the types of data that support water quality decision-making and explain how they are used in the context of applicable water quality standards to support different water quality determinations.
- A description of and reference for the quality assurance procedures should be included in water quality assessment and listing documentation. The Regional Board should define data quality requirements and how they utilize and interpret data to make decisions about whether the waterbody is impaired or attaining water quality standards.

- Metadata for the field data, i.e., when measurements were taken, locations, number of samples, detection limits, etc., should be in the administrative record and, upon request, made available to interested parties. The Regional Board should recognize that not all data are of equal value for assessing water quality standards attainment/impairment. Results of chemical data or any other type of data analysis are of limited value unless they are accompanied by documentation about sample collection (SOPs), analytical methods, and quality control protocols. Electronic copies of data and metadata should be made available, upon request.
- When data from citizen volunteer group's water quality monitoring efforts is used, the name of the group, the hours of training in water quality assessment completed by members of the group, SOPs, documentation of training of volunteers in both sampling and field testing, and whether a state certified lab was utilized should be provided. Finally, these data must meet the Regional Board's prior agreed upon standards for data quality.
- Sample size is an important element of data quality. In general, in the CALM draft, EPA is recommending that in order to have a high level of confidence in the results, a sample size of at least 30 samples is necessary. Recognizing that sample size is a big debate, we believe that a statistically-bases approach should be used in the listing process, with an adequate sample size. Therefore, the 5 samples, and sometimes 3 samples, used in prior assessment and listing processes seem less than sufficient. Not withstanding all the arguments about sample size, the tremendous implications of attainment/impairment decisions argue for the use of rigorous and statistically-valid data sets.
- What are the compelling reasons to list a waterbody, and does one reason have more weight than another?
- Fact sheets that explain proposed listings and delistings, including constituents of concern, the data used, and the water quality standard and the basis for the decision to list or delist must be provided to the public when the list is made available for public review. This is absolutely essential to enable informed public review, and will go a long way towards instilling confidence in the process and analysis prepared by the Regional Board.

SCAP is very aware of the tremendous burden this process puts on the Regional Board staff. These comments imply changes that we think will improve the process. SCAP looks forward to working with you during this process and recommends informal workshop meetings for this purpose.

Regards,

Raymond C. Miller
Executive Director

cc: Judith Unsicker

revised Agenda

AEO Meeting
Region 6 - South Lake Tahoe Office
August 6 & 7, 2001

For teleconferencing: dial in # is (800) 252-4455; and the participant code is: 605265; office # is (530) 542-5400

Chair: Bob Dodds Scribe: Robert Perdue

item	*person & time allotted*	*start time*
Monday afternoon, August 6		
1. **Review Agenda – Add New Items**	All 5 min	1:30
2. **Status of Bargaining** – *Salaries? Benefit? A note of appreciation?*	S. Brooks 15 min	1:35
3. **Personnel Issues** –*Retention/recruitment of staff* – *W hat is the status of vacant positions going into the new FY?* – *Promotional and Open Exams Scheduled*	S. Brooks 15 min	1:50
4. **Budget Issues** –*Status of FY 01-02 Budget. How did we do?* –*How will new resources be allocated?* –*A discussion of the BCP process for the future* –*How is BDAS doing?* –*PCP Tracking?*	Pete Cervinka 30 min	2:05
5. **General NPDES Permit for Aquatic Pesticide Applications Waters** – *Does it supersede Regional Boards' Basin Plan Prohibitions?* – *Can regions add more monitoring?*	Larry Nash 20 min	2:35
6. **Strategic Plan -Implementation of Strategic Projects** –*What are the final assignments and expectations?*	All 20 min	2:55
Break for 15 min		3:10
7. **Legal Issues** –*New State Board Hearing Procedures* –*Training to be conducted by OCC attorneys* –*Other*	Phil Wyels 30 min	3:30
8. –**Stormwater Strategies** - *How are folks handling the regulation of individual NPDES permits for what are primarily or exclusively stormwater discharges now that we have CTR? R4's getting a lot of pressure to rescind these and regulate them with the general industrial permit because it is so difficult for them to meet CTR for stormwater.*	Deb Smith 15 min	4:00

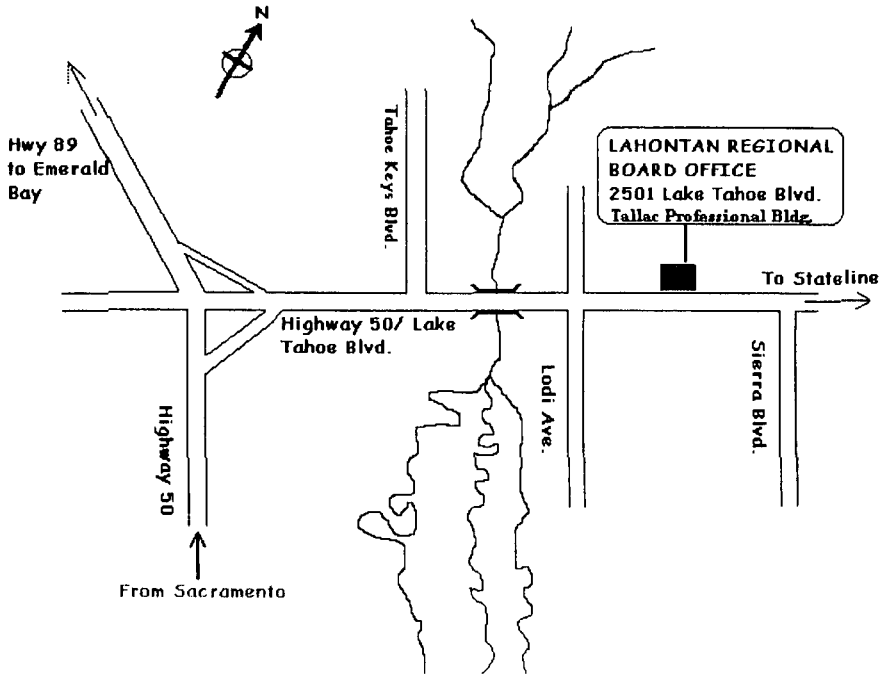
	item	person & time allotted	start time
9.	**Email Retention Issues/Policies** *–When the subpoenas arrive at the doorstep, what policies do regions have regarding the backup and retention of email? Electronic Photographs? What about the potential pitfalls of having automatic archiving onto each PC's hard drive?*	Kolb & Perdue 20 min	4:15
	Tuesday morning, August 7th		
10.	**Demonstration & Discussion of Electronic Submittal of Discharger Self-Monitoring Reports** *Next Steps, Schedule, Implementation Plan, etc.*	Polhemus 1 hr	8:30
11.	**Program Workplan Process for FY 01-02** *–feedback from the regions on what worked well, areas for improvement, e-workplans, next steps, etc.*	Gail Linck 30 min	9:30
12.	**Enforcement Policy** *–It was sent out for comments from the regions via a July 14th email and comments are due August 15th.*	Johnson, Polhemus 20 min	10:00
13.	**A proposal to utilize the Swim Compliance Database in place of the Enforcement Report the regions generate and send to OLPA**	Polhemus 15 min	10:20
	Break for 15 min		10:35
14.	**Environmental Management System (EMS) Program & Environmental Protection Indicators for Calif. (EPIC)**	Pinkos 15 min	10:50
15.	**303(d) listing** *–What are the various approaches taken by the Regions in determining what type of data supports listing a waterbody and what does not?*	Dodds 20 min	11:05
16.	**Add-On Items**		11:25
17.	**Adjourn Meeting**		

AEO Meeting Logistical Details

Dinner at Dixon's Restaurant and Brewery (same place as last year) at 675 Emerald Bay Road (Hwy 89 on the way to Emerald Bay from the "Y"). — **for 6:15 p.m.**

Pls let me know if you are going and if you are bring someone with you. It is not a large place and I need to give them a head count.

Map to the Office:



For lodging:

http://r6sweb.swrcb.ca.gov/html/bookmarkSLT.htm

If those sites are full, try this very clean motel near Stateline : Alpenrose Inn, 530/ 544-2985, at 4074 Pine Blvd.

Item 15 - 11:05 a.m.
303(d) List

The State Board does not plan to issue any formal guidance to Regional Boards on criteria to be used in the 2001-2002 listing/delisting recommendations. However, justification for proposed changes must be provided in the administrative record. Region 6 staff have discussed and reached tentative agreement on several issues related to listing and delisting, as summarized below.

Data quantity and quality. Some states establish minimum requirements for the quality and quantity of data for use in listing decisions. Developing specific data quantity/quality thresholds for the Lahontan Region would be a lengthy, complex process. Such thresholds could probably better be addressed in the listing criteria policy which the State Board plans to adopt before the 2004 list update cycle. Region 6 staff will evaluate the data available for the current list update on a case by case basis, and make recommendations using a weight of evidence approach. A single spill or brief discharge event will generally not be considered grounds for listing. However, an ongoing discharge whose impacts will probably not be fully abated before the next listing cycle may warrant listing.

Antidegradation. U.S. Environmental Protection Agency (USEPA) guidance directs that antidegradation be considered in listing decisions. It could be argued that the presence of <u>any</u> non-natural chemicals in a water body is degradation (assuming that findings to allow degradation have not been made), and that such waters should be listed. Examples include monitored boat fuel chemicals from boat fuel in Lake Tahoe, and Donner Lake, and the presence of pesticides and PCBs, probably from atmospheric deposition, in some "pristine" waters of the Lake Tahoe Basin. Regional Board staff propose not to recommend listing for violations of the nondegradation objective unless a pollutant is present in a concentration which violates another water quality objective or adversely affects beneficial uses. For example, detectable pesticides are in violation of the narrative pesticide objective.

"Pollution" vs. "pollutants". The Clean Water Act distinguishes between "pollutants" (measurable physical or chemical parameters including sediment, and thermal discharges) and "pollution" ("the man-made or man-induced alteration of the chemical, physical, and biological, and radiological integrity of a waterbody"). "Pollution" may not always involve "pollutants"; for example, channelization of a stream, or human alteration of streamflows, may impair its biological integrity without involving pollutants, assuming that sediment is not a problem. Current federal TMDL regulations (40 CFR 130.7) indicate that TMDLs are required only for waters impaired by <u>pollutants</u>, Staff's conclusion is that waters impaired by "pollution" (including flow alterations) without "pollutants" should not be listed.

Toxic Substances Monitoring Program (TSMP) results. Under the State Board's TSMP, fish tissue samples are collected annually and analyzed for a variety of toxic metals and organic compounds. TSMP samples involve a relatively small number of fish and are not statistically representative of the entire fish population. Previous State Board guidance resulted in listing of some waters where TSMP tissue concentrations exceeded human fish consumption criteria. Staff's belief is that waters should <u>not</u> be listed for TSMP results alone, and that additional monitoring (of water, sediment and fish tissue) should be done to verify whether impairment exists.

"Natural" impairment. The Clean Water Act definitions of "pollutants" and "pollution" reference human causes. These definitions appear to justify not listing water bodies which are

impaired entirely by natural (e.g., geothermal) sources of chemicals, by the impacts of natural phenomena such as floods or drought. Where there are no known human sources of pollutants in a watershed but it is unknown whether the impairment is natural, recommendations for listing will be made on a case-by-case basis.

Adequacy of standards. Some of Region 6's numerical water quality objectives were established in 1975 based on very limited monitoring data or on older published water quality criteria, and may not reflect natural background conditions of the affected water bodies or current scientific criteria for protection of beneficial uses. Concerns have also arisen with the consequences of expressing objectives as "means of monthly means". Staff's proposed approach is to recommend listing for waters where objectives have been consistently exceeded, but to consider update of the objectives, and possibly delisting, when resources permit..

Listing when attainment is likely. There are violations of the fecal coliform bacteria objective in streams of the Upper Truckee River watershed which appear to be strongly linked to the presence of cattle. The U.S. Forest Service, Lake Tahoe Basin Management Unit, has made a commitment in writing to manage grazing in this area so as to prevent future violations of standards. Since this commitment should lead to attainment of standards by the next listing cycle (in 2004) staff will not recommend listing the monitored streams. A similar approach will be taken with other impaired waters where attainment of standards by 2004 seems probable.

Intermittent waters. The Mojave River was listed in the 1980s due to the subsurface impacts of the "Barstow slug". Staff's current recommendation is that intermittent streams be listed *only* on the basis of data from water flowing on the surface. Available data indicate that certain surface water segments of the Mojave River could be listed for PCE/TCE and for inorganics including TDS and nitrate.

From: Jill Wilson
To: unsij
Date: Thu, Aug 23, 2001 11:42 AM
Subject: Tram Data

Judith,
Here are our metrics on the streams that we sampled and completed analysis on for 1999. I will send you the physico-chemico data as soon as I can get it in electronic form.

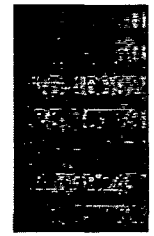
CC: gregd

Independence Creek (1999)

	Sample 1	Sample 2	Sample 3	tolerance value	Tolerance sum		
Baetidae (CG)	6	3	5	4	56	**Total inverts**	305
Ephemerellidae (SC)	1	2	1	1	4	**Community Tolerance**	2.64918
Heptageneidae (SC)	*6*	*8*	*10*	*4*	*96*	***S (richness)***	*24*
Leptophlebiidae (SC)	2	4		2	12	**Ephem S**	4
Chloroperlidae (SH)		8	12	1	20	**Plecop S**	5
Leuctridae (SH)	1			0	0	**Trichop S**	6
Perlidae (P)	1	1		1	2	**EPT taxa**	15
Perlodidae (P)		6		2	12	**EPT index**	77.04918
Pteronarcyidae (SH)			1	0	0	**Sensitive EPT**	57.70492
Brachycentridae (CG)	15	4	4	3	69	**% Hydropsychidae**	9.836066
Glossosomatidae (SC)	12	3	19	0	0	**% Baetidae**	4.590164
Hydropsychidae (FC)	11	10	9	4	120	**% Intolerant**	29.18033
Lepidostomatidae (SH)	8	5	2	1	15	**% Tolerant**	2.95082
Ryacophilidae (P)	1	6	1	0	0	**% Dominant Taxon**	15.40984
Uenoidae (SC)	13	19	15	0	0	**% Collectors**	28.85246
Chironomidae (CG)	12	11	12	6	210	**% Filterers**	11.14754
					10	**% Scrapers**	37.70492
Simuliidae (FC)	1		2	6	18	**% Predators**	5.901639
Tipulidae (SH)		3	1	3	12	**% Shredders**	13.11475
Scyomyzidae		1			0	**Abundance**	305
Elmidae (CG)	6	4	5	5	75		
Bivavles (FC)		1		3	3		
Acari (P)	2			5	10		
					64		

Sagehen Creek (1999)	Sample 1	Sample 2	Sample 3	tolerance value	Tolerance sum
Baetidae (CG)	2	4		4	
Ephemerellidae (SC)	1	2		1	
Heptageneidae (SC)	26	20		4	
Leptophlebiidae (SC)				2	
Chloroperlidae (SH)				1	
Leuctridae (SH)				0	
Perlidae (P)				1	
Perlodidae (P)	1	3		2	
Pteronarcyidae (SH)				0	
Brachycentridae (CG)	22	24		3	
Glossosomatidae (SC)				0	
Hydropsychidae (FC)	10	7		4	
Lepidostomatidae (SH)				1	
Philopotamidae		2			
Ryacophilidae (P)		3		0	
Uenoidae (SC)				0	
Chironomidae (CG)	13	21		6	
[redacted]					
Empididae (P)		4		6	
Simuliidae (FC)	10	3		6	
Tipulidae (SH)	5			3	
Scyomyzidae					
Elmidae (CG)	5	6		5	
Bivavles (FC)				3	
Acari (P)				5	
[redacted]					
Total per sample	95	99	0		

24	**Total inverts**	194
3	**Community Tolerance**	4.128866
184	**S (richness)**	13
0	**Ephem S**	3
0	**Plecop S**	1
0	**Trichop S**	4
0	**EPT taxa**	8
8	**EPT index**	65.46392
0	**Sensitive EPT**	34.53608
138	**% Hydropsychidae**	8.762887
0	**% Baetidae**	3.092784
68	**% Intolerant**	3.608247
0	**% Tolerant**	0
0	**% Dominant Taxon**	
0	**% Collectors**	
204	**% Filterers**	
0	**% Scrapers**	
24		
78	**% Predators**	
15	**% Shredders**	
0	**Abundance**	194
55		
0		
0		
0		



From: "Margy Gassel" <MGASSEL@oehha.ca.gov>
To: <Unsij@rb6s.swrcb.ca.gov>
Date: 8/28/01 12:09PM
Subject: Re: TSMP contact for Region 6

Thanks Del.

Judith,
I was reviewing the preliminary TSMP results from 1999 for trace elements, and noted that there were two samples with very high mercury levels from your region:
637.20.25 Susan River/Piute Creek - Brook trout (1.54 ppm)
637.20.31 Susan River/Susanville - Rainbow trout (2.09 ppm)

I don't know when these results will be finalized, but thought it would be useful to gather more information in the meantime. These preliminary results could be important to follow up on in terms of fish consumption by local fishers. This level is particularly high for a species like rainbow trout - they are usually lower than other species, and if this result is representative, and people are eating the trout, there is a health concern. I wanted to touch base with you because this looks like an area where more fish tissue sampling (for mercury) is needed. What are your plans in this regard (or for TSMP)? Also, what can you tell me about Eagle Lake? (What species are popular for fishing, etc.) Have you taken any samples there?

Thanks for your help,
Margy Gassel, Ph.D.
Research Scientist II
Pesticide and Environmental Toxicology Section
Office of Environmental Health Hazard Assessment
1515 Clay Street, 16th Floor
Oakland, CA 94612
(510) 622-3166
FAX: (510) 622-3218
mgassel@oehha.ca.gov

>>> "Del Rasmussen" <RASMD@dwq.swrcb.ca.gov> 8/28/01 11:45:59 AM >>>
Margy,

The TSM contact is Judith Unsicker (see CC:). Her phone number is (530) 542-5462.

Del Rasmussen
Assessment Unit
Division of Water Quality
State Water Resources Control Board
(916) 341-5545
rasmd@dwq.swrcb.ca.gov

>>> "Margy Gassel" <MGASSEL@oehha.ca.gov> 08/28/01 11:39AM >>>
Del,
Can you tell me who is your contact person at the Lahontan regional board for TSMP?
Thanks,
Margy

CC: <RASMD@dwq.swrcb.ca.gov>

From: Judith Unsicker
To: "MGASSEL@oehha.ca.gov".mime.Internet
Date: 8/28/01 1:26PM
Subject: TSMP Results for Susan River

I also noticed the high mercury in TSMP results for the Susan River when reviewing the 1999 results (and earlier data) in relation to the new, lower MTRL calculated from the California Toxics Rule criterion. (I'm the lead person on our Section 303(d) list/305 (b) water quality assessment process.)

The Lahontan Regional Board is not currently monitoring Eagle Lake, but the Department of Water Resources is. I have just faxed you a copy of data we received from them in May showing high mercury concentrations in water, soil, and fish tissue, including water sample exceedances of California Toxics Rule/National Toxics Rule standards during one sampling run last year. Concentrations dropped on the next sampling run. I talked to Jerry Boles of DWR recently, and he said that they had measured relatively high concentrations at other times. You might want to contact him directly-his phone number is in the fax.

I don't know how much stream fishing occurs in the upper Susan River or which species is most commonly caught. The main fishery in Eagle Lake is for Eagle Lake rainbow trout, a subspecies native to the lake and adapted to its high alkalinity. Eagle Lake trout are widely stocked elsewhere, so the Susan River TSMP sample may be from this strain.

We had Eagle Lake trout sampled under the TSMP in the 1980s, and the mercury level wasn't particularly high. I have asked to have Eagle Lake, one Susan River station, and the Susan River tributary, Piute Creek, sampled in this year's TSMP.

I am not aware of any mercury mining in this area. I'm assuming that the mercury in the river and the lake comes either from local, natural volcanic/geothermal sources or from long distance atmospheric transport. (There has been controversy recently over east to west transport of windblown pollutants from weapons destruction at the Sierra Army Depot in Lassen County south of Susanville. I don't know the extent to which northward transport occurs.) The University of California, Davis Tahoe Research group has documented increased accumulation of mercury in the sediment of Lake Tahoe since the mid-19th century, which they attribute to atmospheric deposition.

We currently have the Susan River on the Clean Water Act Section 303(d) list of impaired waters due to the results of some toxicity bioassays conducted by the U.S. Environmental Protection Agency in 1990. The cause of the toxicity was never identified. I'm not aware of any followup toxicity testing since that time. The river is not one of our current highest priorities for development of Total Maximum Daily Loads.

Give me a call if you want to talk about any of this. I will be in the office until 3:30 p.m. today.

Judith Unsicker
Environmental Specialist IV (Specialist)
Lahontan RWQCB
2501 Lake Tahoe Blvd.
South Lake Tahoe CA 96150
Phone (530) 542-5462
Fax (530) 542-5470
Email: unsij@rb6s.swrcb.ca.gov

"The energy crisis facing California is real. Every Californian nees to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at http://www.swrcb.ca.gov "

>>> "Margy Gassel" <MGASSEL@oehha.ca.gov> 08/28/01 12:08PM >>>
Thanks Del.

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Del Rasmussen
Assessment Unit
Division of Water Quality
State Water Resources Control Board
(916) 341-5545
rasmd@dwq.swrcb.ca.gov

>>> "Margy Gassel" <MGASSEL@oehha.ca.gov> 08/28/01 11:39AM >>>
Del,
Can you tell me who is your contact person at the Lahontan regional board for TSMP?
Thanks,
Margy

SCAP

SOUTHERN CALIFORNIA ALLIANCE OF PUBLICLY OWNED TREATMENT WORKS

10-263

Rec'd. OCT 2 2 2001
HAD
CM
TP
Files

October 19, 2001

Mr. Hisam A. Baqui
Lahontan Regional Water Quality Control Board
15428 Civic Drive, Suite 100
Victorville, CA 92392

Dear Mr. Baqui:

The Southern California Alliance of Publicly Owned Treatment Works (SCAP) is pleased to have the opportunity to comment on the Regional Board's 303(d) list for 2002.

SCAP represents fifty-five member agencies serving some sixteen million residents of southern California and is very active in the water, biosolids and air quality arenas.

SCAP is very concerned about the 303(d) Listing Process currently underway. Each Regional Board is doing the process in a slightly different manner and it is confusing to the public. Due to the varieties of processes throughout southern California, we are concerned that the 2002 list will be difficult for our members to analyze and evaluate. The opportunities being offered for public review do not appear to be meaningful because the Regional Board's have indicated their intent to submit the proposed lists as is, regardless of comments received. Furthermore, the lists are being made available for a very short public review period, if any, and, therefore the process for commenting is not adequate at the local level.

SCAP is very grateful for the Regional Board staff members that have been accessible to SCAP's Water Committee and the workshops that are planned in the near future. Even with a workshop, however, it is our understanding that the lists may already have been forwarded --without the benefit of public comment -- to Sacramento. This creates confusion. Our members question how the Regional Boards will be able to respond to their comments. To allow sufficient time for a full public review of the list, we think and suggest that the SWRCB extend the submittal deadline for the RWQCBs for several months, in recognition of EPA's recent decision to extend the 2002 list submittal deadline to October 2002 so that local interested parties can have an adequate comment and response process at the Regional level.

30200 Rancho Viejo Road, Suite B
San Juan Capistrano, CA 92675
Fax: 949/489-0150 Tel: 949/489-7676

We understand that the SWRCB will be commencing development of a statewide listing policy in the near future. Our thoughts regarding the listing process, *Principals for 303(d) Listing Process*, are attached.

We appreciate the opportunity to comment and ask that you send our comments to Sacramento with your proposed 2002 lists.

Very truly yours,

Raymond C. Miller
Executive Director

Cc: Board Members
Celeste Cantú
Tom Howard

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SCAP

SOUTHERN CALIFORNIA ALLIANCE OF
PUBLICLY OWNED TREATMENT WORKS

July 3, 2001

Hisam A. Baqui
Lahontan Regional Water Quality Control Board
15428 Civic Drive, Suite 100
Victorville, CA 92392

Re: SCAP Comments on 2002 Water Quality Assessment and Update of the 303 (d) List of Impaired Waterbodies

Dear Mr. Baqui:

On behalf of the Southern California Alliance of Publicly Owned Treatment Works (SCAP), I am pleased to submit comments on the pending 305 (b) Water Quality Assessment and the 303 (d) list. SCAP's fifty-six public agency members provide wastewater and water services to over sixteen million residents in Southern California. The following comments were prepared by a workgroup of SCAP members.

1. SCAP encourages the Regional Board to carefully read and consider all comments submitted individually by our member agencies.
2. Under the Clean Water Act, as part of their biennial water quality assessments required under Section 305 (b), states are supposed to prepare analyses, among other things, of the extent to which "fishable/swimmable" uses have been or will be achieved, and what additional actions are necessary to achieve them; an estimate of the environmental impact, the economic and social costs, the economic and social benefits, and the estimated date of achievement; and a description of the nature and extent of nonpoint sources of pollutants, recommendations as to the programs which must be undertaken to control each category of such sources, and an estimate of the costs of implementing such programs. *33 U.S.C. Sec. 1315* The Regional Board must complete the required analyses during its water quality assessment, and we recommend that this be done prior to the 303 (d) listing process. We also request that a draft of the 305 (b) report be made available to the public for comment prior to being finalized and submitted to the State Water Resources Control Board.
3. SCAP supports the idea of a "preliminary list" or "watch list, on which waterbodies with inadequate or insufficient data would be placed in lieu of the 303 (d) list. Waters on the watch list would be targeted for further data gathering and assessment before either being placed on the 303 (d) list or designated as supporting the beneficial use(s). The National Research Council suggested such a list in their 2001 report assessing the effectiveness of TMDLs.[1] This has the potential to greatly reduce

[1] Assessing the TMDL Approach to Water Quality Management, prepublication copy, 2001.

30200 Rancho Viejo Road, Suite B
San Juan Capistrano, CA 92675
Fax: 949/489-0150 Tel: 949/489-7878

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the burden caused by allocating valuable resources to addressing waters that may not truly be impaired, and focus funding and effort on true impairments.

4. SCAP urges caution regarding extrapolation of impacts on a specific waterbody based on data from a different body of water. Regional data, which have been generalized from limited data, when used, must be utilized appropriately.

5. SCAP believes that the Regional Board must only use adopted water quality standards, such as water quality objectives that have legally been adopted in the Basin Plan and approved by the State Water Resources Control Board, the Office of Administrative Law, and EPA, as the basis for the 305 (b) report or 303 (d) listings. Informal criteria that have not been formally adopted in accordance with Water Code requirements and the Administrative Procedures Act are known as "underground regulations" and cannot be legally used as the basis for the water quality assessment or 303 (d) listing.[2]

6. The Regional Board should specify what factors (including those listed below) are considered as "evidence," and how such evidence is weighted in making use of support/non-support decisions.

    a. Consider spatial, temporal (at several scales), and hydrologic variations and their effects on water quality when preparing the 2002 303 (d) list. We recommend that the Regional Board adopt a "weight of evidence" approach in preparing the 303 (d) list. Among other things, this will necessitate an understanding of variability in water quality data. In Southern California, stream flow is one of the largest sources of variability in water quality data. Stream flow is dependent on spatial, temporal (especially seasonal), and hydrologic variations. Not accounting for the effects of stream flow on water quality can bias the data set with respect to making impairment determinations. For the weight of evidence approach, one also will need to know how spatial variation was assessed, especially as it relates to effluent-dependent waterbodies. A good weight of evidence approach needs sample sets that are spatially and temporally representative of conditions in the waterbody. Sample locations should be characteristic of the main water mass or distinct hydrologic areas.

    b. For uses related to aquatic life, consider biological indicators as having a greater weight than pollutant concentration levels, to the extent that some waters may have unimpaired beneficial uses even though some chemical criteria have been exceeded. Among other reasons, this may occur because water quality objectives or criteria that are based on national guidance may not be reflective of local or site-specific conditions.

[2] Cal. Gov. Code Sec. 11340 defines "regulation," in relevant part, as "every rule, regulation, order, or standard of general application or the amendment, supplement, or revision of any rule, regulation, order, or standard adopted by any state agency to implement, interpret, or make specific the law enforced or administered by it." Cal. Gov. Code Sec. 11342 An "underground regulation" is invalid and unenforceable because it has not been promulgated in accordance with the Administrative Procedures Act. *Frankel v. Kizer*, 21 Cal. App. 4th 743, 747 (Cal. App. 2d Dist., Dec. 13, 1993).

c. Consider on a case-by-case basis, whether or not a waterbody is oligotrophic, mesotrophic, or eutrophic and provide criteria for each type.

d. Eliminate subjective criteria such as "significant amount observed."

7. In the 1997 interagency 303 (d) listing guidance, EPA and SWRCB directed the Regional Boards to delist waters if certain factors were met. One guideline that does not appear to have been fully implemented called for recognition of control measures already in place – or expected to be installed within the next listing cycle – that will result in protection of beneficial uses. Control measures that should be considered an adequate basis for delisting include permits, clean up and abatement, cease and desist, or time schedule orders, and watershed management plans that are enforceable and include a time schedule for compliance with objectives. Prior EPA 303 (d) guidance also recommended this be taken into account. For example, within the Los Angeles Region, many inland waters are listed as being impaired by ammonia, yet all of the publicly owned treatment works are under compliance schedules to meet the ammonia water quality objectives contained in the Basin Plan in the next 1-2 years. Presumably, these waters will come into compliance with the ammonia objective when these dischargers meet this requirement. Therefore, we recommend that the Regional Board review these and other 303 (d) listings for which enforceable requirements have been adopted during this listing cycle.

8. In reviewing your prior staff reports regarding adoption of water quality assessment and/or 303 (d) listing, there has been very little explanation provided regarding how assessment decisions were made. Therefore, the following items reflect SCAP's recommendations that we believe are essential for the 2002 water quality assessment process.

In a recent Draft EPA Consolidated Assessment and Listing Methodology (CALM) report, several good recommendations are made for how states should conduct their listing processes. We are including several items based on CALM, as well as some additional items, that summarize the analytical and public review process we recommend the Regional Board follow. These comments supplement the comments previously submitted by SCAP regarding opportunities for public participation in the water quality assessment process.

- A thorough explanation of the thinking process that went into each decision should be made available in writing.
- The Regional Board should document each of the types of data that support water quality decision-making and explain how they are used in the context of applicable water quality standards to support different water quality determinations.
- A description of and reference for the quality assurance procedures should be included in water quality assessment and listing documentation. The Regional Board should define data quality requirements and how they utilize and interpret data to make decisions about whether the waterbody is impaired or attaining water quality standards.

- Metadata for the field data, i.e., when measurements were taken, locations, number of samples, detection limits, etc., should be in the administrative record and, upon request, made available to interested parties. The Regional Board should recognize that not all data are of equal value for assessing water quality standards attainment/impairment. Results of chemical data or any other type of data analysis are of limited value unless they are accompanied by documentation about sample collection (SOPs), analytical methods, and quality control protocols. Electronic copies of data and metadata should be made available, upon request.
- When data from citizen volunteer group's water quality monitoring efforts is used, the name of the group, the hours of training in water quality assessment completed by members of the group, SOPs, documentation of training of volunteers in both sampling and field testing, and whether a state certified lab was utilized should be provided. Finally, these data must meet the Regional Board's prior agreed upon standards for data quality.
- Sample size is an important element of data quality. In general, in the CALM draft, EPA is recommending that in order to have a high level of confidence in the results, a sample size of at least 30 samples is necessary. Recognizing that sample size is a big debate, we believe that a statistically-bases approach should be used in the listing process, with an adequate sample size. Therefore, the 5 samples, and sometimes 3 samples, used in prior assessment and listing processes seem less than sufficient. Not withstanding all the arguments about sample size, the tremendous implications of attainment/impairment decisions argue for the use of rigorous and statistically-valid data sets.
- What are the compelling reasons to list a waterbody, and does one reason have more weight than another?
- Fact sheets that explain proposed listings and delistings, including constituents of concern, the data used, and the water quality standard and the basis for the decision to list or delist must be provided to the public when the list is made available for public review. This is absolutely essential to enable informed public review, and will go a long way towards instilling confidence in the process and analysis prepared by the Regional Board.

SCAP is very aware of the tremendous burden this process puts on the Regional Board staff. These comments imply changes that we think will improve the process. SCAP looks forward to working with you during this process and recommends informal workshop meetings for this purpose.

Regards,

Raymond C. Miller
Executive Director

cc: Judith Unsicker

SCAP

949.489.7676 E-mail address: krs@scap.occoxmail.com 949.489.0150 (FAX)

DRAFT
Principals for 303(d) Listing Process

1. Listing Process

a) The water quality assessment process should be used to develop a preliminary (watch) list and an action list (the 303(d) list). Placement of a waterbody on the watch list would trigger further data gathering and assessment.

b) The basis of and process for listing and de-listing must be "transparent."

c) The State should adopt a Listing Policy containing listing criteria and procedural requirements as a publicly adopted document through a full regulatory process.

d) The State's Listing Policy should include:

- A description of how different types of data will be evaluated;
- An explanation of how the following factors will be considered:
  i. data quality, age, degree of confidence, degree of exceedances
- A description of procedures for collecting and using ambient water quality data;
- A description of methods and factors to develop a prioritized schedule for TMDL development;
- A description of factors for putting waters on the "watch" list, the "action" list, and to de-list waters from both lists.
- A requirement for the development of Fact Sheets that explain the proposed listings and de-listings, including constituents of concern, the data used, and the water quality standard and the basis for the decision to list or de-list. This information must be provided to the public when the list is made available for public review. This is absolutely essential to enable informed public review, and will go a long way towards instilling confidence in the process and analysis prepared by the Regional Board.

- A description of and reference for the quality assurance procedures should be included in water quality assessment and listing documentation. The Regional Board should define data quality requirements and how they utilize and interpret data to make decisions about whether the water body is impaired or attaining water quality standards.

2. Listing Criteria

e) The Listing Policy should embody a weight of evidence approach, including:

- Consideration of spatial, temporal (at several scales), and hydrologic variations and their effects on water quality;
- For uses related to aquatic life, consideration that biological indicators should be given a greater weight than pollutant concentration levels, to the extent that some waters may have unimpaired beneficial uses even though some chemical criteria have been exceeded. Water quality objectives or criteria that are based on national guidance may not be reflective of local on-site specific conditions.

f) With respect to nutrient issues, the State should consider on a case-by-case basis whether or not a water body is oligotrophic, mesotrophic or eutrophic and provide criteria for each type.

g) The Listing Policy should eliminate subjective criteria such as "significant amount observed."

h) The Listing Policy should recognize control measures already in place – or expected to be installed within the next listing cycle – that will result in protection of beneficial uses. Control measures that should be considered an adequate basis for not listing (or for de-listing) include permit requirements, clean up and abatement, cease and desist, or time schedule orders, and watershed management plans that are enforceable and include a time schedule for compliance with objectives.

i) The Listing Policy should address the issue of sample size. Recognizing that sample size is a big debate, we believe that a statistically-based approach should be used in the listing process, with an adequate sample size (e.g. 30 samples). The tremendous implications of attainment/impairment decisions argue for the use of rigorous and statistically-valid data sets.

Lahontan Regional Water Quality Control Board

FOR IMMEDIATE RELEASE

Contact: Judith Unsicker
(530) 542-5462

RWB 01-005

Lahontan Water Board Seeks Public Input On List of Polluted Waters

SOUTH LAKE TAHOE – The Lahontan Regional Water Quality Control Board is seeking public comments on proposed changes to a list of polluted water bodies. This list is comprised of waters that require Total Maximum Daily Loads (TMDLs), which are strategies used to meet water quality standards.

The federal Clean Water Act requires a TMDL for each surface water body that is so polluted that attainment of standards cannot be ensured through conventional water pollution control measures. If a water body is impaired by more than one pollutant, separate TMDLs are required for each pollutant. The changes proposed by the Lahontan Board are to the federal Clean Water Act's Section 303(d) list.

Most of the proposed changes to the list are additions of streams in the Lake Tahoe, Carson River, and Walker River watersheds. The most common problems are nutrients and bacteria; the latter problem has been documented in streams near livestock grazing. Other proposed additions affect Monitor Creek, a Carson River tributary affected by acid mine drainage, and Searles Lake, where industrial petroleum discharges have been linked to bird kills.

Proposed deletions from the current list include waters such as Mono Lake and Hot Creek near Mammoth. These waters have high concentrations of salts or toxic elements, such as arsenic, that come entirely from natural volcanic or geothermal sources, and are not "pollutants" as defined in the Clean Water Act. Waters can also be removed from the list if restoration programs are in place and are expected to be successful in the near future. An example is Snow Creek near the north shore of Lake Tahoe, where the California Tahoe Conservancy has recently completed a $4.2 million project to remove contaminated fill and restore the creek channel and adjacent wetlands.

Recommended changes to the Clean Water Act Section 303(d) List of polluted waters, and to priorities for developing TMDLs, are available on the Lahontan Regional Board's website, at www.swrcb.ca.gov/rwqcb6. Written public comments will be accepted through Dec. 28, 2001, and the Regional Board will take action on the recommendations at its January 9-10, 2002 meeting in South Lake Tahoe, California.

For further information, please contact Judith Unsicker at (530) 542-5462. Ms. Unsicker can also be reached via e-mail at unsij@rb6s.swrcb.ca.gov.

The Lahontan Regional Water Quality Control Board is part of the California Environmental Protection Agency.

11-58

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SCAP
SOUTHERN CALIFORNIA ALLIANCE OF PUBLICLY OWNED TREATMENT WORKS

November 1, 2001

Hisam Baqui
Lahontan Regional Water Quality Control Board
15428 Civic Center Drive, Ste 100
Victorville, CA 92392

Re: SCAP's List of Principals for the 303(d) Listing Process for 2002

Dear Mr. Baqui:

Attached please find SCAP's final list of Principals for the 303(d) Listing Process for 2002.

We would appreciate a response to our comments on principals for listing criteria.

Sincerely,

Raymond C. Miller
Executive Director

Enclosure

Cc: Judith Unsicker

Post-it® Fax Note 7671	Date 11/28/01	# of pages ▶ 3
To J. Unsicker	From Tim Post	
Co./Dept.	Co.	
Phone #	Phone #	
Fax # (530) 542-5420	Fax #	

30200 Rancho Viejo Road, Suite B
San Juan Capistrano, CA 92675
Fax: 949/489-0150 Tel: 949/489-7676

Printed on recycled paper

542-5420

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SCAP

949.480.7676 E-mail address: kris@scap.occoxmail.com 949.469.0150 (FAX)

Principals for 303(d) Listing Process

1. Divide 303(d) list into a preliminary (watch) list and an action list. Watch list would be used for further data gathering and assessment.
2. A "transparent" process for listing and de-listing process.
3. A State listing process that includes:
   - A publicly reviewable document
   - A description of how different types of data will be evaluated
   - Explanation of how the following factors will be considered:
     a. data quality, age, degree of confidence, degree of exceedances
   - description of procedures for collecting and using ambient water quality data
   - description of methods and factors to develop a prioritized schedule
   - requirements to develop listing methodology which includes descriptions of factors used to "de-list" water bodies.
4. A weight of evidence approach
   - Consideration of spatial, temporal (at several scales), and hydrologic variations and their effects on water quality
5. For uses related to aquatic life, consider biological indicators as having a greater weight than pollutant concentration levels, to the extent that some waters may have unimpaired beneficial uses even though some chemical criteria have been exceeded. Water quality objectives or criteria that are based on national guidance may not be reflective of local on-site specific conditions.
6. Consider on a case-by-case basis whether or not a water body is oligotrophic, mesotrophic or eutrophic and provide criteria for each type.
7. Eliminate subjective criteria such as "significant amount observed."

8. Control Measures – Recognition of control measures already in place – or expected to be installed within the next listing cycle – that will result in protection of beneficial uses. Control measures that should be considered an adequate basis for de-listing include permits, clean up and abatement, cease and desist, or time schedule orders, and watershed management plans that are enforceable and include a time schedule for compliance with objectives.
9. Analytical and Public Review Process should contain:
   - A thorough explanation of the thinking process that went into each decision should be made available in writing
   - The Regional Board should document each of the types of data that support water quality decision-making and explain how they are used in the context of applicable water quality standards to support different water quality determinations
   - A description of and reference for the quality assurance procedures should be included in water quality assessment and listing documentation. The Regional Board should define data quality requirements and how they utilize and interpret data to make decisions about whether the water body is impaired or attaining water quality standards.
10. Sample Size -- In the CALM draft, EPA is recommending that in order to have a high level of confidence in the results, a sample size of at least 30 samples is necessary. Recognizing that sample size is a big debate, we believe that a statistically-based approach should be used in the listing process, with an adequate sample size. The tremendous implications or attainment/impairment decisions argue for the use of rigorous and statistically-valid data sets.
11. Fact Sheets -- Explain the proposed listings and de-listings, including constituents of concern, the data used, and the water quality standard and the basis for the decision to list or de-list must be provided to the public when the list is made available for public review. This is absolutely essential to enable informed public review, and will go a long way towards instilling confidence in the process and analysis prepared by the Regional Board.

Section 303(d) Mailing List 11/8/01

ALPINE COUNTY - AGRIC COMMISSION
PO BOX 158
MARKLEEVILLE, CA 96120

ALPINE RESOURCE CONSERVATION DEPT.
1702 COUNTY ROAD, #A
MINDEN, NV 89423-4460

AMERICAN LAND TRUST
1388 SUTTER ST, STE 810
SAN FRANCISCO, CA 94109

ARROWHEAD LAKE ASSOCIATION
PO BOX 1119
LAKE ARROWHEAD, CA 92352

ASSOC OF CA WATER AGENCIES
910 K ST, STE 250
SACRAMENTO, CA 95814-

BODIE STATE PARK
PO BOX 515
BRIDGEPORT, CA 93517

CA DEPT OF BOATING & WATERWAYS
2000 EVERGREEN, STE 100
SACRAMENTO, CA 95815

CA DEPT OF FORESTRY
1416 9TH ST., RM 1516
MESSENGER, CA

CA DEPT OF FORESTRY
1416 NINTH ST.
SACRAMENTO, CA 95814

CA DEPT OF PARKS & REC
PO BOX 2117
OLYMPIC VALLEY, CA 96145

CA DEPT OF TRANS - DISTRICT 2
PO BOX 496073
REDDING, CA 96049-6073

CA DEPT OF TRANS - DISTRICT 7
120 SO SPRING ST
LOS ANGELES, CA 90012

CA DFG - HABITAT CONS PLNG
1416 NINTH ST
SACRAMENTO, CA 95814

CA DFG
PO BOX 336
MARKLEEVILLE, CA 96120

CA DHS
714 "P" ST, RM 1253
SACRAMENT0, CA 94273

CA DHS - WATER & SANITATION
2151 BERKELEY WY
BERKELEY, CA 94704

CA DHS - DIV OF DRINKING WATER
464 W 4TH ST, #437
SAN BERNARDINO, CA 92401

DHS
714 P ST, RM 1253
SACRAMENTO, CA 94273

CA DHS - DIV OF DRINKING WATER
415 KNOLLCREST DR, STE 110
REDDING, CA 96002

CA DIV OF MINES AND GEOLOGY
1416 NINTH ST
SACRAMENTO, CA 95814

CA DIV OF OIL AND GAS
1416 NINTH ST, ROOM 1310
SACRAMENTO, CA 95814

CA FORESTRY ASSOCIATION
1215 "K" STREET #1830
SACRAMENTO, CA 95814

CA INTEG WASTE MGMT BD
PO BOX 4025
SACRAMENTO, CA 95812-4025

CA NATIVE PLANT SOCIETY
1722 J ST, STE 17
SACRAMENTO, CA 95814-

CA OFFICE OF ENVL HLTH HZRD ASSESSMT
PO BOX 4010
SACRAMENTO, CA 95812-4010

CA OFFROAD VEHICLES ASSOC
842 LUCILLE
LIVERMORE, CA 94550

CA RESOURCES AGENCY
1416 NINTH ST STE 1311
SACRAMENTO, CA 95814

CA RWQCB - CENTRAL VALLEY REGION
415 KNOLLCREST DR
REDDING, CA 96002-

CA RWQCB - CENTRAL VALLEY REGION
3614 E ASHLAN AVE
FRESNO, CA 93726-

CA RWQCB - SANTA ANA REGION
3737 MAIN ST, STE 500
RIVERSIDE, CA 92501-3339

CA RWQCB - SAN DIEGO REGION
9771 CLAIREMONT MESA BLVD, STE A
SAN DIEGO, CA 92124-

CA RWQCB - SAN FRANCISCO BAY REGION
1515 CLAY ST, STE 1400
OAKLAND, CA 94612-

CA RWQCB - CENTRAL VALLEY REGION
3443 ROUTIER RD
SACRAMENTO, CA 95827-3098

CA RWQCB - CENTRAL COAST REGION
81 HIGUERA ST, STE 200
SAN LUIS OBISPO, CA 93401-5427

CA SAVE OUR STREAMS COUNCIL
616 W LAMONA
FRESNO, CA 93728

CA SPORTFISHING PROT ALLIANCE
PO BOX 1790
GRAEGLE, CA 96103

CA STATE PARK RANGERS ASSOC
PO BOX 292010
SACRAMENTO, CA 95829-2010

WILDERNESS COALITION
2655 PORTAGE BAY EAST #5
DAVIS, CA 95616

CALIFORNIA CATTEMAN'S ASSOC.
1221 "H" ST
SACRAMENTO, CA 95814

CALIFORNIA TROUT
870 MARKET ST, STE 1185
SAN FRANCISCO, CA 94102

CARSON FLY FISHING CLUB
PO BOX 3163
CARSON CITY, NV 89702-3163

CARSON RVR BASIN COUNCIL OF GOV
PO BOX 1927
CARSON CITY, NV 89701

CARSON WATER SUBCONSERV DIST
777 WILLIAM ST, STE 110
CARSON CITY, NV 89710

CLEAN WATER ACTION
23 GRANT ST, FL 3
SAN FRANCISCO, CA 94108-5828

CNPS - REDBUD CHAPTER
18629 BAMBI CT
GRASS VALLEY, CA 95949

CNPS - BRISTLECONE CHAPTER
3000 E LINE ST
BISHOP, CA 93514

DESERT FISHES COUNCIL
PO BOX 337
BISHOP, CA 93515

EAGLE LAKE RANGER DISTRICT
55 S SACRAMENTO
SUSANVILLE, CA 96130

EASTERN SIERRA AUDUBON SOCIETY
PO BOX 624
BISHOP, CA 93515

EASTERN SIERRA CSD
301 WEST LINE, STE D
BISHOP, CA 93514

ECHO LAKES ENVIRONMENT FUND
4271 BOLES RD
PLACERVILLE, CA 95667

EL DORADO COUNTY - AGRICULTURE COMM
330 FAIR LN
PLACERVILLE, CA 95667

EL DORADO COUNTY - RCD
870 EMERALD BAY RD, STE 108
SO LAKE TAHOE, CA 96150

FEDERAL WATER MASTER
290 S. ARLINGTON ST
RENO, NV 89501

FOREST ISSUES GROUP
10197 EAST DR
GRASS VALLEY, CA 95945

FORT BIDWELL TRIBAL COUNCIL
FORT BIDWELL, CA 96112

FRIENDS OF BURKE CREEK
PO BOX 1208
ZEPHYR COVE, NV 89448

FRIENDS OF DONNER SUMMIT
1267 DOWNS LN
MINDEN, NV 89423

FRIENDS OF HOPE VALLEY
PO BOX 431
MARKLEEVILLE, CA 96120

FRIENDS OF THE INYO
PO BOX 64
LEE VINING, CA 93541

FRIENDS OF THE RIVER
915 20TH ST
SACRAMENTO, CA 95814-2207

GREAT BASIN BIRD OBSERVATORY
443 MARSH AVE
RENO, NV 89509

HIGH SIERRA FLY CASTERS
PO BOX 3121
GARDNERVILLE, NV 89410

HIGH SIERRA HIKERS ASSOC
PO BOX 8920
SO LAKE TAHOE, CA 96158

HONEY LAKE VALLEY RCD
170 RUSSELL AVE, STE 1
SUSANVILLE, CA 96130

INDIAN HEALTH SERVICE
1395 GREG ST, STE 101
SPARKS, NV 89431

INYO COUNTY - FISH & GAME COMM
PO DRAWER F
INDEPENDENCE, CA 93526

INYO COUNTY - RCD
270 N SEEVEE LN
BISHOP, CA 93514-8067

INYO-MONO RCD
ROUTE 4, BOX 17
BISHOP, CA 93514

INYOKERN CSD
PO BOX 542
INYOKERN, CA 93527

JUMPING FROG RESEARCH INSTITUTE
PO BOX 1416
ANGELS CAMP, CA 95222

KEELER CSD
PO BOX 63
KEELER, CA 93530

KERN COUNTY - RCD
1601 NEW STINE RD STE 270
BAKERSFIELD, CA 93309

KERN COUNTY - AGRICULTURE COMM
1415 TRUXTON AVE
BAKERSFIELD, CA 93301

KERNCREST AUDUBON SOCIETY
PO BOX 984
RIDGECREST, CA 93556

LAHONTAN AUDUBON SOCIETY
PO BOX 2304
RENO, NV 89505

LAKE TAHOE AREA COUNCIL
PO BOX 14287
SO LAKE TAHOE, CA 96151

LAKE TAHOE TROUT UNLIMITED
PO BOX 11698
SO LAKE TAHOE, CA 96155

LAKESIDE MUTUAL WATER COMPANY
4077 PINE BLVD
SO LAKE TAHOE, CA 96150

LANCASTER RCD
4481 N DALE AVE STE G
LANCASTER, CA 93534

LASSEN COUNTY - FISH & GAME COMM
707 NEVADA ST
SUSANVILLE, CA 96130

LASSEN COUNTY - AGRICULTURE COMM
707 NEVADA ST
SUSANVILLE, CA 96130

LASSEN COUNTY - RCD
170 RUSSELL AVE STE 1
SUSANVILLE, CA 96130

LASSEN LAND AND TRAILS TRUST
PO BOX 1461
SUSANVILLE, CA 96130

DIRECTOR
LEAGUE TO SAVE LAKE TAHOE
955 EMERALD BAY RD
SO LAKE TAHOE, CA 96150

LEAGUE TO SAVE SIERRA LAKES
2608 NEWLANDS
BELMONT, CA 94002

LEAVITT LAKE CSD
471-830 BUFFUM LANE
SUSANVILLE, CA 96130

LONE PINE TELEVISION
301 N JACKSON LN
LONE PINE, CA 93545

LOS ANGELES CO - AGRIC COMM
500 W TEMPLE ST, STE 869
LOS ANGELES, CA 90012

LUKIN BROTHERS WATER COMPANY
2031 WEST WY
SO LAKE TAHOE, CA 96150

MODOC COUNTY - FISH AND GAME COMM
202 WEST 4TH ST
ALTURAS, CA 96101

MODOC COUNTY - AGRICULTURE COMMISSION
202 WEST 4TH ST
ALTURAS, CA 96101

MOJAVE DESERT RCD
18484 HWY 18 #195
APPLE VALLEY, CA 92307

MONO COUNTY - RCD
1702 COUNTY RD
MINDEN, NV 89426

MONO COUNTY MINING COMMITTEE
PO BOX 1441
MAMMOTH LAKES, CA 93546

MONO LAKE COMMITTEE
PO BOX 29
LEE VINING, CA 93541

NEVADA COUNTY - RCD
113 PRESLEY WY STE 1
GRASS VALLEY, CA 95945

NEVADA COUNTY - FISH AND GAME COMM
201 CHURCH ST
NEVADA CITY, CA 95959

NRDC
6310 SAN VICENTE BLVD, STE 250
LOS ANGELES, CA 90048

NV DEPT OF WILDLIFE
PO BOX 10678
RENO, NV 89510

NV DIV OF WATER RESOURCES
123 W NYE LN
CARSON CITY, NV 89710

NV TAHOE CONSERVATION DIST
PO BOX 3575
INCLINE VILLAGE, NV 89450

PESTER
PO BOX 3511
MAMMOTH LAKES, CA 93546

PLACER COUNTY - AGRICULTURE COMM
1477 E. AVE WEST
AUBURN, CA 95603

PLACER COUNTY WATER AGENCY
PO BOX 6570
AUBURN, CA 95604

PLANNING AND CONSERVATION LEAGUE
926 "J" ST
SACRAMENTO, CA 95814

RANGE WATCH
PO BOX 450
POSEY, CA 93260

SAN BERNARDINO CO - AGRIC COMM
14477 AMARGOSA RD
VICTORVILLE, CA 92392

CHIEF
SAN BERNARDINO CO EPWA
825 E THIRD ST, RM 142
SAN BERNARDINO, CA 92415-0835

KRIS
SCAP
30200 RANCHO VIEJO RD, STE. B
SAN JUAN CAPISTRANO, CA 92675

SIERRA ARMY DEPOT
ENVIRONMENTAL DIV
HERLONG, CA 96113

SIERRA CLUB - KERN-KAHWEAH CHAP
PO BOX 3357
BAKERSFIELD, CA 93385-3357

SIERRA CLUB - SIERRA NEVADA GROUP
PO BOX 1346
NEVADA CITY, CA 95959

SIERRA CLUB - ANGELES CHAPTER
3435 WILSHIRE BLVD #320
LOS ANGELES, CA 90010-1816

SIERRA CLUB - TOIYABE CHAPTER
PO BOX 8096
RENO, NV 89507

SIERRA CLUB - MOTHER LODE CHAP
1414 "K" ST, STE 300
SACRAMENTO, CA 95814

SIERRA CLUB LEGAL DEFENSE
180 MONTGOMERY ST, STE 1400
SAN FRANCISCO, CA 94104-4209

SIERRA COUNTY - AGRICULTURE COMM
PO BOX 98
DOWNIEVILLE, CA

SIERRA NEVADA ALLIANCE
PO BOX 7989
SO LAKE TAHOE, CA 96158

SIERRA NEVADA ALLIANCE
PO BOX 2118
MAMMOTH LAKES, CA 93546

SO. CALIF. LAB/DEPT HEALTH SVCS
1449 TEMPLE ST
LOS ANGELES, CA 90026

SQUAW VALLEY MUTUAL WATER CO
PO BOX 2276
OLYMPIC VALLEY, CA 96146

STONES-BENGARD CSD
509-695 STONE RD
SUSANVILLE, CA 96130

SUSANVILLE AREA SPORTS COUNCIL
695 MONTE VISTAWY
SUSANVILLE, CA 96130

TAHOE-TRUCKEE FLYFISHERS
PO BOX 5704
TAHOE CITY, CA 96145

THE NATURE CONSERVANCY
201 MISSION ST, 4TH FL
SAN FRANCISCO, CA 94105

TROUT UNLIMITED OF CA
28 MARINERO CIR, #31
TIBURON, CA 94920

TROUT UNLIMITED OF CA
829 SAN PABLO AVE STE 208
ALBANY, CA 94706

TROUT UNLTD OF NV - SAGEBRUSH CHAP
PO BOX 8244
RENO, NV 89507

TRUCKEE DONNER LAND TRUST
PO BOX 8816
TRUCKEE, CA 96162

TRUCKEE RIVER ASSOCIATION
PO BOX 2044
TRUCKEE, CA 96160

TRUCKEE RIVER FLYFISHERS
2785 N TOWNE
RENO, NV 89512-2060

U.S. ARMY CORPS OF ENGINEERS
PO BOX 2711
LOS ANGELES, CA 90053

U.S. BLM
5565 MORGAN MILL RD
CARSON CITY, NV 89701-1448

U.S. BLM
63 NATOMA ST
FOLSOM, CA 95630

U.S. BLM
1340 FINANCIAL BLVD
RENO, NV 89502

U.S. BLM
2545 RIVERSIDE DR
SUSANVILLE, CA 96130

BLM - RIDGECREST RES
300 S RICHMOND RD
RIDGECREST, CA 93555

U.S. BLM
1340 FINANCIAL WY
RENO, NV 89502

U.S. BLM - BISHOP RES
873 N MAIN ST, RM 201
BISHOP, CA 93514

U.S.D.A. - NTRL RES CONS SERV
2121 2ND ST #C
DAVIS, CA 95616-5472

U.S.D.A. - NTRL RES CONS SERV
806 W 12TH ST
ALTURAS, CA 96101

U.S.F.S. - TAHOE NATL FOREST
HWY 49 & COYOTE ST
NEVADA CITY, CA 95959

U.S.F.S. - BRIDGEPORT RANGER DISTRICT
PO BOX 595
BRIDGEPORT, CA 93517

U.S.F.S. - TOIYABE NATL FOREST
1536 S CARSON ST
CARSON CITY, NV 89701

U.S.F.S. - PLUMAS NATL FOREST
PO BOX 1500
QUINCY, CA 95971

U.S.F.S. - INYO NATL FOREST
873 N MAIN ST
BISHOP, CA 93514

U.S.F.S. - TOIYABE NATL FOREST
PO BOX 595
BRIDGEPORT, CA 93517

UNIV OF CA - TAHOE RESEARCH GROUP
PO BOX 633
TAHOE CITY, CA 96145

UNIV OF NEVADA - RENEWABLE NATURAL RES
1000 VALLEY RD
RENO, NV 89502

WALKER LAKE WORKING GROUP
PO BOX 867
HAWTHORNE, NV 89415

WASHOE COUNTY - HEALTH DEPT
PO BOX 11130
RENO, NV 89520

WILDLIFE CONSERVATION BOARD
1416 NINTH ST
SACRAMENTO, CA 95814

WOODFORDS INDIAN COMMUNITY
96 WASHOE BLVD
MARKLEEVILLE, CA 96120

YOSEMITE GUARDIAN
15 GARDEN GROVE DR
DALY CITY, CA 94015

SHAUNA ADAMS
SIERRA PACIFIC POWER COMPANY
PO BOX 10100
RENO, NV 89520-0026

BRIAN ADKINS
BISHOP PIUTE TRIBE
50 TUSU LN
BISHOP, CA 93514

K AGUAYO
U.S.D.A. - NTRL RES CONS SERV
18484 HIGHWAY 18, #195
APPLE VALLEY, CA 92307-2306

LAUREL AMES
PO BOX 7443
SO LAKE TAHOE, CA 96158

DOUG AMES
LASSEN COUNTY - HEALTH DEPT
555 HOSPITAL LN
SUSANVILLE, CA 96130

KEN ANDERSON
CA DEPT OF PARKS & REC - SIERRA DISTRICT
PO BOX 16
TAHOE CITY, CA 96145

KEITH ANDERSON
CA DFG
330 GOLDEN SHORE, STE 50
LONG BEACH, CA 90802

ROBERT ANDREWS
U.S.F.S. - LASSEN NATL FOREST
477-050 EAGLE LAKE RD
SUSANVILLE, CA 96130

LEONARD ATENCIO
U.S.F.S. - LASSEN NATL FOREST
55 S. SACRAMENTO ST.
SUSANVILLE, CA 96130

DON BANTA
LEE VINING PUD
PO BOX 345
LEE VINING, CA 93541

DIANA BARICH
CA DHS - OFFICE OF DRINKING WTR
464 W 4TH ST
SAN BERNARDINO, CA 92401

JEFFREY BATES
SO CALIF WATER COMPANY
630 E FOOTHILL BLVD
SAN DIMAS, CA 91773

GUDRUN BAXTER
CA DEPT OF PARKS & REC
PO BOX 942896
SACRAMENTO, CA 94296-0001

J.R. BAXTER, GEN. MGR.
QUARTZ HILL WATER DISTRICT
PO BOX 3218
QUARTZ HILL, CA 93586

SUE BECKER
U.S.F.S. - MODOC NATL FOREST
800 WEST 12TH ST
ALTURAS, CA 96101

LANA BECKETT
ENVIRONMENTAL AFFAIRS GROUP
119 "D" ST, SE APT 2
WASHINGTON, DC 20003-1820

LANA BECKETT
ENVIRONMENTAL AFFAIRS GROUP
230 CALIFORNIA ST #603
SAN FRANCISCO, CA 94111-4301

MERLYNN BENDER
U.S. BUREAU OF RECLAMATION
PO BOX 25007
DENVER, CO 80225

STAN BERGEN
UNIV OF CA - SHAFTER RES & EXT CTR
17053 N SHAFTER AVE
SHAFTER, CA 93263-9773

JAMES A. BERGMAN
U.S.F.S. - TAHOE NATL FOREST
10342 HWY 89N
TRUCKEE, CA 96161

BEN BIAGGINI
SAN FRANCISCO FLY CASTING CLUB
1170 SACRAMENTO ST
SAN FRANCISCO, CA 94108

DAVE BISCHEL
CA FORESTRY ASSOC
1215 "K" STREET #1830
SACRAMENTO, CA 95814

STEPHEN BISHOP
U.S.F.S. - TAHOE NATL FOREST
PO BOX 95
SIERRAVILLE, CA 96126-

BISHOP-DAIRY FARM AD
UC COOP EXTENSION
21150 BOX SPRINGS RD
RIVERSIDE, CA 92507

PAT BLACKLOCK
CA CATTLEMAN'S ASSOCIATION
[redacted]21 "H" ST
[redacted]RAMENTO, CA 95814

MARK BLAKESLEE
U.S. BLM
2800 COTTAGE WY, RM W1834
SACRAMENTO, CA 95825-1886

STEVEN J. BOGGS
CA DFG
1701 NIMBUS RD, STE A
RANCHO CORDOVA, CA 95670

RAYMOND J. BOGIATTO, DIRECTOR
CA STATE UNIV - EAGLE LAKE BIO. FIELD STA
DEPT OF BIOLOGICAL SCIENCE
CHICO, CA 95929-0515

JERRY BOLES
CA DEPT OF WATER RESOURCES
2440 MAIN ST
RED BLUFF, CA 96080

JOHN BOLLINGER
DONNER LAKE PROPERTY OWNERS ASSOC.
PO BOX 8387
TRUCKEE, CA 96162

BRAD BONES
LITTLEROCK CREEK IRRIGATION DIST
35141 N 87TH ST E
LITTLEROCK, CA 93543

JOHN F. BOSTA
5735 W. BROOKDALE DR
RENO, NV 89523

BILL BOSTIC, PRESIDENT
SURPRISE VALLEY RCD
P.O. BOX B
CEDARVILLE, CA 96104

CAROL BOUGHTON
U.S. BLM
PO BOX 640
CARSON CITY, NV 89702

MOLLY BRADY
U.S. BLM
6221 BOX SPRINGS BLVD
RIVERSIDE, CA 92507-2497

JIM BRAMHAM
CA ASSOC OF 4WD CLUB
7940 LORIN AVE
SACRAMENTO, CA 95828

PEGGY BREEDEN
INDIAN WELLS VALLEY WELL OWNERS
PO BOX 352
INYOKERN, CA 93527

GWEN BRELAND
U.S. BLM
2800 COTTAGE WY, RM W219
SACRAMENTO, CA 95825-

JUDY BROWN
CA STATE LANDS COMMISSION
100 HOWE AVE STE 100 SOUTH
SACRAMENTO, CA 95825-8202

BOB BURTON
CA DEPT OF TRANS
12257 BUSINESS PARK DR
TRUCKEE, CA 96161

NORMAN T. CAOUETTE
MOJAVE WATER AGENCY
PO BOX 1089
APPLE VALLEY, CA 92307-1089

PAUL CHAPPELL
CA DFG - HONEY LAKE WILDLIFE AREA
728-600 FISH AND GAME RD
WENDEL, CA 96136

[redacted]TRICT CHIEF
U.S.G.S.
333 W NYE LN, ROOM 228
CARSON CITY, NV 89706

KAREN CHRISTIANSON
USA MEDIA
201 EAST LINE ST
BISHOP, CA 93514

JACK L. CLARKE
APPLE VALLEY RANCHOS WATER CO.
[redacted]BOX 7005
[redacted]LE VALLEY, CA 92307

AGRICULTURAL COMMISSIONER
NEVADA COUNTY - AGRICULTURE COMMISSION
255 S AUBURN ST
GRASS VALLEY, CA 95945-

AGRICULTRAL COMMISSIONER'S OFFICE
INYO & MONO COUNTIES
207 W SOUTH ST
BISHOP, CA 93514

PHIL CORBIN
CA DEPT OF TRANS
PO BOX 579
TRUCKEE, CA 96160

BILL CRAVEN
FALLEN LEAF LAKE PROTECTIVE ASSOC.
PO BOX 9389
SO LAKE TAHOE, CA 96158

SAGEHEN CREEK FIELD STATION
UNIV OF CA
PO BOX 939
TRUCKEE, CA 96160

PERRY DAHLSTROM
SOUTHERN CALIFORNIA WATER CO
13608 HITT RD
APPLE VALLEY, CA 92308

SUSAN DAMRON
LOS ANGELES DWP
111 N HOPE ST, RM 1121
LOS ANGELES, CA 90012

RICHARD DANIELSON
CA DHS - SANIT AND RADIATION LAB
2151 BERKELEY WY, RM 119
BERKELEY, CA 94704-1011

DONNA S. DAVIS
CA DFG
PO BOX 501602
HESPERIA, CA 92340

DAN DAWSON
VALENTINE RESERVE/SNARL
ROUTE 1, BOX 198
MAMMOTH LAKES, CA 93546

MERV DE HAAS
EL DORADO COUNTY WATER AGENCY
333 FAIR LN
PLACERVILLE, CA 95667

SHERRY L. DELANO
ROSAMOND CSD
2700 20TH ST WEST
ROSAMOND, CA 93560

MARGUERITE DIAZ
CA DFG - OFC OF OIL SPILL PREVENTION
1700 K ST, STE 250
SACRAMENTO, CA 95814

WAYNE K. DREYER
SIERRA ARMY DEPOT - ENVIRON OFFICE
BUILDING 79
HERLONG, CA 96113-

KATHLEEN EAGAN
TRUCKEE R HABITAT REST GROUP
PO BOX 8428
TRUCKEE, CA 96162

PAT ECKHARDT
PACIFIC GAS & ELECTRIC
PO BOX 7640
SAN FRANCISCO, CA 94120

STAN ELLER
MONO COUNTY - DISTRICT ATTORNEY
BRIDGEPORT, CA 93517

[redacted]ERT ELLSWORTH
CA DHS - OFFICE OF DRINKING WTR
8455 JACKSON RD, STE 120
SACRAMENTO, CA 95826

BRETT EMERY
10349 EMPIRE GRADE RD
SANTA CRUZ, CA 95060

GEORGE ERBECK
WILSON CIRCLE MUTUAL WATER CO.
[redacted]321 STONE CIR
[redacted]HOP, CA 93514

DENNIS A. ERDMAN
MAMMOTH COMMUNITY WATER DISTRICT
PO BOX 597
MAMMOTH LAKES, CA 93546

PAULINE ESTEVES, CHAIR
TIMBISHA SHOSHONE TRIBE
DEATH VALLEY, CA 92328

GARY FAULCONER
CA DEPT OF WATER RESOURCES
31849 N LAKE HUGHES RD
CASTAIC, CA 91384

BRIAN J. FINLAYSON
CA DFG - PESTICIDES INVESTIG UNIT
1701 NIMBUS RD, STE F
RANCHO CORDOVA, CA 95670

WILLIAM FOGARTY
LONE PINE CSD
PO BOX 36
LONE PINE, CA 93545

JOHN FORDHAM
DESERT RESEARCH INSTITUTE
2215 RAGGIO PKWY
RENO, NV 89512-1095

RUSSELL FULLER
AVEK WATER AGENCY
6500 WEST AVE NO
PALMDALE, CA 93551

JOHN FULTON
FULTON WATER COMPANY
PO BOX W
TAHOE CITY, CA 96145

KATHY GAGGINI
CA DIV OF MINES AND GEOLOGY
801 "K" ST, MS 1232
SACRAMENTO, CA 95814

[redacted]
ROBERT GATES
LOS ANGELES CO - HEALTH DEPT
313 N FIGUEROA ST
LOS ANGELES, CA 90012

GENERAL MANAGER
BIG PINE CSD
PO BOX 652
BIG PINE, CA 93513

GENERAL MANAGER
CEDARVILLE CO. WATER DISTRICT
CEDARVILLE, CA 96014

GENERAL MANAGER
JUNE LAKE PUD
PO BOX 99
JUNE LAKE, CA 93529

GARY GIACOMI
INYO MONO CATTLEMAN'S ASSOC.
100 WARM SPRINGS RD
BISHOP, CA 93514

DR. G. FRED GIFFORD
UNIV OF NEVADA - DEPT OF ENV AND RES SCI
1000 VALLEY RD
RENO, NV 89512

FRANK GODDARD
CA DEPT OF FORESTRY
HIGHWAY 36
SUSANVILLE, CA 96130

DR. CHARLES GOLDMAN
UNIV OF CA - TAHOE RESEARCH GROUP
DIV. OF ENVR. STUDIES
DAVIS, CA 95616

[redacted]RM GREENBERG
[redacted]VADA COUNTY - ENV HEALTH
950 MAIDU
NEVADA CITY, CA 95959

DAN GREENLEE
U.S.D.A. - NTRL RES CONS SERV
5301 LONGLEY LN, BLDG F, #201
RENO, NV 89511

RICH GRESHAM
PLACER COUNTY - RCD
251 AUBURN RAVINE RD STE 201
AUBURN, CA 95603

CARL GUSTAFSON
PO BOX 2349
OLYMPIC VALLEY, CA 96146

CHARLENE HALL
U.S. FISH & WILDLIFE SERV
2800 COTTAGE WY #W2605
SACRAMENTO, CA 95825

JACK HANSON
LASSEN CO CATTLEMEN'S ASSOC
490-800 HORSE LAKE RD
SUSANVILLE, CA 96130

STEVE HARCOURT
CA DEPT OF FORESTRY
2580 LAKE TAHOE BLVD.
SO LAKE TAHOE, CA 96150

TED HARD, PH.D
GREAT BASIN UNIFIED APCD
157 SHORT ST
BISHOP, CA 93514

DAVID L. HARLOW, FIELD SUPERVISOR
U.S. FISH & WILDLIFE SERV - NEVADA STATE OFC
1340 FINANCIAL BLVD, STE 234
RENO, NV 89502

LEE HAYES
BAKER CSD
PO BOX 590
BAKER, CA 92309

TREVA J. HEARNE
MOHAN AND SOHAN SINGH
25 EWING DR.
CHICO, CA 95973-9141

DARLA HEIL
OWENS VALLEY INDIAN WATER COMM
169 SHORT STREET, SUITE A
BISHOP, CA 93514

CLIFF HEITZ
U.S.D.A. - NTRL RES CONS SERV
251 AUBURN RAVINE RD, STE 107
AUBURN, CA 95603

EDWARD HENEVELD
SQUAW VALLEY MUN ADVISORY COUNC
PO BOX 2488
OLYMPIC VALLEY, CA 96146-

DAVE HERBST
SIERRA NEVADA AQUATIC RES. LAB
RTE 1 BOX 198
MAMMOTH LAKES, CA 93546

PAUL HERMAN
LONG VALLEY GRNDWTR MGMT DIST
STAR RTE
DOYLE, CA 96109

MARVIN HESS, CHAIR
BISHOP TRIBAL COUNCIL
PO BOX 548
BISHOP, CA 93515

RANDY HILL, GEN. MGR
VICTOR VALLEY WATER DIST
17185 YUMA ST
VICTORVILLE, CA 92392

RAY HOFFMAN
U.S.G.S. - WATER RES DIV
333 W NYE LN
CARSON CITY, NV 89706

ERIC HONG
CA DEPT OF TOXIC SUB CNTRL - REGION 1
10151 CROYDON WY, STE 3
SACRAMENTO, CA 95814

[redacted]IN HOOK
MONO COUNTY - HEALTH DEPT
PO BOX 476
BRIDGEPORT, CA 93517

ALEX HORNE, PH.D.
UC BERKELEY
DEPT CIVIL/ENV ENGINEERING
BERKELEY, CA 94720-1710

MARK HOUSTON
FALLEN LEAF LAKE PROTECTIVE ASSOC
[redacted]215 MONTGOMERY AVE
[redacted]S, CA 95616

ENVIRONMENTAL INFO CTR
HELLER, EHRMAN, WHITE & MACAULIF
601 SO. FIGUEROA, 40TH FL
LOS ANGELES, CA 90017

RICK IWATSUBO
U.S.G.S.
6000 "J" ST
SACRAMENTO, CA 95819-6129

SANDRA JEFFERSON, CHAIR
LONE PINE PAIUTE/SHOSHONE RESRV
PO BOX 747
LONE PINE, CA 93545

ELIZABETH JOHNSON
CA DIV OF OIL, GAS, & GEOTHERMAL
801 "K" ST, MS 20-21
SACRAMENTO, CA 95814

DENISE JONES
CALIFORNIA MINING ASSOC
ONE CAPITAL MALL, STE 220
SACRAMENTO, CA 95814

MAUREEN JOPLIN
U.S.F.S. - TOIYABE NATL FOREST
1200 FRANKLIN WY
SPARKS, NV 89431

NADINE KANIM
U.S. FISH & WILDLIFE SERV - ECOL SRVCS
2800 COTTAGE WY
SACRAMENTO, CA 95825-1888

BOB KARRASCH
ALPINE COUNTY - HEALTH DEPT
PO BOX 545
MARKLEEVILLE, CA 96120

RICHARD KATTELMANN
HCR 79, BOX 29
MAMMOTH LAKES, CA 93546

DAVID KAY
SOUTHERN CALIFORNIA EDISON CO.
PO BOX 800, RM 4596
ROSEMEAD, CA 91770

KEN KEATON
CA DEPT OF TRANS - ENVIRON PROG MS 27
PO BOX 942874
SACRAMENTO, CA 94274

JIM KEMP
CA DEPT OF TRANS - DISTRICT 9
500 S MAIN ST
BISHOP, CA 93514

ROBERT KENNEDY
INYO COUNTY - ENV HEALTH DEPT
PO BOX 427
INDEPENDENCE, CA 93526

LEAH KIRK
INYO COUNTY - WATER DEPT
163 MAY ST
BISHOP, CA 93514

JOHN KRAMER
CA DEPT OF WATER RESOURCES
1416 NINTH ST
SACRAMENTO, CA 95814

DENNIS LAMOREAUX
PALMDALE WATER DISTRICT
2029 EAST AVE "Q"
PALMDALE, CA 93550

DR. G. FRED LEE
G. FRED LEE & ASSOCIATES
27298 E EL MACERO DR
EL MACERO, CA 95618-1005

[redacted]ERYL LEVINE, CHAIR
BIG PINE PAIUTE TRIBE
PO BOX 700
BIG PINE, CA 93513

RICHARD LIERMAN, GEN. MANAGER
SQUAW VALLEY COUNTY WATER DIST
PO BOX 2026
OLYMPIC VALLEY, CA 96146

DON LOLLOCK
CA DFG
[redacted]700 "K" ST, #250
[redacted]RAMENTO, CA 95814

MARQIE LOPEZ
EL DORADO IRRIGATION DISTRICT
2890 MOSQUITO RD
PLACERVILLE, CA 95667

SCOTT MAASS
SAN BERNARDINO CO - ENV HEALTH
385 N ARROWHEAD AVE
SAN BERNARDINO, CA 92415-0160

DENNIS T. MACHIDA, EXECUTIVE OFFICER
CA TAHOE CONSERVANCY
PO BOX 7758
SO LAKE TAHOE, CA 96158

ROBERT MACOMBER
CA DEPT OF PARKS & REC
PO BOX 266
TAHOMA, CA 96142-0266

RICHARD MALACOFF
CA DEPT OF TRANS - DISTRICT 8
247 WEST THIRD ST
SAN BERNARDINO, CA 92402

MANAGEMENT TEAM
WATER ASSOCIATION OF KERN COUNTY
2724 "L" ST
BAKERSFIELD, CA 93302

DR. WERNER MARTI, PRESIDENT
MUSTANG MESA CSD
PO BOX 221
BISHOP, CA 93514-

DAVE MATTERN
U.S. BLM
708 W 12TH ST
[redacted]ALTURAS, CA 96101

LYMAN MCCONNELL
TRUCKEE CARSON IRRIGATION
PO BOX 1356
FALLON, NV 89407

MIKE MCCORISON
U.S.F.S. - ANGELES NATL FOREST
701 NORTH SANTA ANITA
ARCADIA, CA 91006

THOMAS MCGILL
U.S. NAVY - NWC-ENV. PROJ OFFICE
CHINA LAKE
RIDGECREST, CA 93555-6001

TIM MCLAUGHLIN
U.S. BUREAU OF RECLAMATION
2800 COTTAGE WY
SACRAMENTO, CA 95825

JOHN MELACK
UNIV OF CA - BIOLOGY DEPT.
SANTA BARBARA, CA 93106-

CARLYN MEYER
WATER QUALITY ASSOC
2124 MAIN ST, STE 110
HUNTINGTON BEACH, CA 92648

JON MORGAN
EL DORADO COUNTY - DEPT OF ENV HEALTH
2850 FAIR LN CT
PLACERVILLE, CA 95667

ELIZABETH MORGAN
SIERRA COUNTY - HEALTH DEPT
PO BOX 7
LOYALTON, CA 96118

MICHAEL MULLIGAN
CA DFG
1234 E SHAW AVE
FRESNO, CA 93710

[redacted]NN NADER
UNIV OF CA
MEMORIAL BLDG, 1205 MAIN ST
SUSANVILLE, CA 96130

ERIC NICHOL
CA DEPT OF WATER RESOURCES
3251 "S" ST
SACRAMENTO, CA 95816

JAMES "BUTCH" NICHOLOS
SO CALIF WATER COMPANY
[redacted]608 HITT ROAD
[redacted]E VALLEY, CA 92308

PUBLIC WORKS OFFICER
U.S. MARINE CORPS - MTN WARFARE TRAINING CNTR
BRIDGEPORT, CA 93517

LOGAN OLDS
SUSANVILLE CSD
PO BOX 152
SUSANVILLE, CA 96130

RANDY PAHL
NV DEPT OF ENV PROTECTION
333 W NYE LN, RM 138
CARSON CITY, NV 89706

GUY PENCE
U.S.F.S. - CARSON RANGER DISTRICT
1536 S. CARSON ST.
CARSON CITY, NV 89701

[redacted]

JACK PETRALIA
LOS ANGELES CO - HEALTH SERVICES
2525 CORPORATE PL, #150
MONTEREY PARK, CA 91754-

JAMES S. POMPY
CA DEPT OF CONSRVTN - OFFICE OF MINE RECL
801 "K" ST MS 09-06
SACRAMENTO, CA 95814-3529

ASSIST BASIN PROJECT MNGR.
U.S. BLM
PO BOX 640
CARSON CITY, NV 89702

DISTRICT RANGER
U.S.D.A. - MODOC NATL FOREST
PO BOX 220
CEDARVILLE, CA 96104-

[redacted]ARLES RAY, JR.
SPALDING COMMUNITY SERVICE DEPT
502-907 MAHOGANY
SUSANVILLE, CA 96130

NORTH REG NPDES COORD
CA DEPT OF TRANS - DIST 3, PLANNING BR
PO BOX 911
MARYSVILLE, CA 95901

DAVE OLDENBURG
INDIAN CREEK CSD
PO BOX 952
BISHOP, CA 93515

LYNN H. ORPHAN
KENNEDY/JENKS CONSULTANTS
5190 NEIL RD, STE 300
RENO, NV 89502

JUAN PALMA
TAHOE REGIONAL PLANNING AGENCY
PO BOX 1038
ZEPHYR COVE, NV 89448

RON PERRAULT
CA DFG
1701 NIMBUS ROAD
RANCHO CORDOVA, CA 95670

IVAR PLESCOV
CA DEPT OF BOATING & WATERWAYS
1629 S ST
SACRAMENTO, CA 95814

JAMES PORTER
NEVADA COUNTY - ENVIRON COUNCIL
PO BOX 802
NEVADA CITY, CA 95959

PAUL PUGSLEY
MONO COUNTY RESOURCE CONS. DEPT.
802 WEST 12TH ST
ALTURAS, CA 96101

CHARLES RAY
SPALDING CSD
502-905 MAHOGANY WY
SUSANVILLE, CA 96130

WENDELL REEVES
CA DEPT OF FORESTRY
6105 AIRPORT RD
REDDING, CA 96002

CHRISTOPHER REEVES
U.S. BIA
2800 COTTAGE WY
SACRAMENTO, CA 95825

JIM REICHLE
PIUTE CREEK PLANNING GROUP
35 MEADOWOOD WY
SUSANVILLE, CA 96130

TOM REMINGTON
U.S. BIA
1677 HOT SPRINGS RD
CARSON CITY, NV 89706

KATHLEEN RENER
WEST VALLEY COUNTY WATER DISTRICT
25315 WEST IDEAL AVE
LANCASTER, CA 93536

JOHN REUTER
ECOLOGICAL RESEARCH ASSOC
71 BROKEN CIR
DAVIS, CA 95616

ROBERT RHEINER
U.S. BLM
3801 PEGASUS DR
BAKERSFIELD, CA 93308

MELINDA RHO
LOS ANGELES DWP - WTR QUALITY DIV
111 N HOPE ST, RM A-18
LOS ANGELES, CA 90012

DR. R. RHONDA
UC COOP EXTENSION
207 W SOUTH ST
BISHOP, CA 93514

GERALD ROCKWELL
U.S.G.S.
PO BOX 1360
CARNELIAN BAY, CA 96140

EDWIN ROTHFUSS, SUPERINTENDENT
U.S. NPS - DEATH VALLEY NATL MON
PO BOX 579
DEATH VALLEY, CA 92328

KEVIN ROUKEY
U.S. ARMY CORPS OF ENGINEERS
300 BOOTH ST RM 2103
RENO, NV 89503

DAVID RULLY
TRUCKEE-DONNER PUD
PO BOX 309
TRUCKEE, CA 96160-

DWIGHT RUSSELL
CA DEPT OF WATER RESOURCES - NORTHERN DISTRICT
2440 MAIN ST
RED BLUFF, CA 96080

TERRY RUSSI
U.S. BLM
785 N MAIN ST #E
BISHOP, CA 93514-2471

DWIGHT E. SANDERS
CA STATE LANDS COMMISSION
100 HOWE AVE STE 100 SOUTH
SACRAMENTO, CA 95825

JOHN E. SARNA
CA DEPT OF WATER RESOURCES - CENTRAL DISTRICT
3251 "S" STREET, RM. D-17
SACRAMENTO, CA 95816

JANE SCHMIDT
U.S.D.A. - NTRL RES CONS SERV
1702 COUNTY ROD, #A
MINDEN, NV 89423-4460

DEPT OF BIOL SCIENCES
EAGLE LAKE BIOL FLD STATION
CA STATE UNIV CHICO
CHICO, CA 9592-0515

[redacted]THE SEEHAFER
U.S. BLM
2601 BARSTOW RD
BARSTOW, CA 92311

MARTHA SHELK
U.S. ARMY - FORT IRWIN- PUBLIC WORKS
ATTN:AFZJ-PW-EN
FORT IRWIN, CA 92310-5000

THOMAS G. SKJELSTAD
ALPINE SPRINGS CWD
PO DRAWER E
[redacted]OE CITY, CA 96145

WALLACE SPINARSKI
AVEK WATER AGENCY
6500 WEST AVE NORTH
PALMDALE, CA 93551-2855

DALE STEELE
CA DEPT OF TRANS
1976 E CHARTER WY
STOCKTON, CA 95201

JIM STITES
CA DHS
1040 E HERNDON AVE, STE 205
FRESNO, CA 93720

DAVID SUPKOFF
CA DEPT OF PESTICIDE REGULATION
PO BOX 4015
SACRAMENTO, CA 95812-4015

RICK SWENSON
PLACER COUNTY - ENV HEALTH
11454 "B" AVE.
AUBURN, CA 95603

BILL TEMPLIN
U.S.G.S.
2800 COTTAGE WY, RM 2234
SACRAMENTO, CA 95825

RICHARD THOMAS
CA DEPT OF CONS - DIV OF OIL, GAS & GEO RES
801 K ST MS 21
SACRAMENTO, CA 95814-3530

CRAIG THOMAS
SIERRA NEV FOREST PROTECT CAMPAIGN
6221 SHOO FLY RD
KELSEY, CA 95643

[redacted]ELYN TOMPKINS
CA DEPT OF WATER RESOURCES
770 FAIRMONT ST, STE 102
GLENDALE, CA 91203-1035

DAVE SMITH
U.S. EPA
75 HAWTHORNE ST
SAN FRANCISCO, CA 94105

KENNETH SPOONER
WALKER RIVER IRRIGATION DISTRICT
PO BOX 820
YERINGTON, NV 89447

WENDY STINE, CHAIR
FT INDEPENDENCE TRIABL OFFICE
PO BOX 67
INDEPENDENCE, CA 93526

PETER STODDARD
CA DEPT OF FOOD AND AGRICULTURE
1220 N ST, ROOM A-149
SACRAMENTO, CA 94814

THOMAS L. SUTTON, MANAGER
CRESTLINE SANITATION DISTRICT
PO BOX 3395
CRESTLINE, CA 92325-3395

JIM SWINEHART
P.O. BOX 431
CEDARVILLE, CA 96104

HELLER THOM
U.S.F.S. - INYO NATL FOREST
PO BOX 148
MAMMOTH LAKES, CA 93546

MARK THOMAS
GLENSHIRE MUTUAL WATER
14630 GLENSHIRE DR
TRUCKEE, CA 96161

JOSEPH THOMPSON
U.S.D.A. - NTRL RES CONS SERV
PO BOX 10529
SO LAKE TAHOE, CA 96158

TRIBAL CHAIRMAN
BRIDGEPORT INDIAN RESERVATION
PO BOX 37
BRIDGEPORT, CA 93517

BECKY TUDEN, WTR-8
U.S. EPA
[redacted]HAWTHORNE ST
[redacted]FRANCISCO, CA 94105

ALAN UCHIDA
U.S. BLM
PO BOX 460
CEDARVILLE, CA 96104-460

NARESH P. VARMA
SAN BERNARDINO CO - PUBLIC WORKS
825 EAST THIRD ST
SAN BERNARDINO, CA 92415-0835

JOHN VEST
ORGANIZED SPORTSMEN - LASSEN CO
PO BOX 1552
SUSANVILLE, CA 96130

LARRY VINSANT
U.S. ARMY CORPS OF ENGINEERS
1325 "J" ST, ROOM 1480
SACRAMENTO, CA 95814-2922

JANE VORPAGEL
CA DFG
601 LOCUST ST
REDDING, CA 96001

BELINDA WALKER
U.S.F.S. - SAN BRNDO NATL FOREST
1824 S COMMERCENTER CIR
SAN BERNARDINO, CA 92408-

BRIAN A. WALLACE
WASHOE TRIBE OF CALIF/NEVADA
919 HIGHWAY 395 SOUTH
GARDNERVILLE, NV 89410

ARDEN WALLUM
INDIAN WELLS VALLEY WATER DIST
PO BOX 1329
[redacted]IDGECREST, CA 93556-1329

WATERSHED COORDINATOR
CARSON VALLEY CONSERVATION DISTRICT
1702 COUNTY ROAD, SUITE 1A
MINDEN, NV 89423

KEN WEAVER
U.S.D.A. - NTRL RES CONS SERV
170 RUSSELL AVE, STE I
SUSANVILLE, CA 96130

LLOYD WEESE
KERN COUNTY - DEPT OF ENV HEALTH
2700 "M" ST STE 300
BAKERSFIELD, CA 93301

TIFFANY WELCH
U.S. ARMY CORPS OF ENGINEERS
2151 ALESANDRO DR, STE 100
VENTURA, CA 93001

CHUCK WHITE
CA DEPT OF WATER RESOURCES - SOUTHERN DISTRICT
770 FAIRMONT ST, STE 102
GLENDALE, CA 91203-1035

STEPHANIE WILSON
U.S. EPA
333 W NYE LN, PO BOX 11
CARSON CITY, NV 89702

JEFF WINNER
LAKE ARROWHEAD CSD
PO BOX 789
LAKE ARROWHEAD, CA 92352

GARY WOLINSKY
U.S. EPA
75 HAWTHORNE ST
SAN FRANCISCO, CA 94105

DARRELL WONG
CA DFG
407 W LINE ST
BISHOP, CA 93514

[redacted]ES R. WOODY
MARIANA RANCHOS CO WATER DIST
9600 MANZANITA ST
APPLE VALLEY, CA 92308

ABRAHAM WUBISHET
UC COOP EXTENSION
777 E RIALTO AVE
SAN BERNARDINO, CA 92415-0730

GARY YAMAMOTO
CA DHS
[redacted]449 W TEMPLE ST, RM 202
[redacted]ANGELES, CA 90026

FRANCIS YARNALL
MUNICIPAL ADVISORY COMMITTEE
1462 STONEWOOD CT
SAN PEDRO, CA 90732-1542

RON ZINKE
U.S.D.A. - NTRL RES CONS SERV
113 PRESLEY WY, STE 1
GRASS VALLEY, CA 95945

[redacted]

[redacted]

From: Boyd Naron
To: egrimly@lycos.com
Date: Wed, Nov 14, 2001 1:16 PM
Subject: Re: 303(d) listings

Thank you for your recent query to the Region 6 Webmaster,

The Lahontan Regional Water Quality Control Board is actively working on an update to the region 6 303(d) list and hope to have the list approved by the Board at its January 2001 Meeting.

The staff person in the region who is actually working on the update is Judith Unsicker. You can reach her at (530) 542-5462 or by e-mail at unsij@rb6s.swrcb.ca.gov.

Thank you,

Boyd M. Naron, Network Administrator
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150
Office Phone: (530) 542-5438
E-Mail: BNaron@rb6s.swrcb.ca.gov

>>> "Ed G Grimly" <egrimly@lycos.com> 11/14/01 12:04PM >>>
I noticed that Haiwee Reservoir was listed on 303(d) list due to copper. What about arsenic? According to EPA funded study, Haiwee sediment is contaminated with arsenic:
http://es.epa.gov/ncerqa_abstracts/grants/97/sediment/hering.html

CC: Dodds, Robert

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Regional Map
Organizational Chart
Phone List
Location
Employment
Links
Water Education
Programs

Lahontan Region
2501 Lake Tahoe Blvd.
So. Lake Tahoe, CA
96150
(530) 542-5400
fax (530) 544-2271

Victorville Office
15428 Civic Dr.
Suite 100
Victorville, CA 92392
(760) 241-6583
fax (760) 241-7308

Contact Us

11/27/2001 - Proposed Update of the Lahontaon Region's 303(d) list

LAHONTAN REGIONAL BOARD RECOMMENDATIONS FOR UPDATE OF THE SECTION 303 AND PRIORITIES FOR DEVELOPING TMDLS

Section 303(d) of the federal Clean Water Act requires states to identify surface water b do not meet and are not expected to meet water quality standards. Such water bodies a prioritized for the development of Total Maximum Daily Loads (TMDLs). TMDLs are stra ensure the attainment of standards. The current "Clean Water Act Section 303(d) Lis California was approved in 1998. The next update of the statewide list will be approved b California State Water Resources Control Board (State Board) and transmitted to the U. Environmental Protection Agency in 2002.

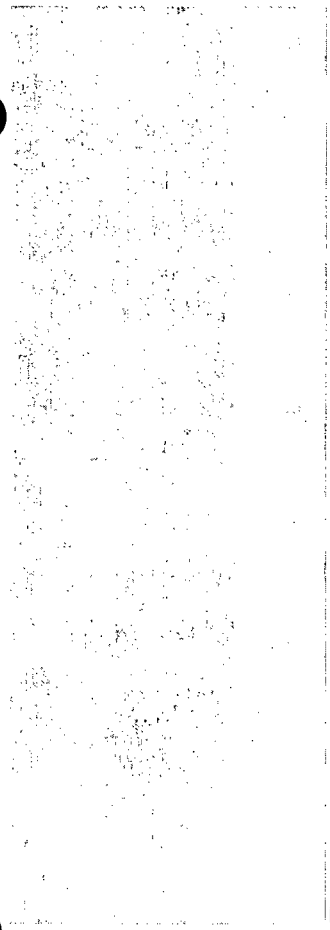
At its January 9-10, 2002 meeting, the Lahontan Regional Board will consider approving recommendations to the State Board for update of the Section 303(d) list and TMDL pric waters of the Lahontan Region. ***Written public comments on the draft recommendat be accepted through December 28, 2001***. There will be an opportunity for public testin Board meeting. The January agenda announcement will be available in late December t "Board Meetings" link on the Regional Board's main webpage.

Recommendations for changes in the Section 303(d) list and TMDL priorities, and staff's approach to assessment, are summarized in a Regional Board staff report. The tables ir the staff report are available online as separate files. Table 1 contains the recommendat acted upon by the Board. Table 2 is a "watch list" of waters needing additional study to d whether listing is appropriate; it will be included in the administrative record of the list up process. Detailed fact sheets about the listed water bodies have been prepared to sumn reasons for adding specific waters to the list or removing them from it. Fact sheets are a groups by watersheds (Hydrologic Units).

The following documents related to the list update process can be downloaded through t below. All of the documents have been published in PDF format. If you do not have the A Acrobat reader, it may be downloaded for free.

- Notice of Availability of and Request for Comments on Draft Recommendati Changes in Lahontan Region's Section 303(d) List
- Staff Report on Recommended Changes to Lahontan Region's Section 303(Impaired Surface Water Bodies
- Table 1. Recommendations for Update of the Section 303(d) List for the Lah Region
- Table 1A. Proposed Additions to the Section 303(d) List for the Lahontan Re
- Table 1B. Recommended Deletions from the Section 303(d) List for the Lah Region
- Table 1C. Water Bodies on 1998 303(d) List Recommended for Retention on

309



- Table 2. "Watch list" of Lahontan Region Waters and Pollutants Requiring A Monitoring to Determine the Need for Listing and TMDL Development
- Water Body Fact Sheets for the Surprise Valley Hydrologic Unit
- Water Body Fact Sheets for the Susanville Hydrologic Unit
- Water Body Fact Sheets for the Truckee River and Little Truckee River Hydr Units
- Water Body Fact Sheets for the Lake Tahoe Hydrologic Unit
- Water Body Fact Sheets for the West Fork and East Fork Carson River Hydr Units
- Water Body Fact Sheets for the East and West Walker River Hydrologic Unit
- Water Body Fact Sheets for the Mono Hydrologic Unit
- Water Body Fact Sheets for the Owens and Deep Springs Hydrologic Units
- Water Body Fact Sheets for the Mojave, Amargosa and Trona Hydrologic Ur

The March 2001 letter soliciting information from the public for use in the list update p can also be viewed.

If you have questions on the draft recommendations or the list update process, please e Judith Unsicker of Regional Board staff at unsij@rb6s.swrcb.ca.gov or (530) 542-5462.

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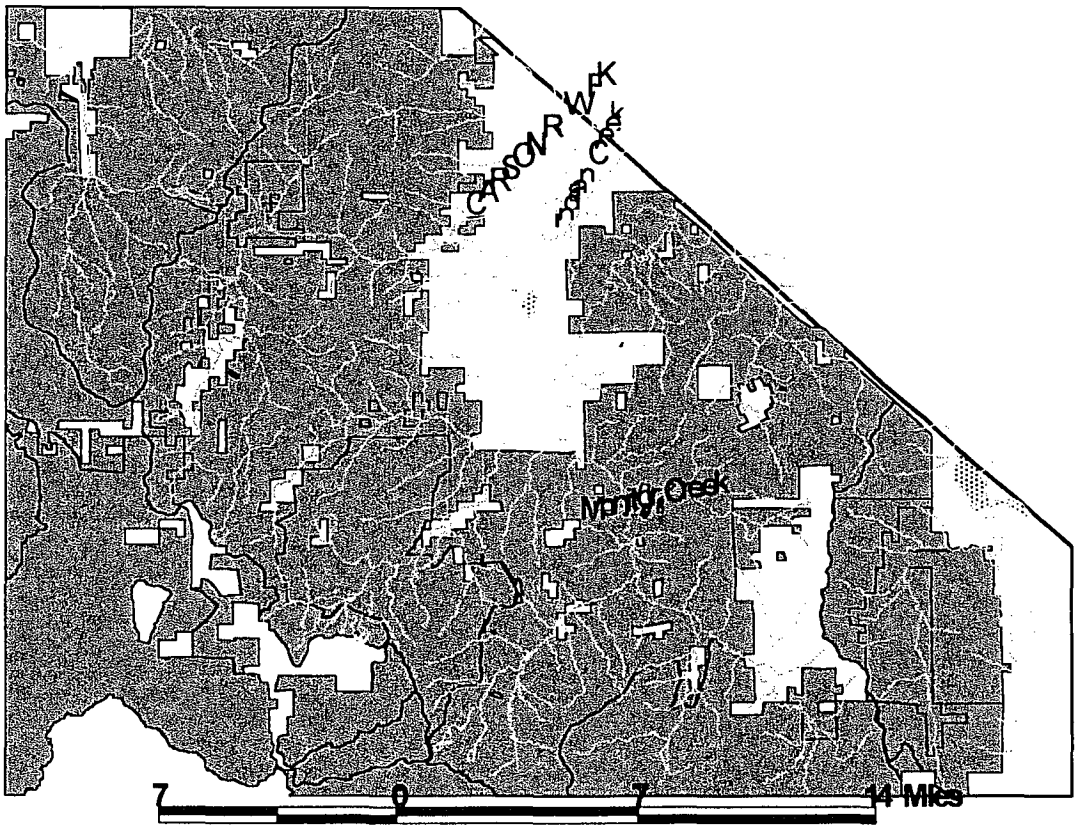
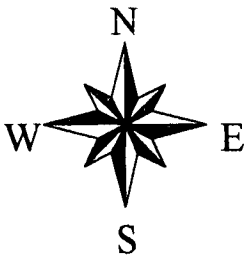
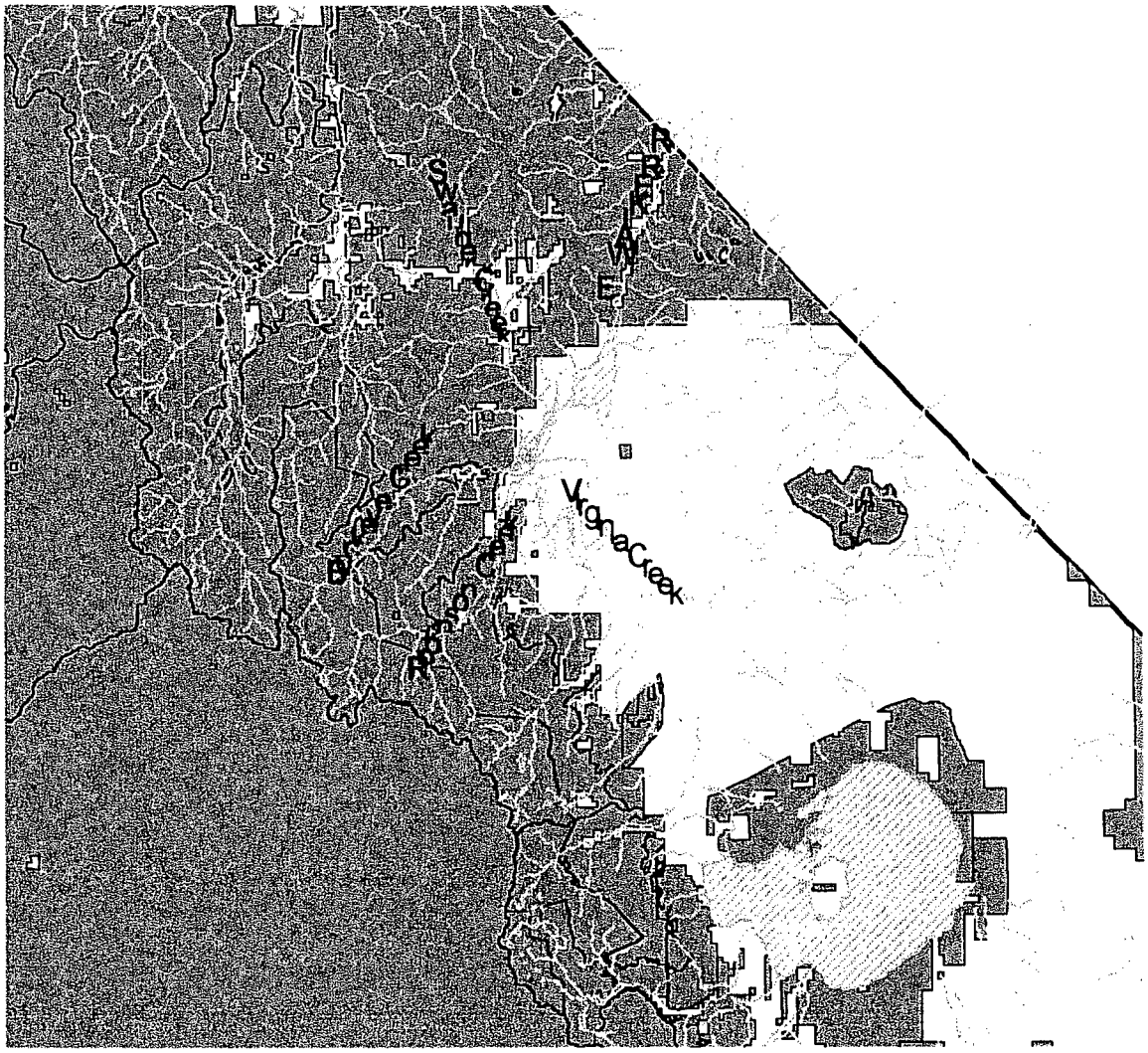
Carson River Watershed



Region6 River Reach File
Managed Areas
Region6 Outline
Region6 Lakes




Virgina Creek

California Regional Water Quality Control Board
Lahontan Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

MEETING AGENDA

JANUARY 9 AND 10, 2002

City Council Chamber
1900 Lake Tahoe Boulevard
South Lake Tahoe

REGULAR MEETING

Wednesday, January 9, 2002 – 4:00 p.m. (Dinner break 5:00 p.m., reconvene approximately 7:00 p.m.)
Thursday, January 10, 2002 – 8:30 a.m.

Note: A quorum of the Regional Board will be dining on Wednesday, January 9, 2002 at 5:15 p.m. at The Dory's Oar, 1041 Fremont Ave., South Lake Tahoe.

The meeting room is accessible to people with disabilities. Individuals who require special accommodations are requested to contact Ms. Susan-Marie Hagen at (530) 542-5414 at least five working days prior to January 9, 2002. TTY users may contact the California Relay Service at 1-800-735-2929 or voice line at 1-800-735-2922.

The following items are numbered for identification purposes only and will not necessarily be considered in this order. Public hearings will not be called to order prior to the time specified. All Board files, exhibits and agenda material pertaining to items on this agenda are hereby made a part of the record for the appropriate item. If, due to time constraints, the Regional Board is unable to consider all of the items scheduled for Wednesday, the item(s) not heard will be considered on Thursday, January 10, 2002 beginning at 8:30 a.m.

In certain instances the Board may use teleconference equipment to conduct its meetings. A Board member who cannot travel to the announced site of a meeting due to illness, travel problems or an emergency may participate in the meeting via teleconferencing from a different location. In any case, the location for public participation at this meeting is as shown above.

Anyone wishing to present a Power Point presentation during the meeting, using the Regional Board's projector, must provide the presentation to the Board on either a CD or via email at least three working days prior to the meeting. Please contact the staff person listed for the agenda item of interest.

....NOTICE....
Submittal of Written Material for Regional Board Consideration

In order to ensure that the Regional Board has the opportunity to fully study and consider written material, it is necessary to submit it at least ten (10) days before the meeting. This will allow distribution of material to the Board Members in advance of the meeting. Pursuant to Title 23 California Code of Regulations Section 648.4, the Regional Board may refuse to admit written testimony into evidence unless the proponent can demonstrate why he or she was unable to submit the material on time or that compliance with the deadline would otherwise create a hardship. If any other party demonstrates prejudice resulting from admission of the written testimony, the Regional Board may refuse to admit it.

A copy of the procedures governing Regional Water Board meetings may be found at Title 23, California Code of Regulations, Section 647 et seq., and is available upon request. Hearings before the Regional Board are not conducted pursuant to Government Code Section 11500 et seq.

Wednesday, January 9, 2002 - 4:00 p.m.

OTHER BUSINESS

1. **Executive Officer's Report** (Harold Singer)

   --- Discussion of Standing Items

   --- Notification of Spills (Pursuant to Section 13271, California Water Code and Section 25180.7, California Health and Safety Code)

   --- Notification of Closure of Underground Storage Tank Cases (Pursuant to Article 11, Division 3, Chapter 16, Title 23, California Code of Regulations)

Wednesday, January 9, 2002 - 7:00 p.m.

Roll Call and Introductions

2. **PUBLIC FORUM**

   Any member of the public may address the Regional Board relating to any matter within the Board's jurisdiction. This shall not be related to any item on the agenda and presentations should normally be limited to five minutes. No formal action by the Board will be taken on these matters.

3. **MINUTES**

Minutes of the Regular Meeting of November 14 and 15, 2001 in Truckee (Susan-Marie Hagen)

ENFORCEMENT ACTION

4. ***Public Hearing*** **- Consideration Of Rescission Of Cease And Desist Order No. 6-94-20 Against Placer County For Discharging And Threatening To Discharge Waste (Earthen Materials) From The Mckinney-Rubicon Springs Road To Mckinney Creek In Violation Of Basin Plan Prohibitions, Placer County** (6-94-20) (The Board will be asked to rescind a Cease and Desist Order issued in 1994.) (Kara Russell)

PLANS AND POLICIES

5. **Recommendations to the State Water Resources Control Board for Update of the Lahontan Region's Section 303(d) List and Priorities for Total Maximum Daily Loads.** (After consideration of public comments, the Board will be asked to adopt a resolution transmitting recommendations to the State Board.) (Judith Unsicker)

STATUS REPORTS

6. **Status Report on Caltrans Lake Tahoe Environmental Improvement Program (EIP) Master Plan** (Caltrans District 3 Staff will present an updated Master Plan and report on accomplishments) (Robert Erlich)

OTHER BUSINESS

7. **Proposed Application of Aquatic Herbicides to Control the Invasive Weed Eurasian Watermilfoil in Lake Tahoe - Consideration of a Notice of Exclusion Denying Coverage Under Statewide Aquatic Pesticides General Permit to the Tahoe Keys Property Owner's Association** (The Board will be asked to direct that a Notice of Exclusion be issued by the Executive Officer, to deny coverage under a General NPDES Permit that would authorize a discharge of herbicides to Lake Tahoe.) (Jason Churchill)

8. **Reports by Chair and Board Members** (Board members may discuss communications, correspondence, or other items of general interest relating to matters within the Board's jurisdiction. The Board may provide direction to staff; however, there will be no voting or formal action taken.)

9. **Election of Chair and Vice-Chair for 2002**

10. CLOSED SESSIONS*

a. **Discussion of Significant Exposure to Litigation. Authority: Government Code Section 11126(e)(2)(B)(i).**

b. **Discussion of Significant Exposure to Litigation, Leviathan Mine, Alpine County. Authority: Government Code Section 11126(e)(2)(B)(i).**

c. **Discussion to Decide Whether to Initiate Litigation. Authority: Government Code Section 11126(e)(2)(C)(i).**

d. **Discussion of Pending Litigation, Molycorp, San Bernardino County. Authority: Government Code Section 11126(e)(2)(C)(i).**

e. **Discussion of Litigation: Sarbjit Singh Kang, et. al, v. State of California, Regional Water Quality Control Board, Lahontan Region, El Dorado County Superior Court No. PC20000261; Azad Amiri and Sarbjit Singh Kang, v. State of California Regional Water Quality Control Board, Lahontan Region, El Dorado County Superior Court No. SC20000114; and Azad Amiri, Mohan Singh, and Sohan Singh v. State of California, Regional Water Quality Control Board, Lahontan Region, Placer County Superior Court No. SCV10061. Authority: Government Code Section 11126(e).**

f. **Discussion of Litigation Filed by the State of California and the California Regional Water Quality Control Board, Lahontan Region Against Philip and Mary Myers, Mono County Superior Court, Case No. 12534. Authority: Government Code Section 11126(e).**

g. **Discussion of Litigation: Thomas E. Erickson v. California Regional Water Quality Control Board, Lahontan Region, El Dorado County Superior Court Case No. SC-20000244. Authority: Government Code Section 11126(e).**

h. **Discussion of Litigation Filed by the State of California and the California Regional Water Quality Control Board, Lahontan Region v. Thomas E. Erickson and Samina Naz, El Dorado County Superior Court, Case No. SC20010089. Authority: Government Code Section 11126(e).**

* At any time during the regular session, the Board may adjourn to a closed session to consider litigation, personnel matters, or to deliberate on a decision to be reached based upon evidence introduced in the hearing. Discussion of litigation is within the attorney-client privilege and may be held in closed session. Authority: Government Code Section 11126(a),(c)(3) and (e).

i. **Discussion of Litigation filed by the State of California and the Regional Water Quality Control Board, Lahontan Region, v. Glen R. Hammond and Limited Partners, Kern County Superior Court Case No. 235695. Authority: Government Code Section 11126(e).**

j. **Discussion of Litigation: People of the State of California ex rel. California Regional Water Quality Board, Lahontan Region, v. Gregory A. Babb and Heather Babb, Lassen County Superior Court, Case No. 35028. Authority: Government Code Section 11126(e).**

k. **Discussion of Litigation: People of the State of California ex rel. California Regional Water Quality Board, Lahontan Region, v. John F. Bosta, Lassen County Superior Court, Case No. 35029. Authority: Government Code Section 11126(a).**

l. **Discussion of Personnel Matters. Authority: Government Code Section 11126(a).**

Thursday, January 10, 2002 – 8:30 a.m.

ENFORCEMENT ACTION

11. ***Public Hearing*** **- Consideration of an Administrative Civil Liability Order Against Pacific Bell Telephone Company, for the Unauthorized Discharge of Earthen Materials to a Storm Water Conveyance and Thence to Lake Tahoe, El Dorado County, in Violation of Waste Discharge Requirements and Basin Plan Prohibitions.** (The Regional Board will have the opportunity to affirm, reject, or modify the proposed civil liability, or accept a Supplemental Environmental Project in lieu of payment) (Robert Larsen)

12. ***Public Hearing*** **– Consideration of an Administrative Civil Liability Order for the California Department of Transportation District 3 for Violation of Waste Discharge Prohibitions Prescribed in the Water Quality Control Plan For The Lahontan Region, Violation of State Water Resources Control Board Order No. 99-06-DWQ, and Violation of Waste Discharge Requirement Waiver Conditions, for Discharge of Earthen Materials to Waters of the Truckee River Hydrologic Unit, on August 1, 2001, Interstate 80 Rehabilitation Boca/Floriston Project, Nevada County - WDID No. 6A03CT3A21U** (The Board will consider affirming or modifying an ACL Complaint No. 6-01-69 in the amount of $10,000 for the discharge of turbid drilling water into the Truckee River at the Floriston Bridge site) (Eric J. Taxer)

13. ***Public Hearing*** **– Consideration of an Administrative Civil Liability Order for the California Department of Transportation District 3 for Violation of Waste Discharge Prohibitions Prescribed in the Water Quality Control Plan For The Lahontan Region, Violation of State Water Resources Control Board Order No. 99-06-DWQ, and Violation of Waste Discharge Requirement Waiver Conditions, for Discharge of Earthen Materials to Waters of the Truckee River Hydrologic Unit, on August 2, 2001, Interstate 80 Rehabilitation Boca/Floriston Project, Nevada County - WDID No. 6A03CT3A21U** (The Board will consider affirming or modifying an ACL Complaint No. 6-01-70 in the amount of $10,000 for the discharge of sediments into the Truckee River from improperly washing a well casing over the Truckee River at the Bridge No. 12 site) (Eric J. Taxer)

14. ***Public Hearing*** **– Consideration of an Administrative Civil Liability Order for the California Department of Transportation District 3 for Violation of Waste Discharge Prohibitions Prescribed in the Water Quality Control Plan For The Lahontan Region, Violation of State Water Resources Control Board Order No. 99-06-DWQ, and Violation of Waste Discharge Requirement Waiver Conditions, for Discharge of Earthen Materials to Waters of the Truckee River Hydrologic Unit, on July 10 and on September 12, 2001, Interstate 80 Rehabilitation Boca/Floriston Project, Nevada County - WDID No. 6A03CT3A21U** (The Board will consider affirming or modifying an ACL Complaint No. 6-01-71 in the amount of $20,000 for the discharge of sediment-laden stormwater into the Truckee River at the Union Mills Bridge site) (Eric J. Taxer)

15. ***Public Hearing*** **– Consideration of an Administrative Civil Liability Order for the California Department of Transportation District 3 for Violation of Waste Discharge Prohibitions Prescribed in the Water Quality Control Plan For The Lahontan Region, Violation of State Water Resources Control Board Order No. 99-06-DWQ, and Violation of Waste Discharge Requirement Waiver Conditions, for Discharge of Earthen Materials to Waters of the Truckee River Hydrologic Unit, on September 19, 2001, Interstate 80 Rehabilitation Boca/Floriston Project, Nevada County - WDID No. 6A03CT3A21U** (The Board will consider affirming or modifying an ACL Complaint No. 6-01-72 in the amount of $10,000 for the discharge of turbid water into the Truckee River from a settling tank/irrigation system at the Bridge No. 12 site) (Eric J. Taxer)

ADJOURNMENT

Any party aggrieved by a certain decision of the California Regional Water Quality Control Board, Lahontan Region (Regional Board), may petition the State Water Resources Control Board (State Board) to review the decision. The petition must be received by the State Board within 30 days of the Regional Board's meeting at which the action was taken. Copies of the law and regulation applicable to filing petitions will be provided upon request.

Note: 1. A listing of pending applications for Water Quality Certification pursuant to Section 401 of the Clean Water Act may be obtained by calling:

For the North Lahontan Basin, Scott Ferguson in South Lake Tahoe at (530) 542-5432

For the South Lahontan Basin, Hisam Baqai in Victorville at (760) 241-7325

The Regional Water Quality Control Board, Lahontan Region, has a home page that can be accessed on the Internet, at: http://www.swrcb.ca.gov/rwqcb6

The Regional Board will be considering many items during this meeting which may result in Regional Board action or direction to staff. We encourage input from all people interested in a given item or issue, so that when we act, our decision is based on all available information. Although an oath is not administered in most of the proceedings before this Board, **we expect all statements made before this Board to be truthful with no attempts to mislead this Board by false statements, deceptive presentation or failure to include essential information.**

The Regional Board encourages all people in or near a Board meeting to refrain from engaging in inappropriate conduct. Inappropriate conduct may include disorderly, contemptuous or insolent behavior, breach of peace, boisterous conduct, violent disturbance or other unlawful interference in the Board's proceedings. Such conduct could subject you to contempt sanctions by the superior court (Govt C Sec 11455.10).

The Regional Board Chairperson may impose sanctions, including reasonable expenses and attorney's fees, on any party for bad faith actions, frivolous tactics or actions intended to cause unnecessary delay by a party or the party's attorney or representative (Govt C Sec 11455.30).

CALIFORNIA WATER QUALITY CONTROL BOARD
LAHONTAN REGION

Main Office: 2501 Lake Tahoe Blvd., South Lake Tahoe, CA 96150 (530) 542-5400
Branch Office: 15428 Civic Drive, Ste. 100, Victorville, CA 92392-2359 (760) 241-6583

REGIONAL BOARD MEMBERS

Name	Location of Residence or Business	Appointment Category
William Betterley	Apple Valley	Irrigated Agriculture
John Brissenden	Hope Valley	Water Quality
Jack Clarke, Vice Chair	Apple Valley	Water Supply
Beatrice Cooley, Chair	Bishop	Undesignated (Public)
Neil Eskind	Tahoe City	County Government
Eugene Nebeker	Lancaster	Industrial Water Use
Claudette Roberts	Lake Elizabeth	Municipal Government
Eric Sandel	Truckee	Water Quality
Vacant		Rec., Fish and Wildlife

REGIONAL BOARD STAFF

Harold J. Singer Executive Officer	Robert Dodds Asst. Executive Officer and Ombudsman	Steven H. Blum Counsel to the Board	Susan-Marie Hagen Executive Assistant

South Lake Tahoe Office:
Chuck Curtis, Manager, TMDL/UST/Leviathan Mine Division
Doug Smith, Chief, Underground Storage Tanks/Department of Defense Unit
Chris Stetler, Chief, Leviathan Mine Unit
Jeremy Sokulsky, Chief, TMDL Unit

Lauri Kemper, Manager, North Lahontan Watershed Division
Scott Ferguson, Chief, Northern Watersheds Unit
Alan Miller, Chief, Carson/Walker Watersheds Unit
Mary Fiore-Wagner, Chief, Lake Tahoe Watersheds Unit

Victorville Office:
Hisam Baqai, Manager, South Lahontan Watershed Division
Tim Post, Chief, Antelope/Indian Wells Unit
Cindi Mitton, Chief, Mono/Owens Watersheds Unit
Mike Plaziak, Chief, Mojave Desert Unit

The primary responsibility of the Regional Board is to protect the quality of the surface and groundwater within the Region for beneficial uses. The duty is carried out by formulating and adopting water quality plans for specific ground or surface water bodies; by prescribing and enforcing requirements on domestic and industrial waste dischargers, and by requiring cleanup of water contamination and pollution. Specific responsibilities and procedures of the Board are outlined in the Porter-Cologne Water Quality Control Act.

Regular meetings of the Board are normally held on the second Wednesday and Thursday of each month. Meeting locations vary but generally alternate between the north and south basins of the region.

The purpose of the monthly meeting is to provide the Board with testimony and information from concerned and affected parties and make decisions after considering the evidence presented. A public forum is held at each regular meeting where any person may address the Board on any matter within the jurisdiction of the Board, but may not be related to any item on the agenda.

The Board welcomes information on pertinent problems, but comments at the meeting should be brief and directed to specifics of the case to enable the Board to take appropriate action. Whenever possible, lengthy testimony should be presented to the Board in writing and only a summary of pertinent points presented verbally. Written material should be submitted no later than the Monday, ten days prior to the Board meeting.

Tape recordings are made of each Board meeting and these tapes are retained in the Board's office for two years. Anyone desiring copies of these tapes may, at their own expense, arrange to have duplicate tapes made by contacting the Board at (530) 542-5414.

NOTES

A. SEQUENCE OF AGENDA ITEMS

The items are numbered for identification purposes only and will not necessarily be considered in this order.

B. AVAILABILITY OF AGENDA MATERIAL

Details concerning these agenda items are available for public reference during working hours at the Board's offices. Copies of individual agenda items may be obtained at the Board's offices after 8:00 a.m. on the Monday, ten days preceding the Board meeting. The staff will assist in answering questions.

C. UNCONTESTED ITEMS CALENDAR

Item numbers with an asterisk (*) are expected to be routine and noncontroversial. They will be acted upon by the Board at one time without discussion. If any Board member, staff member, or interested party requests discussion, the item will be removed from the Uncontested Calendar to be considered separately.

D. PETITION OF REGIONAL BOARD ACTION

Any person affected by a certain decision of the California Regional Water Quality Control Board, Lahontan Region, (Regional Board) may petition the State Water Resources Control Board to review the decision. The petition must be received by the State Board within 30 days of the Regional Board's meeting at which the action was taken. Copies of the law and regulations applicable to filing petitions will be provided upon request.

E. HEARING RECORD EXHIBITS

Material presented to the Board as part of the testimony that is to be made part of the record must be left with the Board. This includes photographs, slides, chart, diagrams, etc.

F. CONTRIBUTIONS TO REGIONAL BOARD MEMBERS

All persons who actively support or oppose the adoption of waste discharge requirements or an NPDES permit before the Regional Board must submit a statement to the Board disclosing any contributions of $250 or more to be used in a federal, state, or local election, made by the action supporter or opponent, or his or her agent, within the last 12 months to any Regional Board member. All permit applicants and all persons who actively support or oppose adoption of a set of waste discharge requirements or an NPDES permit pending before the Regional Board are prohibited from making a contribution of $250 or more to any Board member for three months following a Regional Board decision on the permit application.

G. ADDITIONAL CLOSED SESSION

At any time during the regular session, the Board may adjourn to a closed session to consider litigation, personnel matters, or to deliberate on a decision to be reached based upon evidence introduced in the hearing. Discussion of litigation is within the attorney-client privilege and may be held in closed session. Authority: Government Code Section 11126 (a), (c)(3) and (e).

California Regional Water Quality
Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

Meeting of January 9 and 10, 2002
South Lake Tahoe

ITEM: 5

SUBJECT: **RECOMMENDATIONS TO THE STATE WATER RESOURCES CONTROL BOARD FOR UPDATE OF THE LAHONTAN REGION'S SECTION 303(D) LIST AND PRIORITIES FOR TOTAL MAXIMUM DAILY LOADS**

DISCUSSION: Under Section 303(d) of the federal Clean Water Act, states are required to maintain lists of impaired surface water bodies needing Total Maximum Daily Loads (TMDLs). These lists, and priorities for developing TMDLs, must be updated every two years. The State Water Resources Control Board (State Board) has requested Regional Boards to develop and (following public participation) submit recommendations for changes in California's Section 303(d) list for waters of their regions. The State Board will conduct its own public participation process, and will act on an updated statewide Section 303(d) list, and statewide TMDL priorities, in early 2002.

Lahontan Regional Board staff solicited information and data from the public for use in update of the Section 303(d) list, and reviewed other existing and readily available information and data. A staff report, including recommendations for additions to and deletions from the current (1998) Section 303(d) list, and recommended TMDL priorities for all Lahontan Region waters on the 2002 list, was made available for public review. The staff report provides a general overview of the assessment process and the factors considered in staff's recommendations for listing and delisting. It also includes a "watch list" of water bodies needing additional monitoring and assessment to determine whether listing is warranted. Background information for recommendations concerning specific water body-pollutant combinations was summarized in fact sheets. The staff report and fact sheets were posted on the Regional Board's Internet webpage. Copies of written public comments received by the mailing date for the agenda packet are enclosed with this item.

At the January meeting, staff will provide an overview of the recommendations and of the underlying listing/delisting considerations. This item has not been noticed as a public hearing;

however, members of the public may wish to speak to the Board regarding staff's recommendations. Staff will respond to written comments and public testimony at the meeting.

RECOMMENDATION:

Approval of Resolution R6S-2002-PROPOSED, transmitting Lahontan Regional Board recommendations to the State Water Resources Control Board.

Enclosures:
1. Notice of Availability
2. Staff Report
3. Water Body Fact Sheets
4. Public Comment Letters
5. Draft Resolution

Enclosure 1
Notice of Availability

California Regional Water Quality Control Board
Lahontan Region

Winston H. Hickox
Secretary for
Environmental
Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

November 27, 2001

To Interested Parties:

NOTICE OF AVAILABILITY OF AND REQUEST FOR COMMENTS ON DRAFT RECOMMENDATIONS FOR CHANGES IN LAHONTAN REGION'S SECTION 303(D) LIST

The California Regional Water Quality Control Board, Lahontan Region (Regional Board) is soliciting comments from the public on recommended changes to California's list of impaired surface water bodies. States are required to maintain and update such lists under Section 303(d) of the federal Clean Water Act. ("Impaired" means that listed waters do not meet applicable water quality standards.) A summary list of recommendations is enclosed. Proposed changes are included in the November 2001 *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.* Background information is provided in separate fact sheets for specific water bodies. The staff report and fact sheets will be available online at http://www.swrcb.ca.gov/rwqcb6 by late November 2001. Paper copies may be requested from the Regional Board's administrative staff at (530) 542-5404.

At its January 9-10, 2002 meeting in South Lake Tahoe, California, the Lahontan Regional Board will hold a public workshop to consider approving recommendations to the State Water Resources Control Board (State Board). The State Board will conduct a separate public participation process before adopting an updated statewide list of impaired surface water bodies for transmittal to the U.S. Environmental Protection Agency.

Between March and May 2001, the Regional Board solicited information and data from the public for use in the Section 303(d) list update. At this time, the Regional Board is only accepting public comments on proposed changes to the list, and is not collecting additional information or data. Written public comments must be received by the Regional Board no later than **December 28, 2001**. Comments should be submitted to Judith Unsicker at the address above or emailed to unsij@rb6s.swrcb.ca.gov. Technical questions about the staff report or fact sheets should be directed to Ms. Unsicker at (530) 542-5462.

Enclosure

Enclosure 2
Staff Report

Staff Report on

Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies

California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
http://www.swrcb.ca.gov/rwqcb6

November 2001

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Telephone: (530) 542-5462
FAX (530) 542-5470
Email:unsij@rb6s.swrcb.ca.gov

Executive Summary

This staff report summarizes the background for Lahontan Regional Board staff's recommendations for changes in the Clean Water Act Section 303(d) list of impaired surface water bodies, and priorities and schedules for development of Total Maximum Daily Loads (TMDLs) for listed waters. In March 2001, staff solicited information and data from the public for use in the list update. Staff also reviewed other existing and readily available information such as discharger self- monitoring reports in the Regional Board's files, reports in the Regional Board's library, and the U.S. Geological Survey's online water quality databases. This report outlines the general criteria used to formulate recommendations. More information on recommendations for specific water bodies is provided in separate "fact sheets." Staff's recommendations would remove 29 water body/pollutant combinations from the list, add 45 new water body/pollutant combinations, and retain 69 water body/pollutant combinations from the 1998 list on the 2002 list. Clarification of the nature of impairment is recommended for some waters (e.g., separate listings for nitrogen and phosphorus rather than a single listing for nutrients). An additional 168 water body/pollutant combinations are recommended for inclusion in a separate "watch list" of waters needing further monitoring and/or assessment to determine whether listing is warranted in the future. The Lahontan Regional Board will consider action on recommendations to the State Water Resources Control Board at its January 2002 meeting.

Introduction

Section 303(d) of the federal Clean Water Act requires states to identify surface water bodies which are not attaining water quality standards and are not expected to do so even with the use of technology-based effluent limitations and other legally required pollution controls such as Best Management Practices. Waters may be listed for more than one pollutant. For each listed water body/pollutant combination, states must develop a strategy, called a Total Maximum Daily Load, or TMDL, to ensure attainment of standards. Section 303(d) lists and priority rankings of water body/pollutant combinations must be updated every two years.

The California Regional Water Quality Control Board, Lahontan Region (Regional Board) is the state agency responsible for setting and enforcing water quality standards for waters in about 20 percent of the state in the portion east of the Sierra Nevada crest and in the northern Mojave Desert. Regional Boards have been asked to provide recommendations to the California State Water Resources Control Board (State Board) for use in the 2002 update of the statewide Section 303(d) list. This staff report summarizes Lahontan Regional Board staff's rationale for recommended additions to and deletions from the Section 303(d) list, and for prioritization of listed waters for development of TMDLs. The report will be circulated for public review. Changes in recommendations may be made in response to written public comments and/or testimony before the Board, and the Lahontan Regional Board will be asked to approve final recommendations for transmittal to the State Board at its January 2002 meeting. The State Board will conduct its own public participation process and will consider approval of a revised statewide Section 303(d) list for submission to the U.S. Environmental Protection Agency in early 2002.

The Section 303(d) List

Section 303(d) requires states to identify those waters within its boundaries for which effluent limitations and controls on thermal discharges are not stringent enough to implement any standard applicable to such waters, to establish priority rankings, and to establish total maximum daily loads for waters impaired by pollutants or thermal discharges. Section 303(d) applies only to surface waters of the United States, including lakes, streams, springs, and wetlands. Surface waters include intermittent and ephemeral waters.

Although Section 303(d) emphasizes point source discharges, the requirement to do TMDLs also applies to water bodies impaired by nonpoint sources or by a combination of point and nonpoint sources. The Lahontan Region has only a few direct point source discharges to surface water (including point source stormwater discharges). The *Water Quality Control Plan for the Lahontan Region* (Basin Plan) prohibits discharges to surface waters throughout the North Lahontan Basin (from the Walker River watershed north to the Oregon border) and in high elevation portions of the South Lahontan Basin (from the Mono Lake watershed south). Most water quality problems in the Lahontan Region come from nonpoint sources (for example, erosion from watershed disturbance by logging, grazing, or construction activities).

The requirement to do TMDLs applies only to waters impaired by "pollutants." Pollutants are defined in the Clean Water Act to include: "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into water." TMDLs involve calculations of existing or allowable loads of discrete substances or of heat.

The Clean Water Act also defines "pollution" as "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water." "Pollution" does not always involve "pollutants"; for example, aquatic life and wildlife uses of water may be adversely affected by water diversions or reservoir management practices. When a water body is impaired by "pollution" but not by "pollutants," and loading calculations are not feasible, the problem is best handled by control measures other than TMDLs.

Update of the Section 303(d) list is not a regulatory or policy action, but an administrative procedure to prioritize water bodies for action. The adoption of Basin Plan amendments to incorporate a TMDL is a regulatory action.

Public Participation

2001-2002 Public Participation Process

Lahontan Regional Board staff updated and expanded the regionwide mailing list for the 1998 Section 303(d) list update and in March 2001 mailed a letter soliciting information and data for use in the current list update. The solicitation process was also publicized in newspapers and via the Internet. The deadline for submittal of information and data was May 15, 2001. Responses received by that date are summarized below. Technical staff at both Lahontan Regional Board offices were asked to notify water

quality assessment staff of water quality problems and the existence of information and data about these problems. Assessment staff reviewed publications and data sets available in the Regional Board's South Lake Tahoe office (including discharger monitoring files containing ambient surface water data). Staff also reviewed other existing and readily available sources of information including the most recent 303(d) list and California Section 305(b) report, the State Water Resources Control Board's Toxic Substances Monitoring Program database, fish consumption advisories and criteria documents produced by the California Office of Health Hazard Assessment, and online water quality databases maintained by the U.S. Geological Survey and the Nevada Division of Environmental Protection.

The scope of the Lahontan Region's assessment process was limited by several factors. Staff resources and time available for the update were limited. Monitoring data for surface waters in the Lahontan Region are limited due to past and present resource constraints on baseline/trend monitoring and the fact that the Lahontan Region has few discharges to surface water and thus few sets of discharger monitoring data. Biomonitoring (including citizen monitoring) is under way in a number of Lahontan Region watersheds, but reference conditions are not yet well defined. Most of the toxic "priority pollutants" covered by the California Toxics Rule and National Toxics Rule are not routinely monitored in Lahontan Region waters.

Factors to be considered in formulation of recommendations for listing and delisting (see below) were developed through consideration of past criteria and discussions with staff of the State and other Regional Boards, and with Lahontan Regional Board management. This staff report, tables summarizing staff recommendations, and fact sheets providing additional information were prepared for public review. The availability of these documents will be noticed to the Regional Board's Section 303(d) mailing list. After consideration of public comments, the Lahontan Regional Board will take action on a resolution to transmit final recommendations regarding the list update to the State Board. Following Board action, Regional Board staff will complete and submit the administrative record to the State Board. Information about the water bodies recommended for listing or delisting will be entered into the Geospatial Waterbody System (GeoWBS) computer database.

Information and Data Received in Response to March 2001 Solicitation

Full copies of information and data submitted in response to the public solicitation will be included in the administrative record for the Regional Board's list update process. The following is a summary of comments received in response to the solicitation; not all of these comments included information or data concerning waters of the Lahontan Region. Letters or emails were received from the following:

- **The Bishop Paiute Tribe** provided water chemistry data for Bishop Creek. Review of these data did not indicate the need for new listings.

- **The California Department of Pesticide Regulation (DPR)** sent a letter recommending that Regional Board staff review several DPR webpages containing pesticide data. None of these webpages included information or data for waters within the Lahontan Region.

- **The League to Save Lake Tahoe** sent a letter identifying sources of data and requesting that Lake Tahoe be listed for violations of several additional standards and that additional tributaries of Lake Tahoe be listed. Review of the references mentioned in the League's letter led to several recommendations for new listings for tributaries of Lake Tahoe. See the fact sheet for Lake

Tahoe for clarification of the lake's listing status, and fact sheets for proposed new listings for Ward Creek, Blackwood Creek, General Creek, the Upper Truckee River, Trout Creek, Heavenly Valley Creek, Hidden Valley Creek, Big Meadow Creek, and Tallac Creek.

- **The U.S. Geological Survey (USGS)** provided electronic files of data collected in the Lahontan Region since 1997, primarily for the Walker River watershed. Regional Board staff used these data to recommend new listings for a number of water body-pollutant combinations.

- **The USDA Forest Service, Angeles National Forest** sent a letter requesting a meeting with Regional Board staff to discuss the Forest's ongoing monitoring program. No response was received to a Regional Board staff request that monitoring data be submitted for review to determine the need for a meeting.

- **The Southern California Alliance of Publicly Owned Treatment Works (SCAP)** sent a letter outlining its concerns about evaluation of data and listing/delisting criteria. This letter did not include data or information about specific Lahontan Region water bodies for use in listing/delisting recommendations. Regional Board staff's approach to evaluation and listing/delisting considerations is summarized below.

- **Cathy Ricioli of Kingsbury Middle School** in Zephyr Cove, Nevada submitted student biomonitoring data on Burke Creek, a tributary to Lake Tahoe on its Nevada side. These data will be retained for comparison with future biomonitoring data for California-side streams.

- **Pat Eckert**, former Mammoth Community Water District Board member, sent an email referencing Board agenda material which showed that MTBE had been detected in 1999 and 2000 in samples from Lake Mary, which provides domestic water supply to the Town of Mammoth Lakes. The MTBE was apparently connected with summer motorboat activity. Lake Mary is recommended for addition to the "Watch List" (Table 2), and the problem is being investigated through other Regional Board programs.

- **Carol Sims**, of Environmentally Concerned, Williams, Arizona, sent a short handwritten comment on a returned mailing list update form asking whether the Regional Board had considered pesticide impacts. A written response outlining the Regional Board's pesticide standards and control programs was sent; a copy will be included in the administrative record.

Listing/Delisting Considerations

Regional Boards began intensive participation in the State's Section 303(d) listing process during the mid-1980s. Guidance from the State Board to Regional Boards on listing/delisting criteria has varied with each list update cycle since that time. There is currently no formal statewide listing/delisting guidance, although the State Board plans to develop and adopt formal guidance before the next (2004) listing cycle. The following general listing and delisting considerations reflect past and current direction from the USEPA and discussions among State and Regional Board staff. Lahontan Regional Board staff also developed more specific listing and delisting considerations.

General Considerations

Listing Considerations

Water bodies and associated pollutants should be recommended for addition to the 303(d) list if any one of the following factors applies:

1. Effluent limitations or other pollution control requirements (e.g., Best Management Practices) are not stringent enough to ensure protection of beneficial uses and attainment of water quality objectives, including those implementing State Board Resolution 68-16, the USEPA promulgated standards in the California Toxics Rule and National Toxics Rule, and the Statement of Policy with Respect to Maintaining High Quality of Waters in California (see also 40 CFR 130.7 (b)(1), and standards are not expected to be attained by the time of the next list update cycle (i.e., by 2004). This does not apply to non-attainment related solely to discharges in violation of existing waste discharge requirements or NPDES permits.

2. A fishing, drinking water or swimming advisory issued by local or state public health or environmental health authorities is currently in effect. This does not apply to advisories related to discharges in violation of existing waste discharge requirements or NPDES permits.

3. Beneficial uses are impaired or are expected to be impaired before the next listing cycle (i.e., by 2004). Impairment is based on evaluation of chemical, physical, or biological integrity. Impairment will be determined by "qualitative assessment," physical/chemical monitoring, bioassay tests, and/or other biological monitoring. Applicable federal criteria and the Regional Board's Basin Plan water quality objectives determine the basis for impairment status. A qualitative assessment is an assessment based on factors other than ambient monitoring data (for example, predictive modeling, professional judgement, or public comments).

4. The water body is on the previous 303(d) list and either: (a) monitoring continues to demonstrate violation of objectives or (b) monitoring has not been performed and (c) none of the delisting considerations discussed below apply.

5. Data indicate tissue concentrations in consumable body parts of fish or shellfish exceed applicable tissue criteria or guidelines. Criteria and guidelines related to protection of human and wildlife consumption include, but are not limited to, U.S. Food and Drug Administration Action Levels, National Academy of Sciences Guidelines, U.S. Environmental Protection Agency tissue criteria, and California Office of Environmental Health Hazard Assessment "Maximum Tissue Residue Levels (MTRLs)." (See the discussion of MTRLs in relation to the Toxic Substances Monitoring Program below.)

6. The water quality is of such concern that the Regional Board determines that the water body needs to be afforded a level of protection offered by a 303(d) listing.

Delisting Considerations

Water bodies may be removed for the list for specific pollutants if any one of these factors is met:

1. The Basin Plan is revised to change water quality objectives (for example, through the adoption of site specific objectives in place of regionwide objectives), and the violation of standards is thereby eliminated.

2. The Basin Plan is revised to remove a designated beneficial use in accordance with the circumstances set forth in federal water quality standards regulations and USEPA guidance, and the non-support issue is thereby eliminated. (USEPA regulations prohibit the removal of designated uses under certain circumstances.)

3. Faulty data led to the initial listing. Faulty data include, but are not limited to, typographical errors, improper quality assurance/quality control (QA/QC) procedures, or limitations in the analytical methods that would lead to an inaccurate conclusion regarding the status of the water body.

4. It has been documented that objectives are being met and beneficial uses are not impaired based upon an evaluation of available monitoring data, and foreseeable changes in hydrology, land use, or product (e.g., pesticide) use are not expected to result in violations of standards.

5. A TMDL has been approved by the USEPA for that specific water body and pollutant (see 40CFR 130.7 (b)(4).

6. There are control measures in place which will result in attainment of standards, including protection of beneficial uses, by the next listing cycle (in 2004). Control measures include permits, cleanup and abatement orders, and Basin Plan requirements which are enforceable and include a time schedule (see 40 CFR 130.7 (b) (1) iii).

Lahontan Regional Board Staff Considerations

Natural Impairment. Because of its geological history, the Lahontan Region has a number of water bodies with concentrations of salts and/or toxic trace elements such as arsenic which exceed drinking water standards or criteria for protection of freshwater aquatic life and wildlife. These waters include inland saline (desert playa) lakes and geothermal springs. Past state and federal guidance led to listing of a number of Lahontan Region waters which are "impaired" only by natural sources. A scientific literature review on saline and geothermal waters shows that these waters are unique ecosystems with their own degree of physical, chemical, and biological integrity, and support aquatic life and wildlife adapted to extreme environmental conditions (California Regional Water Quality Control Board, 2000). These waters should not be judged to be "impaired" on the basis of freshwater aquatic life criteria. USEPA (1997) guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Other natural phenomena which may lead to violations of water quality standards include catastrophic floods, prolonged droughts, mudslides, and avalanches. All have occurred in the Lahontan Region since the 1980s. At least one water body, Horseshoe Lake near Mammoth, is not "swimmable" due to an air quality problem. Access to recreational facilities near this lake has been restricted because volcanic carbon dioxide is being released through the soil and collects in topographic depressions, including the lake basin, in concentrations which may be lethal.

The Lahontan Basin Plan (page 3-2. "Prohibited Discharges") recognizes that not all factors affecting water quality may be controllable. It states:

"After application of reasonable control measures, ambient water quality shall conform to the narrative and numerical water quality objectives included in this Basin Plan. When other factors result in degradation of water quality beyond the limits established by these water quality objectives, controllable human activities shall not cause further degradation of water quality in either surface or ground waters."

The Clean Water Act's definitions of "pollutants" and "pollution" both specifically reference human causes. These definitions provide justification for not listing waters if violations of standards can be attributed entirely to natural sources. Table 1 includes recommendations for delisting a number of naturally impaired waters. No Lahontan Region waters impaired only by natural sources are recommended for addition to the Section 303(d) list.

Antidegradation. State and federal antidegradation regulations require that specific findings regarding socioeconomic considerations be made to allow lowering of water quality in waters which have better water quality than the level set by water quality standards. Under federal regulations, no long term degradation of designated Outstanding National Resource Waters (such as Lake Tahoe and Mono Lake) is allowed. The Lahontan Basin Plan contains a narrative water quality objective for antidegradation, which references state and federal requirements. USEPA guidance directs that antidegradation be considered in listing decisions. For surface waters of the Lahontan Region where discharges are prohibited, it could be argued that the presence of any non-natural chemicals constitutes degradation in violation of the objective (assuming that findings to allow degradation have not been made) and that such waters should be listed. Examples include boat fuel chemicals monitored in Lake Tahoe and Donner Lake, and the presence of PCBs, probably from atmospheric deposition, in some "pristine" waters of the Lake Tahoe Basin. Staff's recommendation is that waters should not be listed for violations of the nondegradation objective unless a pollutant is present in a concentration which violates another water quality objective or adversely affects a beneficial use, and unless sample numbers are large enough to provide some confidence that they are representative.

Needs for Changes in Water Quality Standards. Some of the water quality objectives in the Lahontan Basin Plan were established in 1975 based on very limited monitoring data or on older published water quality criteria. These objectives may not reflect the natural background conditions of the affected water bodies, or current scientific criteria for protection of beneficial uses. Concerns have also arisen with the consequences of expressing some objectives as running averages or "means of monthly means." High historical values may lead to violation of such objectives even if recent water quality is greatly improved. Listing and tentative schedules for TMDL development are recommended for certain water bodies with violations of standards which may need revision. However, the Regional Board may pursue changes in standards, rather than TMDLs, for these waters.

Toxic Substances Monitoring Program (TSMP) Results. Since 1978, about 10 to 15 Lahontan Region waters have been sampled each year for toxic metals and/or organic compounds in the State Board's TSMP. The TSMP involves collection and analysis of fish tissue samples. Results can be compared to historic TSMP results statewide, and to human fish consumption criteria. During past Section 303(d) list update cycles, Regional Boards were directed to list waters where TSMP data for edible tissue exceeded consumption criteria. However, TSMP samples involve a relatively small number of fish and are not statistically representative of the entire fish population. Also, in waters where game fish are stocked, the TSMP results may reflect hatchery conditions rather than ambient water quality. During the 2001-2002 list update, Lahontan Region waters will not be recommended for listing based on TSMP results alone without additional, statistically representative tissue data, ambient water and sediment data, and/or a fish advisory issued by state or local authorities. Additional monitoring will be recommended for waters where TSMP results indicate a possible fish consumption problem.

Intermittent and Ephemeral Waters. Intermittent or ephemeral streams are common in desert portions of the Lahontan Region. Streams which flow underground in defined channels are considered surface waters for purposes of water rights in California, and in the past, Regional Board staff used this interpretation in listing. The Mojave River was listed for priority organics in the 1980s due to subsurface pollutants from the "Barstow Slug" of chlorinated hydrocarbons. Staff's current approach is to recommend that intermittent streams be assessed for listing only on the basis of data collected from water flowing on the surface.

Evaluation Approach

A "weight of evidence" approach was used to develop recommendations for new listings. The weight of evidence approach involves weighing available information as to its ability to demonstrate a credible line of reasoning leading to a conclusion about the condition of the water. Three possible conclusions exist: (1) the water body is not meeting standards; (2) the water body is meeting standards, or (3) based on the available data and information, standards attainment cannot be determined. Regional Board staff's "weight of evidence approach" involved initial screening of available data for data quality, quantity, and frequency of sampling during the current assessment cycle (1997-2001). Compliance with water quality objectives was evaluated, and preliminary recommendations were discussed with Regional Board supervisors and management. Listing based on only one or a few samples, or on qualitative assessment, was not ruled out. However, after review of available data, staff decided to emphasize listing recommendations for clear violations of numeric standards.

Data Quantity and Quality. Some states establish minimum requirements for the quality and quantity of data used in listing decisions. It has not been feasible to develop data quantity/quality thresholds for the Lahontan Region given the limited time and resources available. Staff evaluated available data and information on a case by case basis, and made recommendations using a weight of evidence approach. The assessment process emphasized data collected since 1997 (the year when the previous list update process began, although older data were evaluated in cases where standards are based on running averages or where the status of point and nonpoint source discharges is not known to have changed significantly. To evaluate compliance with objectives based on annual means, staff looked for data sets with sample frequency more than quarterly, and preferably with several years of data.

Most of the data available to Lahontan Regional Board staff were ambient water chemistry data. The Regional Board is sponsoring biomonitoring for eventual development of "biocriteria" objectives, and a limited amount of citizen monitoring data is available. However, reference conditions have not yet been completely defined, and biomonitoring data were not used to recommend any new listings. Sample numbers were small for tissue and sediment data collected since 1997, and Regional Board staff did not recommend any listings on the basis of these data. (To staff's knowledge, there are no active fish consumption advisories in the Lahontan Region.) No toxicity bioassay data collected since 1997 were available. Listing was recommended only on the basis of data collected and analyzed by agencies, groups, and laboratories known to use appropriate Quality Control/Quality Assurance (QA/QC) procedures. Data with no documented QA/QC procedures, and qualitative "information" were used in some recommendations for the "watch list."

Standards and criteria. Water quality standards in California include beneficial use designations (for example, Municipal and Domestic Supply, Cold Freshwater Habitat, Water Contact Recreation) and narrative or numerical "water quality objectives" established to protect beneficial uses. The term "water quality objectives" is equivalent to the federal term "water quality criteria." Most of the water quality standards for the Lahontan Region are contained in the Lahontan Basin Plan. Chapter 3 of the Basin Plan includes direction on determining compliance with water quality objectives. Most numerical objectives are expressed as annual means and 90th percentile levels.

California water quality standards also include the criteria for toxic "priority pollutants" promulgated by the USEPA under the California Toxics Rule and National Toxics Rule, and the statewide "Nondegradation Policy" (State Board Resolution 68-16). Criteria issued by other agencies, which are not part of the formal water quality standards, can also be used to assess impairment. These include fish consumption criteria and advisories and "public health goals". Lahontan Regional Board staff's recommended additions to the Section 303(d) list are based primarily on violations of numerical water quality objectives. Sampling of surface waters for the toxic pollutants addressed in the California Toxics Rule and National Toxics Rule in surface waters of the Lahontan Region has been done too infrequently to allow conclusions about impairment and the need for listing in relation to these criteria. Some data were evaluated in terms of other criteria such as Office of Health Hazard Assessment fish consumption criteria and public health goals, but no hierarchical ranking was assigned to different types of criteria. One water body (Searles Lake) is recommended for listing on the basis of a documented beneficial use impairment (for the Wildlife Habitat use), but in general, data regarding aquatic life and wildlife uses in the Lahontan Region are insufficient to permit conclusions about attainment of uses or of narrative objectives related to habitat uses. See the discussions of "Lahontan Regional Board Staff Considerations" above for additional information on the use of standards and criteria in the Lahontan Region's Section 303(d) assessment.

Watch List. While a number of water body/pollutant combinations clearly qualify for listing, many waters fall into the category where: "based on the available data and information, standards attainment cannot be determined." Table 2 is a list of these water body/pollutant combinations. The purpose of the list is to highlight the need for additional monitoring and assessment for these waters to determine the need for TMDLs or for action under some other Regional Board program. A "watch list" is not required under Section 303(d) of the Clean Water Act. However, states are directed to identify "threatened" waters under the Section 305(b) water quality assessment program. The "watch list" in Table 2 includes waters from California's 1998 Section 305(b) report to the USEPA that were then identified as "threatened" or "partially meeting beneficial uses" due to pollutants, but were not on the Section 303(d)

list. Staff will recommend that water body-pollutant combinations added to Table 2 but not identified as "threatened" in the 1998 Section 305(b) report be classified as "threatened" in the 2002 Section 305(b) assessment.

Clarification of Existing Listings

Together with the recommended additions to and deletions from the Section 303(d) list, clarification is proposed for the listing status of a number of other water bodies in the 1998 list. Some of these changes are shown in Table 1; others will be entered into the computer database used for reporting to the State Board and the USEPA. Clarification includes changes in descriptions of pollutants; for example, an earlier single listing for a water body impaired by "nutrients" may be replaced by separate listings for "nitrogen," "phosphorus," and/or "iron." In other cases, the impaired portion of a water body has been identified more specifically, and there may be separate listings for upstream and downstream segments.

Priority Ranking

A priority ranking is required for listed waters to guide TMDL planning pursuant to 40 CFR 130.7. Lahontan Region waters are recommended to be ranked into high, medium, and low priority categories for development of TMDLs based on the following considerations:

1. Water body significance (e.g., importance and extent of beneficial uses, concerns related to threatened/endangered species, and size of the water body)

2. Degree of impairment or threat (such as number of pollutants, and number of beneficial uses impaired)

3. Conformity with related activities in the watershed (such as existence of watershed assessment, planning, pollution control and remediation, or restoration efforts in the area)

4. Potential for protection or recovery of beneficial uses

5. Degree of public concern and involvement

6. Availability of funding and information to address the water quality problem

7. Overall need for an adequate pace of TMDL development for all listed waters

8. Higher priorities given to other water bodies and pollutants.

It should be noted that the criteria can be applied in different ways to different water bodies and pollutants. For example, a water body may be severely impaired, but if there is little likelihood of beneficial use recovery, then a lower TMDL priority might be given.

The proposed TMDL priorities differ in some cases from those assigned to the same waters in the 1998 Section 303(d) list. For the most part, high priorities have been given to waters on the 1998 Section 303(d) list for which TMDL development is already under way. High priorities may also be given to

tributaries of these waters recommended for listing in 2002. Low priorities have been recommended for some water body-pollutant combinations expected to be delisted in 2004 under proposed changes to federal regulations. (For example, the new regulations are expected to clarify that TMDLs are not required for waters impaired by flow alterations.) Lower priorities may also be given to water bodies which need further assessment or regulatory action through some other Regional Board program, which lessens the need to begin TMDL development immediately. TMDL priority rankings and schedules may change during the next (2004) list update cycle.

TMDL Schedules

The USEPA has directed that TMDLs should be developed and completed for all water bodies on the 1998 Section 303(d)list by 2011 (unless there is justification for delisting.) The State Board has requested that Regional Board recommendations for the 2002 Section 303(d) list update include schedules for TMDL development for all listed waters. Recommended end dates for TMDL development for Lahontan Region waters are included in Table 1. For budgeting and reporting purposes, completion of TMDLs in California means formal Regional Board consideration of the adoption of Basin Plan amendments to incorporate TMDLs and TMDL implementation programs. Federal regulations do not currently require TMDL implementation programs, but they are required under California law. The Basin Plan amendment process is lengthy and complex, involving scientific peer review, compliance with the California Environmental Quality Act, and approvals of the amendments by several other agencies following Regional Board action.

Schedules beyond the first two years should be regarded as tentative and dependent on the availability of resources. State and federal budget processes do not allow accurate projection of resources beyond two years. Other factors affecting TMDL schedules include stakeholder group priorities, Regional Board priorities for Basin Plan amendments unrelated to TMDLs, and the availability of a Regional Board quorum for a vote. In cases where a water body was listed on the basis of limited data, the need for additional monitoring to provide data on which to base TMDL calculations will delay completion of the TMDL.

Not all waters ranked as "high" priorities for TMDLs can be scheduled for "immediate" TMDL development. Many of the surface waters of the Lahontan Region meet USEPA criteria for designation as "Outstanding National Resource Waters," based on considerations such as location in wilderness areas, presence of threatened/endangered species, or other recreational and ecological values. The scarcity of water in much of the region gives it high value. Thus, most 303(d) listed waters in the Lahontan Region could be given high priority based on resource value alone. Resource constraints will not permit all waters with high resource values or severe problems to be addressed at the same time. Some of the waters ranked "high" have been scheduled for later TMDL development.

Because of the large backlog of waters on the 1998 Section 303(d) list requiring TMDL development by 2011, all Lahontan Region waters recommended for addition to the list in 2002 are projected for completion of TMDLs after 2015. If additional resources become available, it may be possible to complete some of these TMDLs sooner. Schedules for the waters on the 2002 Section 303(d) list will be further revised in 2004 and subsequent list update cycles.

Staff Recommendations

Table 1 lists the water bodies or (or segments of water bodies) in the Lahontan Region recommended for addition to or removal from the Section 303(d) list. Table 1 also includes waters on the 1998 Section 303(d) list which are not recommended for change. Priority rankings and end dates for TMDL development are given for waters recommended for the 2002 Section 303(d) list. Tables 1A, 1B, and 1C are subsets of Table 1 with water bodies grouped by categories of recommendations (addition to, deletion from, or retention on the list).

Table 2 is a "watch list" of waters with some indication of problems but insufficient data to warrant listing at this time. Waters on the "watch list" should receive additional monitoring and assessment when resources are available.

The following is a summary of Lahontan Regional Board staff's recommendations:

Number of water body/pollutant combinations recommended for addition to Section 303(d) list in 2002	45
Number of water body/pollutant combinations recommended for deletion from Section 303(d) list in 2002	29
Number of water body/pollutant combinations on 1998 Section 303(d) list recommended for retention on 2002 list	69
Total number of water body/pollutant combinations recommended for 2002 list	114

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Table 1. Recommendations for Update of the Section 303(d) List for the Lahontan Region

Waterbody Name	Proposed Action	Pollutant(s)/Stressor(s)	TMDL Priority Ranking[1]	TMDL End Date[2]	Comments
Surprise Valley HU 641.00[3]					
Upper Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Middle Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Lower Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Mill Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2011	Needs study to verify need for TMDL
Susanville HU 637.00					
Eagle Lake	Retain on 303(d) List[4]	Nitrogen	High	2008	
Eagle Lake	Retain on 303(d) List[4]	Phosphorus	High	2008	
Pine Creek	Retain on 303(d) List	Sedimentation/Siltation [actual problem: Fish Habitat Alterations]	High	2011[5]	TMDL probably not needed[5]
Lassen Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Susan River	Retain on 303(d) List	Unknown Toxicity	High	2007	Listed for toxic bioassay results
Top Spring	Remove from 303(d) List	Radiation	NA	NA	Impairment is natural; no "pollutants"
Amedee Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Wendel Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Honey Lake	Retain on 303(d) List	Arsenic	Medium	2005	Natural sources plus geothermal discharges
Honey Lake	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2005	Natural sources plus geothermal discharges
Honey Lake Area Wetlands	Retain on 303(d) List	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Flow Alterations	Low	2007[5]	TMDL probably not needed[5]
Honey Lake Wildfowl Mgmt Ponds	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Trace Elements	Medium	2007	Natural sources plus geothermal discharges
Skedaddle Creek	Retain on 303(d) List	High Coliform Count	Low	2006	Further study may lead to delisting
Little Truckee River HU 636.00					
Stampede Reservoir	Remove from 303(d) List	Pesticides [Lindane][6]	NA	NA	TSMP- insufficient data for listing[8]
Truckee River HU 635.00					
Donner Lake	Remove from 303(d) List	Priority Organics [PCBs, Chlordane][6]	NA	NA	TSMP- insufficient data for listing[8]
Truckee River	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Bear Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Bronco Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Gray Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Squaw Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2003	TMDL development in progress
Cinder Cone Springs	Retain on 303(d) List	Nutrients	Medium	2007	Further study may lead to delisting
Cinder Cone Springs	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2007	Further study may lead to delisting
Lake Tahoe HU 634.00					
Snow Creek	Remove from 303(d) List	Habitat Alterations	NA	NA	Restoration program implemented
Lake Tahoe	Retain on 303(d) List[4]	Phosphorus	High	2007	TMDL development in progress
Lake Tahoe	Retain on 303(d) List[4]	Nitrogen	High	2007	TMDL development in progress
Lake Tahoe	Retain on 303(d) List	Sedimentation/Siltation	High	2007	TMDL development in progress
Upper Truckee River	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Upper Truckee River	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL

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Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant(s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
Lake Tahoe HU 634.00 continued					
Upper Truckee River above Christmas Valley	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Big Meadow Creek	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Heavenly Valley Creek above USFS property line	Retain on 303(d) List	Sediment	High	2001	TMDL completed 2001, awaiting final approvals
Heavenly Valley Creek below USFS property line	Add to 303(d) List	Sediment	Medium	After 2015	Restoration progam may eliminate need for TMDL
Heavenly Valley Creek	Add to 303(d) list	Chloride	Low	After 2015	Standard needs revision
Heavenly Valley Creek above USFS property line	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Add to 303(d) List	Chloride	Low	After 2015	Standard needs revision
Trout Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Trout Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek below Hwy 50 in S. Lake Tahoe	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Tallac Creek below Hwy 89	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Ward Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2007	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
General Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
General Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Blackwood Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2007	TMDL development in progress
Blackwood Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
West Fork Carson River HU 633.00					
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Phosphorus	High	After 2015	
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to Paynesville	Add to 303(d) List	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., Woodfords to Paynesville	Add to 303(d) List	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to State Line	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Fork Carson River HU 632.00					
East Fork Carson River	Remove from 303(d) List	Nutrients	NA	NA	Incorrect assumption led to listing
Indian Creek Reservoir	Retain on 303(d) List	Nutrients	High	2002[7]	
Indian Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Indian Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Monitor Creek	Retain on 303(d) List[4]	Iron	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Silver	High	2011	TMDL to be coordinated with CERCLA remediation

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Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	***Proposed Action***	***Pollutant(s)/Stressor(s)***	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
East Fork Carson River HU 632.00, continued					
Monitor Creek	Retain on 303(d) List[4]	Aluminum	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Manganese	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Add to 303(d) List	Sulfate	High	After 2015	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Add to 303(d) List	Total Dissolved Solids	High	After 2015	TMDL to be coordinated with CERCLA remediation
Wolf Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2011	
Aspen Creek	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Bryant Creek	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Leviathan Creek, at and below Leviathan Mine	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
West Walker River HU 631.00					
Topaz Lake	Retain on 303(d) list	Sedimentation/Siltation	High	2007	
West Walker River	Retain on 303(d) List	Sedimentation/Siltation	High	2009	
Fales Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Hot Creek	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
East Walker River HU 630.00					
Bridgeport Reservoir	Retain on 303(d) List[4]	Nitrogen	High	2005	TMDL development in progress
Bridgeport Reservoir	Retain on 303(d) List[4]	Phosphorus	High	2005	TMDL development in progress
Bridgeport Reservoir	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
East Walker River above Bridgeport Reservoir	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Walker River below Bridgeport Reservoir	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
East Walker River below Bridgeport Reservoir	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
East Walker River below Bridgeport Reservoir	Remove from 303(d) List	Metals	NA	NA	TSMP- insufficient data for listing[8]
East Walker River below Bridgeport Reservoir	Retain on 303(d) List	Sedimentation/Siltation	High	2009	
Robinson Creek, Hwy 395 to Bridgeport Res.	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Robinson Creek, Twin Lakes to Bridgeport Res.	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Buckeye Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Buckeye Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Virginia Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Green Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Rough Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Aurora Canyon Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Hot Springs Canyon Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Clark Canyon Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Clearwater Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Bodie Creek	Retain on 303(d) List	Metals	High	2004	Impairment probably related to past mining activity

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Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant (s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
Mono HU 601.00					
Lee Vining Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Mill Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Grant Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Mono Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Owens HU 603.00					
Haiwee Reservoir	Retain on 303(d) List	Copper	Low	2003	TMDL development in progress
Mammoth Creek	Retain on 303(d) List	Metals	High	2008	Needs study to verify need for TMDL
Hot Creek	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Little Hot Creek	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Twin Lakes (Mammoth)	Retain on 303(d) List[4]	Nitrogen	Low	2008	Needs study to verify need for TMDL
Twin Lakes (Mammoth)	Retain on 303(d) List[4]	Phosphorus	Low	2008	Needs study to verify need for TMDL
Little Alkali Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Big Springs	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Owens River	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Owens River (Long HA)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens River (Upper)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens River (Lower)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Crowley Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Crowley Lake	Retain on 303(d) List[4]	Nitrogen	High	2005	Nutrient loading currently under study
Crowley Lake	Retain on 303(d) List[4]	Phosphorus	High	2005	Nutrient loading currently under study
Keough Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Tinemaha Reservoir	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Tinemaha Reservoir	Retain on 303(d) List	Metals [Copper]	Low	2004	Copper from algicide application
Pleasant Valley Reservoir	Retain on 303(d) List	Nitrogen	High	2006	
Pleasant Valley Reservoir	Retain on 303(d) List[4]	Phosphorus	High	2006	
Tuttle Creek	Retain on 303(d) List[4]	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Goodale Creek	Retain on 303(d) List	Sedimentation/Siltation	Low	2009	Further study may lead to delisting
Owens Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Cottonwood Creek below LADWP diversion	Retain on 303(d) List	Water/Flow Variability	Low	2011[5]	TMDL probably not needed[5]
Deep Springs HU 605.00					
Deep Springs Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Deep Springs Lake	Remove from 303(d) List	Trace Elements	NA	NA	Impairment is natural; no "pollutants"

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Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant (s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
Amargosa HU 609.00					
Amargosa River	Remove from 303(d) List	Salinity/TDS/chlorides	NA	NA	Impairment is natural; no "pollutants"
Trona HU 621.00					
Searles Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Searles Lake	Add to 303(d) List	Petroleum Hydrocarbons	Low	After 2015	Documented bird kills from industrial pollutants
Mojave HU 628.00					
Mojave River near Barstow	Remove from 303(d) List	Priority Organics	NA	NA	Ground water, not surface water impairment
Mojave River between Upper and Lower Narrows	Add to 303(d) List	Total Dissolved Solids	High	After 2015	Exceeds drinking water standard
Mojave River between Upper and Lower Narrows	Add to 303(d) List	Chloride	High	After 2015	Exceeds water quality objectives
Mojave River between Upper and Lower Narrows	Add to 303(d) List	Sulfate	High	After 2015	Exceeds water quality objectives
Horseshoe Lake	Retain on 303(d) List	Sedimentation/Siltation	Low	2007	Further study may lead to delisting
Green Valley Lake Creek	Retain on 303(d) List	Priority Organics	Low	2006	Further study may lead to delisting

[1]TMDL priority rankings and end dates are shown only for water bodies recommended for inclusion in the 2002 list. The entry "NA" means "not applicable."

[2] TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments. Plan amendments incorporating TMDLs will not take effect unless and until they receive further approvals from the California State Water Resources Control Board, the California Office of Administrative Law, and the U.S. Environmental Protection Agency.

[3] Water bodies are grouped by watersheds in north-to-south order. Watershed (Hydrologic Unit or HU) numbers are Department of Water Resources numbers used in the maps in the Lahontan Basin Plan, and do not run in north-to-south order.

[4] The entry "Retain on 303(d) List" in the "Proposed Action" column means that this water body/pollutant combination is on the 1998 Section 303(d) list and is proposed to remain on the 2002 list. In some cases the nature of the pollutants or the extent of the impaired segment has been clarified. For example, earlier listings for "nutrients" or "organic enrichment/Low D.O." may now be changed to separate listings for individual pollutants (nitrogen and phosphorus), and an earlier single entry for habitat alterations in the Owens River has been changed to three separate entries to reflect different segments of the river. Changes are recommended in priority rankings and TMDL end dates for many of the water body/pollutant combinations from the 1998 list.

[5] Pending revisions to federal regulations for the implementation of Section 303(d) of the Clean Water Act would clarify that TMDLs are not required for waters impaired by flow alterations, water/flow variability and habitat alterations, unless specific "pollutants" are also involved. (Load calculations are not feasible in cases where there are no pollutants.) Under the proposed new regulations, waters impaired by habitat or flow alterations, or by flow variability, would be placed on a separate list of impaired waters to highlight the need for control strategies other than TMDLs.

[6]Clarification of the nature of the pollutants has been added in brackets for some water bodies recommended for removal from the Section 303(d) list. See the fact sheets for these water bodies for further information.

[7]Regional Board staff completed draft Basin Plan amendments incorporating a phosphorus TMDL for Indian Creek Reservoir in November 2000. The Regional Board has been unable to act on these amendments due to lack of a quorum for a vote.

[8]Some waters were listed based on Toxic Substances Monitoring Program (TSMP) fish tissue data. Because sample numbers were small, TSMP data alone are not considered sufficient grounds for listing.

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Table 1A. Proposed Additions to the Section 303(d) List for the Lahontan Region

Waterbody Name	Proposed Action	Pollutant(s) /Stressor(s)	TMDL Priority Ranking[1]	TMDL End Date[2]	Comments
Lake Tahoe HU 634.00					
Upper Truckee River	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Upper Truckee River	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Upper Truckee River above Christmas Valley	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Big Meadow Creek	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Heavenly Valley Creek below USFS property line	Add to 303(d) List	Sediment	Medium	After 2015	Restoration progam may eliminate need for TMDL
Heavenly Valley Creek	Add to 303(d) list	Chloride	Low	After 2015	Standard needs revision
Heavenly Valley Creek above USFS property line	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Add to 303(d) List	Chloride	Low	After 2015	Standard needs revision
Trout Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Trout Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek below Hwy 50 in S. Lake Tahoe	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Tallac Creek below Hwy 89	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Ward Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
General Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
General Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Blackwood Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
West Fork Carson River HU 633.00					
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Phosphorus	High	After 2015	
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to Paynesville	Add to 303(d) List	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., Woodfords to Paynesville	Add to 303(d) List	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to State Line	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Fork Carson River HU 632.00					
Indian Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Monitor Creek	Add to 303(d) List	Sulfate	High	After 2015	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Add to 303(d) List	Total Dissolved Solids	High	After 2015	TMDL to be coordinated with CERCLA remediation
East Walker River HU 630.00					
East Walker River above Bridgeport Reservoir	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Walker River below Bridgeport Reservoir	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
East Walker River below Bridgeport Reservoir	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Robinson Creek, Hwy 395 to Bridgeport Res.	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Robinson Creek, Twin Lakes to Bridgeport Res.	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated

Table 1A. Proposed Additions to Lahontan Region 303(d) List , continued					
Waterbody Name	**Proposed Action**	**Pollutant (s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
East Walker River HU 630.00, continued					
Swauger Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Buckeye Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Buckeye Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Virginia Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Trona HU 621.00					
Searles Lake	Add to 303(d) List	Petroleum Hydrocarbons	Low	After 2015	Documented bird kills from industrial pollutants
Mojave HU 628.00					
Mojave River between Upper and Lower Narrows	Add to 303(d) List	Total Dissolved Solids	High	After 2015	Exceeds drinking water standard
Mojave River between Upper and Lower Narrows	Add to 303(d) List	Chloride	High	After 2015	Exceeds water quality objectives
Mojave River between Upper and Lower Narrows	Add to 303(d) List	Sulfate	High	After 2015	Exceeds water quality objectives

Footnotes for Table 1A. (The following footnotes were developed for Table 1, the master table containing all recommendations. Some of the information is not relevant to this subtable.)

[1]TMDL priority rankings and end dates are shown only for water bodies recommended for inclusion in the 2002 list. The entry "NA" means "not applicable."

[2] TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments. Plan amendments incorporating TMDLs will not take effect unless and until they receive further approvals from the California State Water Resources Control Board, the California Office of Administrative Law, and the U.S. Environmental Protection Agency.

[3] Water bodies are grouped by watersheds in north-to-south order. Watershed (Hydrologic Unit or HU) numbers are Department of Water Resources numbers used in the maps in the Lahontan Basin Plan, and do not run in north-to-south order.

[4] The entry "Retain on 303(d) List" in the "Proposed Action" column means that this water body/pollutant combination is on the 1998 Section 303(d) list and is proposed to remain on the 2002 list. In some cases the nature of the pollutants or the extent of the impaired segment has been clarified. For example, earlier listings for "nutrients" or "organic enrichment/Low D.O." may now be changed to separate listings for individual pollutants (nitrogen and phosphorus), and an earlier single entry for habitat alterations in the Owens River has been changed to three separate entries to reflect different segments of the river. Changes are recommended in priority rankings and TMDL end dates for many of the water body/pollutant combinations from the 1998 list.

[5] Pending revisions to federal regulations for the implementation of Section 303(d) of the Clean Water Act would clarify that TMDLs are not required for waters impaired by flow alterations, water/flow variability and habitat alterations, unless specific "pollutants" are also involved. (Load calculations are not feasible in cases where there are no pollutants.) Under the proposed new regulations, waters impaired by habitat or flow alterations, or by flow variability, would be placed on a separate list of impaired waters to highlight the need for control strategies other than TMDLs.

[6]Clarification of the nature of the pollutants has been added in brackets for some water bodies recommended for removal from the Section 303(d) list. See the fact sheets for these water bodies for further information.

[7]Regional Board staff completed draft Basin Plan amendments incorporating a phosphorus TMDL for Indian Creek Reservoir in November 2000. The Regional Board has been unable to act on these amendments due to lack of a quorum for a vote.

[8]Some waters were listed based on Toxic Substances Monitoring Program (TSMP) fish tissue data. Because sample numbers were small, TSMP data alone are not considered sufficient grounds for listing.

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Table 1B. Recommended Deletions from the Section 303(d) List for the Lahontan Region

Waterbody Name	Proposed Action	Pollutant(s) /Stressor(s)	TMDL Priority Ranking[1]	TMDL End Date [2]	Comments
Surprise Valley HU 641.00[3]					
Upper Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Middle Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Lower Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Susanville HU 637.00					
Top Spring	Remove from 303(d) List	Radiation	NA	NA	Impairment is natural; no "pollutants"
Amedee Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Wendel Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Little Truckee River HU 636.00					
Stampede Reservoir	Remove from 303(d) List	Pesticides [Lindane][6]	NA	NA	TSMP- insufficient data for listing[8]
Truckee River HU 635.00					
Donner Lake	Remove from 303(d) List	Priority Organics [PCBs, Chlordane][6]	NA	NA	TSMP- insufficient data for listing[8]
Lake Tahoe HU 634.00					
Snow Creek	Remove from 303(d) List	Habitat Alterations	NA	NA	Restoration program implemented
East Fork Carson River HU 632.00					
East Fork Carson River	Remove from 303(d) List	Nutrients	NA	NA	Incorrect assumption led to listing
West Walker River HU 631.00					
Fales Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Hot Creek	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
East Walker River HU 630.00					
East Walker River below Bridgeport Reservoir	Remove from 303(d) List	Metals	NA	NA	TSMP- insufficient data for listing[8]
Mono HU 601.00					
Grant Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Mono Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Owens HU 603.00					
Hot Creek	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Little Hot Creek	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Little Alkali Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Big Springs	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Owens River	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Crowley Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Keough Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Tinemaha Reservoir	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Owens Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Deep Springs HU 605.00					
Deep Springs Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Deep Springs Lake	Remove from 303(d) List	Trace Elements	NA	NA	Impairment is natural; no "pollutants"
Amargosa HU 609.00					
Amargosa River	Remove from 303(d) List	Salinity/TDS/chlorides	NA	NA	Impairment is natural; no "pollutants"
Trona HU 621.00					
Searles Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Mojave HU 628.00					
Mojave River near Barstow	Remove from 303(d) List	Priority Organics	NA	NA	Ground water, not surface water impairment

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Footnotes for Table 1B. (The following footnotes were developed for Table 1, the master table containing all recommendations. Some of the information is not relevant to this subtable.)

[1]TMDL priority rankings and end dates are shown only for water bodies recommended for inclusion in the 2002 list. The entry "NA" means "not applicable."

[2] TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments. Plan amendments incorporating TMDLs will not take effect unless and until they receive further approvals from the California State Water Resources Control Board, the California Office of Administrative Law, and the U.S. Environmental Protection Agency.

[3] Water bodies are grouped by watersheds in north-to-south order. Watershed (Hydrologic Unit or HU) numbers are Department of Water Resources numbers used in the maps in the Lahontan Basin Plan, and do not run in north-to-south order.

[4] The entry "Retain on 303(d) List" in the "Proposed Action" column means that this water body/pollutant combination is on the 1998 Section 303(d) list and is proposed to remain on the 2002 list. In some cases the nature of the pollutants or the extent of the impaired segment has been clarified. For example, earlier listings for "nutrients" or "organic enrichment/Low D.O." may now be changed to separate listings for individual pollutants (nitrogen and phosphorus), and an earlier single entry for habitat alterations in the Owens River has been changed to three separate entries to reflect different segments of the river. Changes are recommended in priority rankings and TMDL end dates for many of the water body/pollutant combinations from the 1998 list.

[5] Pending revisions to federal regulations for the implementation of Section 303(d) of the Clean Water Act would clarify that TMDLs are not required for waters impaired by flow alterations, water/flow variability and habitat alterations, unless specific "pollutants" are also involved. (Load calculations are not feasible in cases where there are no pollutants.) Under the proposed new regulations, waters impaired by habitat or flow alterations, or by flow variability, would be placed on a separate list of impaired waters to highlight the need for control strategies other than TMDLs.

[6]Clarification of the nature of the pollutants has been added in brackets for some water bodies recommended for removal from the Section 303(d) list. See the fact sheets for these water bodies for further information.

[7]Regional Board staff completed draft Basin Plan amendments incorporating a phosphorus TMDL for Indian Creek Reservoir in November 2000. The Regional Board has been unable to act on these amendments due to lack of a quorum for a vote.

[8]Some waters were listed based on Toxic Substances Monitoring Program (TSMP) fish tissue data. Because sample numbers were small, TSMP data alone are not considered sufficient grounds for listing.

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Table 1C. Water Bodies on 1998 303(d) List Recommended for Retention on 2002 List

Waterbody Name	Proposed Action	Pollutant(s) /Stressor(s)	TMDL Priority Ranking[1]	TMDL End Date[2]	Comments
Surprise Valley HU 641.00[3]					
Mill Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2011	Needs study to verify need for TMDL
Susanville HU 637.00					
Eagle Lake	Retain on 303(d) List[4]	Nitrogen	High	2008	
Eagle Lake	Retain on 303(d) List[4]	Phosphorus	High	2008	
Pine Creek	Retain on 303(d) List	Sedimentation/Siltation [actual problem: Fish Habitat Alterations]	High	2011[5]	TMDL probably not needed[5]
Lassen Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Susan River	Retain on 303(d) List	Unknown Toxicity	High	2007	Listed for toxic bioassay results
Honey Lake	Retain on 303(d) List	Arsenic	Medium	2005	Natural sources plus geothermal discharges
Honey Lake	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2005	Natural sources plus geothermal discharges
Honey Lake Area Wetlands	Retain on 303(d) List	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Flow Alterations	Low	2007[5]	TMDL probably not needed[5]
Honey Lake Wildfowl Mgmt Ponds	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Trace Elements	Medium	2007	Natural sources plus geothermal discharges
Skedaddle Creek	Retain on 303(d) List	High Coliform Count	Low	2006	Further study may lead to delisting
Truckee River HU 635.00					
Truckee River	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Bear Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Bronco Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Gray Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Squaw Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2003	TMDL development in progress
Cinder Cone Springs	Retain on 303(d) List	Nutrients	Medium	2007	Further study may lead to delisting
Cinder Cone Springs	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2007	Further study may lead to delisting
Lake Tahoe HU 634.00					
Lake Tahoe	Retain on 303(d) List[4]	Phosphorus	High	2007	TMDL development in progress
Lake Tahoe	Retain on 303(d) List[4]	Nitrogen	High	2007	TMDL development in progress
Lake Tahoe	Retain on 303(d) List	Sedimentation/Siltation	High	2007	TMDL development in progress
Heavenly Valley Creek above USFS property line	Retain on 303(d) List	Sediment	High	2001	TMDL completed 2001, awaiting final approvals
Ward Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2007	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2007	TMDL development in progress
East Fork Carson River HU 632.00					
Indian Creek Reservoir	Retain on 303(d) List	Nutrients	High	2002[7]	
Indian Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Monitor Creek	Retain on 303(d) List[4]	Iron	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Silver	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Aluminum	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Manganese	High	2011	TMDL to be coordinated with CERCLA remediation
Wolf Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2011	
Aspen Creek	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Bryant Creek	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Leviathan Creek, at and below Leviathan Mine	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation

Table 1(C). Waters Recommended for Retention, continued					
Waterbody Name	**Proposed Action**	**Pollutant (s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
West Walker River HU 631.00					
Topaz Lake	Retain on 303(d) list	Sedimentation/Siltation	High	2007	
West Walker River	Retain on 303(d) List	Sedimentation/Siltation	High	2009	
East Walker River HU 630.00					
Bridgeport Reservoir	Retain on 303(d) List[4]	Nitrogen	High	2005	TMDL development in progress
Bridgeport Reservoir	Retain on 303(d) List[4]	Phosphorus	High	2005	TMDL development in progress
Bridgeport Reservoir	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
East Walker River below Bridgeport Reservoir	Retain on 303(d) List	Sedimentation/Siltation	High	2009	
Green Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Rough Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Aurora Canyon Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Hot Springs Canyon Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Clark Canyon Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Clearwater Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Bodie Creek	Retain on 303(d) List	Metals	High	2004	Impairment probably related to past mining activity
Mono HU 601.00					
Lee Vining Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Mill Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens HU 603.00					
Haiwee Reservoir	Retain on 303(d) List	Copper	Low	2003	TMDL development in progress
Mammoth Creek	Retain on 303(d) List	Metals	High	2008	Needs study to verify need for TMDL
Twin Lakes (Mammoth)	Retain on 303(d) List[4]	Nitrogen	Low	2008	Needs study to verify need for TMDL
Twin Lakes (Mammoth)	Retain on 303(d) List[4]	Phosphorus	Low	2008	Needs study to verify need for TMDL
Owens River (Long HA)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens River (Upper)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens River (Lower)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Crowley Lake	Retain on 303(d) List[4]	Nitrogen	High	2005	Nutrient loading currently under study
Crowley Lake	Retain on 303(d) List[4]	Phosphorus	High	2005	Nutrient loading currently under study
Tinemaha Reservoir	Retain on 303(d) List	Metals [Copper]	Low	2004	Copper from algicide application
Pleasant Valley Reservoir	Retain on 303(d) List	Nitrogen	High	2006	
Pleasant Valley Reservoir	Retain on 303(d) List[4]	Phosphorus	High	2006	
Tuttle Creek	Retain on 303(d) List[4]	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Goodale Creek	Retain on 303(d) List	Sedimentation/Siltation	Low	2009	Further study may lead to delisting
Cottonwood Creek below LADWP diversion	Retain on 303(d) List	Water/Flow Variability	Low	2011[5]	TMDL probably not needed[5]
Mojave HU 628.00					
Horseshoe Lake	Retain on 303(d) List	Sedimentation/Siltation	Low	2007	Further study may lead to delisting
Green Valley Lake Creek	Retain on 303(d) List	Priority Organics	Low	2006	Further study may lead to delisting

Footnotes for Table 1C. (The following footnotes were developed for Table 1, the master table containing all recommendations. Some of the information is not relevant to this subtable.)

[1]TMDL priority rankings and end dates are shown only for water bodies recommended for inclusion in the 2002 list. The entry "NA" means "not applicable."

[2] TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments. Plan amendments incorporating TMDLs will not take effect unless and until they receive further approvals from the California State Water Resources Control Board, the California Office of Administrative Law, and the U.S. Environmental Protection Agency.

[3] Water bodies are grouped by watersheds in north-to-south order. Watershed (Hydrologic Unit or HU) numbers are Department of Water Resources numbers used in the maps in the Lahontan Basin Plan, and do not run in north-to-south order.

[4] The entry "Retain on 303(d) List" in the "Proposed Action" column means that this water body/pollutant combination is on the 1998 Section 303(d) list and is proposed to remain on the 2002 list. In some cases the nature of the pollutants or the extent of the impaired segment has been clarified. For example, earlier listings for "nutrients" or "organic enrichment/Low D.O." may now be changed to separate listings for individual pollutants (nitrogen and phosphorus), and an earlier single entry for habitat alterations in the Owens River has been changed to three separate entries to reflect different segments of the river. Changes are recommended in priority rankings and TMDL end dates for many of the water body/pollutant combinations from the 1998 list.

[5] Pending revisions to federal regulations for the implementation of Section 303(d) of the Clean Water Act would clarify that TMDLs are not required for waters impaired by flow alterations, water/flow variability and habitat alterations, unless specific "pollutants" are also involved. (Load calculations are not feasible in cases where there are no pollutants.) Under the proposed new regulations, waters impaired by habitat or flow alterations, or by flow variability, would be placed on a separate list of impaired waters to highlight the need for control strategies other than TMDLs.

[6]Clarification of the nature of the pollutants has been added in brackets for some water bodies recommended for removal from the Section 303(d) list. See the fact sheets for these water bodies for further information.

[7]Regional Board staff completed draft Basin Plan amendments incorporating a phosphorus TMDL for Indian Creek Reservoir in November 2000. The Regional Board has been unable to act on these amendments due to lack of a quorum for a vote.

[8]Some waters were listed based on Toxic Substances Monitoring Program (TSMP) fish tissue data. Because sample numbers were small, TSMP data alone are not considered sufficient grounds for listing.

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Table 2. "Watch list" of Lahontan Region waters and pollutants requiring additional monitoring to determine the need for listing and TMDL development. Waters are grouped by watershed in north-to-south watershed order.

Water Body Name	Watershed	Pollutant(s)
Raider Creek	Surprise Valley	Sediment
Emerson Creek	Surprise Valley	Sediment
Eagle Lake	Susan River	Mercury
Pine Creek	Susan River	Nitrogen
Pine Creek	Susan River	Phosphorus
Susan River u/s of Susanville	Susan River	Mercury
Susan River d/s of Paiute Creek	Susan River	Mercury
Susan River d/s of Paiute Creek	Susan River	PCBs
Lassen Creek	Susan River	Sediment
Long Valley Creek	Susan River	Sediment
Little Truckee River	Little Truckee River	Sediment
Stampede Reservoir	Little Truckee River	Lindane
Truckee River	Truckee River	Chloride
Truckee River	Truckee River	TDS
Squaw Creek Meadow Wetlands	Truckee River	Pesticides
Cold Stream	Truckee River	Sediment
Martis Creek	Truckee River	Nutrients
Summit Creek	Truckee River	Petroleum products
Donner Lake	Truckee River	Pathogens
Donner Lake	Truckee River	Boat Fuel Constituents
Donner Lake	Truckee River	PCBs
Donner Lake	Truckee River	Chlordane
Donner Creek	Truckee River	Sediment
Lake Tahoe	Lake Tahoe	Iron
Lake Tahoe	Lake Tahoe	Mercury in sediment
Lake Tahoe	Lake Tahoe	Lead in sediment
Lake Tahoe	Lake Tahoe	Boat fuel constituents
Lake Tahoe	Lake Tahoe	Pesticides (40 different compounds)
Tahoe Keys Sailing Lagoon	Lake Tahoe	PCBs
Tahoe Keys Sailing Lagoon	Lake Tahoe	Toxaphene
Upper Angora Lake	Lake Tahoe	Pesticides (16 different compounds)
Taylor Creek	Lake Tahoe	Pesticides (8 different compounds)
Lily Lake	Lake Tahoe	Nutrients
Upper Truckee River	Lake Tahoe	Pesticides (7 different compounds)
Upper Truckee River	Lake Tahoe	Nitrogen
General Creek	Lake Tahoe	Pesticides (5 different compounds)
Blackwood Creek	Lake Tahoe	Pesticides (4 different compounds)
Lower Echo Lake	Lake Tahoe	Nutrients
Upper Echo Lake	Lake Tahoe	Nitrogen
Fallen Leaf Lake	Lake Tahoe	Nutrients
Meiss Lake	Lake Tahoe	Nutrients
Griff Creek	Lake Tahoe	Sediment
McKinney Creek	Lake Tahoe	Sediment
Meeks Creek	Lake Tahoe	Sediment
Lonely Gulch Creek	Lake Tahoe	Sediment

Table 2. "Watch List," continued

Water Body Name	Watershed	Pollutant(s)
Madden Creek	Lake Tahoe	Sediment
Sawmill Pond	Lake Tahoe	Sediment
Grass Lake Wetlands	Lake Tahoe	Road salt
Watson Creek	Lake Tahoe	Sediment
Heavenly Valley Creek	Lake Tahoe	Nitrogen
West Fork Carson River	Carson River	Percent sodium
West Fork Carson River	Carson River	Sulfate
West Fork Carson River	Carson River	Boron
Red Lake Creek	Carson River	Sulfate, Acid Mine Drainage
Fredericksburg Canyon Creek	Carson River	Sediment
Scotts Lake	Carson River	Sediment
Indian Creek	Carson River	Phosphorus
Indian Creek	Carson River	Nitrogen
Heenan Reservoir	Carson River	Nutrients
Monitor Creek	Carson River	Nitrogen
Monitor Creek	Carson River	Phosphorus
Silver Creek	Carson River	Metals/Acid Mine Drainage
Markleeville Creek	Carson River	Nitrogen
Markleeville Creek	Carson River	Phosphorus
Markleeville Creek	Carson River	Total Dissolved Solids
Markleeville Creek	Carson River	Chloride
Desert Creek	Carson River	Sulfate, Acid Mine Drainage
Asa Lake	Carson River	Nutrients
West Walker River	Walker River	Total Dissolved Solids
West Walker River	Walker River	Nitrogen
Koenig Lake	Walker River	Nutrients
Mill Creek	Walker River	Nitrogen
Little Walker River	Walker River	Sediment
Little Walker River	Walker River	Total Dissolved Solids
Little Walker River	Walker River	Nitrogen
Swauger Creek	Walker River	Total Dissolved Solids
Green Creek	Walker River	Nitrogen
Swauger Creek	Walker River	Nitrogen
Buckeye Creek	Walker River	Total Dissolved Solids
Buckeye Creek	Walker River	Phosphorus
Robinson Creek	Walker River	Total Dissolved Solids
Robinson Creek	Walker River	Phosphorus
Robinson Cr. above Barney Lake	Walker River	Nitrogen
Robinson Cr,. Barney Lake to Twin Lakes	Walker River	Nitrogen
East Walker River above Bridgeport Reservoir	Walker River	Phosphorus
East Walker River below Bridgeport Reservoir	Walker River	Fuel oil (spill)
East Walker River below Bridgeport Reservoir	Walker River	Mercury, other metals
Aurora Canyon Creek	Walker River	Total Dissolved Solids

Table 2. "Watch List,", continued

Water Body Name	Watershed	Pollutant(s)
Aurora Canyon Creek	Walker River	Nitrogen
Aurora Canyon Creek	Walker River	Phosphorus
Aurora Canyon Creek	Walker River	Mercury
Upper Twin Lake	Walker River	Nutrients
Lower Twin Lake	Walker River	Nutrients
Summers Creek	Walker River	Nitrogen
Summers Creek	Walker River	Total Dissolved Solids
Virginia Creek	Walker River	Total Dissolved Solids
Virginia Creek	Walker River	Sediment
Virginia Creek	Walker River	Nitrogen
Virginia Creek	Walker River	Phosphorus
Eagle Creek	Walker River	Phosphorus
Eagle Creek	Walker River	Nitrogen
Barney Lake	Walker River	Nitrogen
Blue Lake	Walker River	Nitrogen
Bonnie Lake	Walker River	Nitrogen
Chain o Lakes	Walker River	Nitrogen
Cooney Lake	Walker River	Nitrogen
Crown Lake	Walker River	Nitrogen
East Lake	Walker River	Nitrogen
Fremont Lake	Walker River	Nitrogen
Frog Lake	Walker River	Nitrogen
Gilman Lake	Walker River	Nitrogen
Harriet Lake	Walker River	Nitrogen
Helen Lake	Walker River	Nitrogen
Hoover Lake	Walker River	Nitrogen
Long Lake (Upper)	Walker River	Nitrogen
Long Lake (Lower)	Walker River	Nitrogen
Peeler Lake	Walker River	Nitrogen
Robinson Lake (Upper)	Walker River	Nitrogen
Robinson Lake (Lower)	Walker River	Nitrogen
Roosevelt Lake	Walker River	Nitrogen
Ruth Lake	Walker River	Nitrogen
Snow Lake	Walker River	Nitrogen
Stella Lake	Walker River	Nitrogen
Summit Lake	Walker River	Nitrogen
Tower Lake	Walker River	Nitrogen
Trumbull Lake	Walker River	Nitrogen
Virginia Lake (Upper)	Walker River	Nitrogen
Green Lake	Walker River	Nitrogen
Green Creek above Green Lake	Walker River	Nitrogen
Horse Creek	Walker River	Nitrogen
Reversed Creek	Mono Basin	Sediment
Reversed Creek	Mono Basin	Nutrients
Lundy Lake	Mono Basin	Mine drainage
June Lake	Mono Basin	Nutrients
June Lake	Mono Basin	Mercury
Silver Lake	Mono Basin	Nutrients
Gull Lake	Mono Basin	Nutrients
Sherwin Creek	Owens River	Sediment, nutrients

Table 2. "Watch List", continued

Water Body Name	Watershed	Pollutant(s)
Lake George	Owens River	Metals
Lake Mary	Owens River	Boat fuel constituents including MTBE
Diaz Lake	Owens River	Nutrients
McGee Creek	Owens River	Mine drainage
Pine Creek	Owens River	Mine/tailings drainage
Pine Creek	Owens River	Sediment
Independence Creek	Owens River	Mercury
Los Angeles Aqueduct	Owens River	Copper
Ivanpah Dry Lake	Ivanpah HU	Radioactive elements (lanthanides)
Littlerock Reservoir	Antelope HU	Sediment
Littlerock Reservoir	Antelope HU	Iron
Littlerock Reservoir	Antelope HU	Manganese
Deep Creek	Mojave River	Total Dissolved Solids
Deep Creek	Mojave River	Sulfate
Deep Creek	Mojave River	Fluoride
Shake Creek	Mojave River	Total Dissolved Solids
Shake Creek	Mojave River	Nitrate
Shake Creek	Mojave River	Sulfate
Shake Creek	Mojave River	Boron
Shake Creek	Mojave River	Fluoride
Shake Creek	Mojave River	Landfill leachate constituents
West Fork Mojave River	Mojave River	Nitrogen
Mojave River at Dam Forks	Mojave River	Sulfate
Mojave River between Upper and Lower Narrows	Mojave River	PCE and TCE (organic solvents)
Mojave River @ Lower Narrows	Mojave River	Nutrients
Mojave River, Barstow to Waterman Fault	Mojave River	Nitrogen
Mojave River, Barstow to Waterman Fault	Mojave River	Total Dissolved Solids
Lake Arrowhead	Mojave River	Boat fuel constituents
Lake Arrowhead	Mojave River	Nutrients
Silverwood Lake	Mojave River	Salts, trace elements (from imported water)
Spring Valley Lake	Mojave River	Sediment

Enclosure 3

Water Body Fact Sheets

Water Body Fact Sheets for 2002
Section 303(d) List Update
Lahontan Region

SURPRISE VALLEY HYDROLOGIC UNIT

California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

November 2001

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Telephone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

UPPER ALKALI LAKE, SALINITY/TDS/CHLORIDES
2002 303(d) Fact Sheet
Delisting

Rationale for Delisting

Upper Alkali Lake is located in Surprise Valley in eastern Modoc County. It is proposed for delisting because it is a desert playa lake whose high salinity and high trace element levels are due to natural processes such as input from geothermal springs and concentration by evaporation over geologic time. Salts and trace elements coming entirely from natural sources are not "pollutants" as defined in the Clean Water Act. Table 1 summarizes available water quality data for Upper Alkali Lake.

Table 1. Water Quality of Upper Alkali Lake, from California Department of Water Resources (1960). Units are parts per million (ppm). "TDS" means "Total Dissolved Solids."

Sampling date	TDS (ppm)	pH	Sulfate (ppm)	Chloride (ppm)	Boron (ppm)	Fluoride (ppm)	Arsenic (ppm)
9-17-53	8340	9.3	467	3380	49	9.0	0.27
12-2-58	10100	9.3	561	4020	48	7.7	0.7
12-2-58	9900	9.3	555	3950	46	8.0	0.7
5-5-54	8850	9.3	535	3880	50	7.8	0.7
5-5-54	5840	9.1	333	2150	24	7.9	0.18
8-5-57	7570	8.8	446	3080	49	7.2	-

The "percent sodium" for all samples in Table 1 was 99 percent or greater.

Some of the values in Table 1 exceed drinking water Maximum Contaminant Levels (MCLs). However, the Alkali Lakes are not designated for the Municipal and Domestic Supply (MUN) beneficial use. Because of their poor quality and ephemeral nature, they are unlikely to be in demand for domestic supply in the future.

The California Department of Water Resources data in Table 1, above, are the most comprehensive set available. No biological data are available, but Upper Alkali Lake is assumed to support the saline aquatic habitat and wildlife habitat uses of other California playa lakes when water is present. (See the fact sheet for Middle Alkali Lake.) As indicated in Lahontan Regional Board staff's (2000) literature review on inland saline lakes and geothermal springs, such waters support aquatic life and wildlife adapted to their unique extreme environmental conditions, and these waters should not be considered "impaired" for biological uses because chemical concentrations exceed normal freshwater criteria. The U.S. Environmental Protection Agency's (USEPA's) 1997 guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Watershed Characteristics

Upper Alkali Lake is one of three large ephemeral playa lakes in Surprise Valley, a closed drainage basin in eastern Modoc County. The Alkali Lakes are remnants of Pleistocene Lake Surprise. The areas and volumes of the Alkali Lakes vary from year to year with precipitation and runoff, and the concentrations of salts vary accordingly. They receive freshwater inputs from streams draining the east slope of the Warner Mountains, and there are a number of ephemeral tributaries originating near the California-Nevada border. The Alkali Lakes also receive input from geothermal springs, which themselves have high concentrations of sulfate, boron, fluoride, and sodium, and arsenic.

Information Sources

California Department of Water Resources, 1960. *Water Quality Investigation, Surprise Valley.*

California Department of Water Resources, 1963. *Northeastern Counties Ground Water Investigation*, Volume I, Bulletin No. 98.

California Department of Water Resources, 1970. Arsenic in Wells in Northeastern California. Memorandum from Bruce Wormald dated December 11, 1970.

California Regional Water Quality Control Board, Central Valley Region, 2000. *A Compilation of Water Quality Goals.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine "Naturally Impaired" Waters of the Lahontan Region*, April 2000.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Water Bodies.*

U. S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997 from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

MIDDLE ALKALI LAKE, SALINITY/TDS/CHLORIDES
2002 303(d) Fact Sheet
Delisting

Rationale for Delisting

Middle Alkali Lake is located in Surprise Valley in eastern Modoc County. It is proposed for delisting because it is a desert playa lake whose high salinity and high trace element levels are due to natural sources such as input from geothermal springs and concentration by evaporation in an internally drained basin over geologic time. Salts and trace elements coming entirely from natural sources are not "pollutants" as defined in the Clean Water Act. Table 1 summarizes available chemical water quality data for Middle Alkali Lake.

Table 1. Water Quality of Middle Alkali Lake, from California Department of Water Resources (1960). Units are parts per million (ppm). "TDS" means "Total Dissolved Solids."

Sampling Date	TDS (ppm)	pH	Sulfate (ppm)	Chloride (ppm)	Boron (ppm)	Fluoride (ppm)	Arsenic (ppm)
12-2-58	17500	9.4	1560	6810	94	14	1.8
7-17-56	3310	8.9	302	1180	20	5.9	0.4
9-17-53	6150	9.2	510	2380	31	9.0	0.21
8-7-57	11100	8.8	808	4480	64	11	-
5-5-54	8160	9.1	576	3330	38	6.0	0.39

The percent sodium value for all samples in Table 1 was 99% or greater.

Some of the values in Table 1 exceed drinking water maximum contaminant levels (MCLs). However, the Alkali Lakes are not designated for the Municipal and Domestic Supply (MUN) beneficial use and, because of their poor quality and ephemeral nature, are unlikely to be in demand for domestic supply in the future.

Patterson and Jacobson (1984) studied Middle Alkali Lake, which, as a result of a wet El Nino year, had a mean depth of 1 meter and was used by hundreds of birds of about 70 species for foraging, loafing, or breeding. Fairy shrimp, tadpole shrimp, copepods, daphnia, and brine flies were present. . The specific conductivity of the lake ranged from 10170 in December 1982 to 356 in May 1983. The lake was estimated to hold a minimum of 30,000 acre feet of water in 1982; however, the authors noted that it still dries up almost every year.

As indicated in Lahontan Regional Board staff's literature review on inland saline lakes and geothermal springs, such waters support aquatic life and wildlife adapted to their unique extreme environmental conditions, and these waters should not be considered "impaired" for biological uses because chemical concentrations exceed normal freshwater criteria. The USEPA's (1997) guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Watershed Characteristics

Middle Alkali Lake is one of three large ephemeral playa lakes in Surprise Valley, a closed drainage basin, in eastern Modoc County. The Alkali Lakes are remnants of Pleistocene Lake Surprise. The areas and volumes of the Alkali Lakes vary from year to year with precipitation and runoff, and the concentrations of salts vary accordingly. They receive freshwater inputs from streams draining the east slope of the Warner Mountains, and there are a number of ephemeral tributaries originating near the California-Nevada border. The Alkali Lakes also receive input from geothermal springs, which themselves have high concentrations of sulfate, boron, fluoride, and sodium, and arsenic.

Information Sources

California Department of Water Resources, 1960. *Water Quality Investigation, Surprise Valley*

California Department of Water Resources, 1963. *Northeastern Counties Ground Water Investigation, Volume I*, Bulletin No. 98.

California Department of Water Resources, 1970. Arsenic in Wells in Northeastern California. Memorandum from Bruce Wormald dated December 11, 1970.

California Regional Water Quality Control Board, Central Valley Region, 2000. *A Compilation of Water Quality Goals.*

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California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine "Naturally Impaired" Waters of the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Water Bodies.*

Patterson, D.W. and S.L. Jacobson, 1984. *1983 Surprise Valley Ground Water Recharge Field Study Report.* U.S. Soil Conservation Service, Red Bluff, CA.

U. S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997 from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

LOWER ALKALI LAKE, SALINITY/TDS/ CHLORIDES
2002 303(d) Fact Sheet
Delisting

Rationale for Delisting

Lower Alkali Lake is located in Surprise Valley in eastern Modoc County. It is proposed for delisting because desert playa lake whose high salinity and high trace element levels are due to natural sources such as input from geothermal springs and concentration by evaporation in an internally drained basin over geologic time. Salts and trace elements coming entirely from natural sources are not "pollutants" as defined in the Clean Water Act. Table 1 summarizes available chemical water quality data for Lower Alkali Lake.

Table 1. Water Quality of Lower Alkali Lake, from California Department of Water Resources (1960). Units are parts per million (ppm). "TDS" means "Total Dissolved Solids."

Sampling Date	TDS (ppm)	Ph	Sulfate (ppm)	Chloride (ppm)	Boron (ppm)	Fluoride (ppm)	Arsenic
12-2-58	13400	9.5	1230	4840	57	27	1.1
12-2-58	12300	9.5	1070	4540	52	25	0.8
8-7-57	11300	8.9	4260	4260	56	25	-

Some of the values in Table 1 exceed drinking water Maximum Contaminant Levels. However, the Alkali Lakes are not designated for the Municipal and Domestic Supply (MUN) beneficial use, and because of their poor quality and ephemeral nature, are not likely to be in demand for domestic supply in the future.

The California Department of Water Resources data in Table 1, above, are the most comprehensive set available. No biological data are available, but Lower Alkali Lake is assumed to support the saline aquatic habitat and wildlife habitat uses of other California playa lakes when water is present. (See the fact sheet for Middle Alkali Lake.)

The U.S. Environmental Protection Agency's (USEPA's) 1997 guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Watershed Characteristics

Lower Alkali Lake is one of three large ephemeral playa lakes in Surprise Valley, a closed drainage basin, in eastern Modoc County. The Alkali Lakes are remnants of Pleistocene Lake Surprise. The areas and volumes of the Alkali Lakes vary from year to year with precipitation and runoff, and the concentrations of salts vary accordingly. They receive freshwater inputs from

streams draining the east slope of the Warner Mountains, and there are a number of ephemeral tributaries originating near the California-Nevada border. The Alkali Lakes also receive input from geothermal springs, which themselves have high concentrations of sulfate, boron, fluoride, and sodium, and arsenic.

Information Sources

California Department of Water Resources, 1960. *Water Quality Investigation, Surprise Valley.*

California Department of Water Resources, 1963. *Northeastern Counties Ground Water Investigation, Volume I,* Bulletin No. 98.

California Department of Water Resources, 1970. Arsenic in Wells in Northeastern California. Memorandum from Bruce Wormald dated December 11, 1970.

California Regional Water Quality Control Board, Central Valley Region, 2000. *A Compilation of Water Quality Goals.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine "Naturally Impaired" Waters of the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Water Bodies.*

U. S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997 from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

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SUSANVILLE HYDROLOGIC UNIT

California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

November 2001

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Telephone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

Note: This packet contains water body-specific fact sheets for three waters of the Susanville Hydrologic Unit. Two additional water bodies, Amedee Hot Springs and Wendel Hot Springs, are also proposed for delisting. See the entries for these water bodies in the summary fact sheet for "Nine Naturally Impaired Waters."

TOP SPRING, RADIATION
2002 303(d) Fact Sheet
Delisting

Rationale for Delisting

Top Spring, located in Lassen County west of Honey Lake, is proposed for delisting because the source of radioactivity is entirely natural. Because no human sources or discharges are involved, the radioactive elements in question are not "pollutants" under the definition in the Clean Water Act. See the Lahontan Regional Board staff report for a discussion of natural impairment in relation to Section 303(d) listing.

Table 1. Examples of Radiation Data for Top Spring.

Sampling or Reporting Date	Parameter	Radioactivity (pCi/L)*
2-25-86	Gross alpha activity	11.3
4-1-86	Gross alpha activity	25.3
4-1-86	Uranium	13.5
4-1-86	Total Radium	1.3
4-5-86	Gross alpha activity	27
4-5-86	Radium 226	<1
4-5-86	Radium 228	<1
4-5-86	Uranium	26
7-22-86 "upper spring"	Gross alpha activity	10.0
11-3-86	Gross alpha activity	31.1

*pCi/L = picocuries per liter.

Table 1 summarizes radioactivity data from several sampling dates (see Koehne, 1998). In addition, a sample from the Laufman Ranger Station sink taken on March 4, 1986, which was a composite sample of almost all drinking water sources, had a gross alpha activity of 39.96 pCi/L.

In 1987, the Plumas National Forest geologist reviewed the available information and concluded that the "top spring" had radioactivity levels from two to 40 and more times higher than all of the other water sources then being sampled. By 1987, gross alpha activity in the top spring had decreased to 4.84 pCi/L, and this parameter had been decreasing since the earlier tests..

In the 1980s, Top Spring was in violation of the water quality objective for radioactivity, the State drinking water Maximum Contaminant Level (MCL). No recent data are available. Current MCLs and other water quality goals, summarized in California Regional Water Quality Control Board, Central Valley Region, 2000, are as follows:

Radioactivity, Gross Alpha: State and federal primary MCLs= 15 pCi/L; federal MCL goal= 0 pCi/L

Uranium: State primary MCL= 20 pCi/L; federal MCL= 20 micrograms per liter (ug/L) or 30 pCi/L; U.S. Environmental Protection Agency (USEPA) IRIS Reference Dose as a Drinking Water Level = 20 ug/L.

The California Office of Environmental Health Hazard Assessment (OEHHA) has recently established a Public Health Goal for naturally occurring uranium in drinking water, based on its radioactivity. This Public Health Goal is 0.5 parts per billion (ppb) or 0.43 pCi/L.

Watershed Characteristics

"Top Spring" (not an official geographic name) is a natural spring located near the U.S. Forest Service Laufman Ranger Station in the Diamond Mountains west of Honey Lake in Lassen County (latitude 40.143°N, longitude 120.353°W). The name comes from the fact that it was the uppermost of several springs sampled during the 1980s. It was fully developed and used as domestic water supply for the ranger station (including 4-5 residences, 20-30 day workers, and possibly two campgrounds) until the radioactivity was discovered. An alternate domestic supply has since been developed, but the spring is still contained within a pipe.

Information Sources

California Office of Environmental Health Hazard Assessment, 2001. *Public Health Goals for Chemicals in Drinking Water: Uranium, 2001.*

California Regional Water Quality Control Board, Central Valley Region, 2000. *A Compilation of Water Quality Goals, 2000.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, 1998. Letter from Ranjit S. Gill to Ralf Koehne, U.S. Forest Service, Plumas National Forest. Request for Water Quality Information on "Top Spring" for Use in Development of Total Maximum Daily Loads.

California Regional Water Quality Control Board, Lahontan Region, 2000. Email from Peter J. Fischer to Judith Unsicker, "top springs," February 22, 2000.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes in Lahontan Regions Section 303(d) List of Impaired Surface Water Bodies.*

Hinrich, R.L., 1986. Summaries of telephone calls regarding samples at Laufman Ranger Station. (California Dept. of Health Services, Office of Drinking Water, Redding).

Koehne, R., 1998. Memo to Ranjit S. Gill and Peter Fischer, Top Springs Water Reports. U.S.D.A. Forest Service, Plumas National Forest, March 31, 1998.

EAGLE LAKE, ORGANIC ENRICHMENT/LOW D.O
2002 303(d) Fact Sheet
Clarification of Existing Listing

Summary of Proposed Action

The current single listing for Eagle Lake, which describes beneficial use problems, is recommended to be changed to separate listings for nitrogen and phosphorus to reflect the actual pollutants involved.

Description of Problem

The descriptor "Organic Enrichment/Low D.O. [Dissolved Oxygen]" is from a limited picklist of problem types associated with an earlier computer database. It does not actually describe pollutants requiring TMDLs. Eagle Lake is currently Section 303(d) listed as the result of a fish kill which occurred in the late 1980s, presumably as a result of oxygen depletion due to high phytoplankton productivity and consequent high biochemical oxygen demand. No fish kills have occurred since that time, and the 1980s kill may have been related to higher temperatures and low lake levels during a prolonged drought. However, there is other evidence of the occurrence of eutrophication, including algae blooms. These problems can best be addressed through TMDLs for nutrients (phosphorus and nitrogen). The current numerical water quality objectives for nutrients in Eagle Lake were set at levels observed in the early 1980s, and may not be protective of beneficial issues. As a prelude to TMDL development, Regional Board staff should review current and historic monitoring data in relation to the scientific literature on eutrophication, and recommended state and federal nutrient criteria for Eagle Lake's "ecoregion". Revisions in water quality objectives for nitrogen and phosphorus may be appropriate. Depending on which nutrient proves to be limiting, only one TMDL may be necessary.

Watershed Characteristics

Eagle Lake in Lassen County, with an area of 25,000 acres, is the second largest natural freshwater lake entirely within California. It is located in a closed basin and is a remnant of prehistoric Lake Lahontan. Soils in the watershed are of volcanic origin. The lake has three almost-separate basins with different depths, degrees of stratification, and phytoplankton productivity. Its largest tributary is Pine Creek. Eagle Lake supports an endemic subspecies of rainbow trout adapted to its high alkalinity, and large breeding bird colonies. The lake is a Department of Fish and Game "Significant Natural Area" due to the presence of the Eagle Lake trout, Eagle Lake tui chub, double crested cormorant, and California Gull. Sandhill cranes are also found in the watershed.. Recreation is an important use: the Eagle Lake trout fishery is valued at $1 million/year. Much of the watershed is in public ownership; there are several small residential subdivisions. Since the 1980s, the Lahontan Regional Board has prohibited septic system discharges in portions of the watershed and has worked toward controls on livestock grazing in order to reduce nutrient loading to the lake.

TMDL Priority

Eagle Lake has a high priority for development of TMDLs, and the estimated end date for TMDL completion (through Regional Board adoption of Basin Plan amendments) is currently 2008.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1994. Water Body Fact Sheet for "Eagle Lake (2)."

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

NINE NATURALLY IMPAIRED WATERS, SALINITY, METALS, AND ARSENIC
2002 303(d) Fact Sheet
Delisting

Rationale for Delisting

The nine water bodies listed in Tables 1 and 2 are saline or geothermal surface waters which were listed in the late 1980s or early 1990s for salinity and/or toxic trace metals. Although constituents exceed drinking water standards, all of these water bodies were given potential Municipal and Domestic Supply (MUN) beneficial use designations as a result of Basin Plan amendments which applied the MUN use to almost all waters in the Lahontan Region. The Regional Board amended its Basin Plan in 2000 to remove the MUN use, and the conflict with drinking water standards, for the waters in Table 1. These amendments have been approved by the State Board and are pending final approvals from other agencies. Regional Board staff conducted a scientific literature review and prepared a detailed Use Attainability Analysis which shows that:

- These waters meet the "Sources of Drinking Water Policy" (State Water Resources Control Board Resolution 88-63) criteria for exclusion from the MUN use due to their poor quality, and are unlikely to be in demand as drinking water due to the relatively small amounts of water available;

- The salts and trace elements affecting these water bodies come from natural sources (volcanic, geothermal, and/or evaporative concentration in closed basins over geologic time);

- Saline and geothermal waters support unique biological communities adapted to their extreme environmental conditions, and should not be considered "impaired" in relation to freshwater aquatic life criteria. The U.S. Environmental Protection Agency's (USEPA's) 1997 guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

These waters, and other "naturally impaired" waters in the Lahontan Region, are recommended for removal from the Section 303(d) list because the salts and trace elements in question are not "pollutants" under the definition in the Clean Water Act. See the Regional Board staff report on the Section 303(d) List update for further discussion of naturally impaired waters in relation to listing.

Because of the extensive documentation already provided in the Use Attainability Analysis, separate fact sheets have not been prepared for these waters.

Table 1. Naturally Impaired Waters Addressed in Lahontan Region's 2000 Basin Plan Amendments

Water Body Name	County	HU No.	Reason for Listing
Wendel Hot Springs	Lassen	637.20	Metals
Amedee Hot Springs	Lassen	637.20	Metals
Hot Creek	Mono	631.40	Metals
Fales Hot Springs	Mono	631.40	Metals
Little Hot Creek	Mono	603.10	Arsenic
Little Alkali Lake	Mono	603.10	Arsenic
Deep Springs Lake	Inyo	605.00	Salinity/TDS/Chlorides
Keough Hot Springs	Inyo	603.00	Metals
Amargosa River	Inyo/San Bernardino	609.00	Salinity/TDS/Chlorides

Table 2. Summary of Compliance With Drinking Water Criteria for Nine "Naturally Impaired" Waters (from Use Attainability Analysis report).

Water Body Name	Sources of Drinking Water Policy TDS Threshold (3000 mg/L) Exceeded?	Parameters for Which Other Standards or Criteria are Exceeded	Water Quantity Considerations
Wendel Hot Springs	No	TDS, specific conductance, arsenic, sulfate, fluoride, sodium	Flow in natural springs reduced due to nearby geothermal development.
Amedee Hot Springs	No	TDS, sulfate, fluoride, boron, sodium	Flow in natural springs reduced due to nearby geothermal development.
Fales Hot Springs	No	TDS, specific conductance, sulfate, fluoride, arsenic, copper, molybdenum, lead, aluminum	
Hot Creek	No	Specific conductance, fluoride, boron	
Little Hot Creek	No	Arsenic, beryllium, specific conductance, boron, lead, fluoride, antimony.	Annual flow ca. 1000 afa; evaporation increases salinity
Little Alkali Lake	Yes	TDS, Arsenic	Ephemeral
Keough Hot Springs	No	TDS	Flow 600 gallons per minute
Deep Springs Lake	Yes	TDS, specific conductance, pH	Ephemeral
Amargosa River	Yes (in Death Valley)	TDS, specific conductance, arsenic, sulfate, sodium, chloride, fluoride, boron.	Intermittent, variable annual flows

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine "Naturally Impaired" Waters of the Lahontan Region,* April 2000.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

California State Water Resources Control Board, 1988. Resolution 88-63, Sources of Drinking Water Policy.

U.S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997 from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

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TRUCKEE RIVER AND LITTLE TRUCKEE RIVER HYDROLOGIC UNITS

California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

November 2001

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Telephone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

DONNER LAKE, PRIORITY ORGANICS
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

Donner Lake, in the Truckee River watershed, is proposed for removal from the Section 303(d) list because listing was based on limited data which do not, in Regional Board staff's opinion, constitute conclusive evidence of impairment.

Under the California State Water Resources Control Board's Toxic Substances Monitoring Program (TSMP) fish tissue samples have been collected since 1978 and analyzed since for toxic trace metals and organic compounds. As the *TSMP Data Base Description* explains:

> *"The TSMP is a sentinel program; it provides the State Water Board, other agencies, and the public, with an early warning of higher than expected concentrations of pollutants at specific sites. TSMP findings often lead to more intensive local follow-up studies for identifying sources of pollutants, and to cleanup and abatement orders and enforcement actions by the Regional Water Boards."*

TSMP results for edible (fish filet) tissue can be compared to human fish consumption criteria for various toxic substances. In the past, the State Water Resources Control Board directed that surface waters be listed if tissue concentrations exceeded the "Maximum Tissue Residue Level" (MTRL) criteria calculated by the California Office of Environmental Health Hazard Assessment (OEHHA). However, because sample numbers in the TSMP are small and are not designed to be statistically representative of the fish population in a give water body, there appears to be insufficient evidence to justify listing on the basis of TSMP results alone. Lahontan Regional Board staff recommend that no new waters be listed solely because of TSMP results and that waters previously listed because of TSMP results be delisted unless there is other evidence of impairment.

Donner Lake was listed due to TSMP results showing filet concentrations of polychlorinated biphenyls (PCBs) and of the pesticide chlordane above the then-current MTRLs. PCBs were also detected in a TSMP sample of Donner Lake sediment. The following concentrations of total PCBs were found in filet tissue sampled from Donner Lake in 1991 and 1993.

Year	Species	# of Fish	Age of Fish	PCB Concentration
1991	Kokanee salmon	7	3-4 years	165 ppb
1993	Lake trout	6	6-8 years	102 ppb

The OEHHA has recently recalculated MTRLs based on criteria in the U.S. Environmental Protection Agency's California Toxics Rule (40.CFR.131.38). The current MTRL for "PCBs (total)" is 5.3 ug/kg (micrograms per kilogram, equivalent to parts per billion or ppb) in fish filet tissue. PCBs are now banned from use; potential historic sources include spills from I-80 or the railroad, power transformers, exposure of planted fish during early development in a hatchery, and atmospheric deposition. (PCBs detected in remote waters of the Lake Tahoe Basin have been attributed to atmospheric deposition.)

The current MTRL for total chlordane, 8.0 ug/kg (micrograms per kilogram or parts per billion) is based on the California Toxics Rule (40CFR 131.38). The filet tissue concentration of chlordane in kokanee salmon collected in Donner Lake in 1991 was 26.2 ppb. Chlordane is now banned from use; historic sources in the Donner Lake watershed may include stormwater from development around the lake, spills from I-80 or the railroad, atmospheric deposition, or exposure of planted game fish to pesticides at a fish hatchery.

Although the historic TSMP samples exceed the current MTRLs for PCBs and chlordane, there are no past or current OEHHA fish consumption advisories for Donner Lake. No recent data are available on ambient PCB or chlordane concentrations in sediment or water.

Watershed Characteristics

Donner Lake, with an area of 960 acres, is located in Nevada County; its watershed includes portions of Placer and Nevada Counties. It has several relatively small tributary streams, and is tributary to the Truckee River via Donner Creek. The lake is managed as a reservoir. It provides domestic supply to surrounding development and contributes to domestic supply for the Reno, Nevada area. Land use in the watershed includes residential and commercial development, Donner Memorial State Park, Interstate 80, and a railroad. The lake supports a recreational fishery.

Recommendation

Donner Lake is proposed to be removed from the Section 303(d) list and added to a "watch list" of waters needing further monitoring and assessment to determine the need for TMDLs. Listing for PCBs or chlordane may be reconsidered in the future if there is evidence of significant impacts on beneficial uses of the lake.

Information Sources

California Office of Environmental Health Hazard Assessment, 1999. Fish consumption advisories statewide and General Information. Available on the Internet:
http://www.oehha.ca.gov/general/99fish.html.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

California State Water Resources Control Board, Toxic Substances Monitoring Program database.

California State Water Resources Control Board, 1995. *Toxic Substances Monitoring Program (TSMP), Freshwater Bioaccumulation Monitoring Program, Data Base Description.* Revised September 1995.

Datta, S. and 4 other authors, 1998. *Evidence for Atmospheric Transport and Deposition for Polychlorinated Biphenyls to the Lake Tahoe Basin, California-Nevada.* Available on the Internet: http://www.nal.usda.gov/ttic/tektran/data/000009/25/0000092538.html.

STAMPEDE RESERVOIR, PESTICIDES
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

Stampede Reservoir, in the Little Truckee River watershed, is recommended for delisting because listing was based on limited data and there is no current evidence of impairment.

Under the California State Water Resources Control Board's Toxic Substances Monitoring Program (TSMP) fish tissue samples have been collected since 1978 and analyzed since for toxic trace metals and organic compounds. As the *TSMP Data Base Description* explains:

> *"The TSMP is a sentinel program; it provides the State Water Board, other agencies, and the public, with an early warning of higher than expected concentrations of pollutants at specific sites. TSMP findings often lead to more intensive local follow-up studies for identifying sources of pollutants, and to cleanup and abatement orders and enforcement actions by the Regional Water Boards."*

TSMP results for edible (fish filet) tissue can be compared to human fish consumption criteria for various toxic substances. In the past, the State Water Resources Control Board has directed that surface waters be listed if tissue concentrations exceed the "Maximum Tissue Residue Level" (MTRL) criteria calculated by the California Office of Environmental Health Hazard Assessment (OEHHA). However, because sample numbers in the TSMP are small and are not designed to be statistically representative of the fish population in a given water body, there appears to be insufficient evidence to justify listing on the basis of TSMP results alone. Lahontan Regional Board staff recommend that no new waters be listed solely because of TSMP results and that waters previously listed because of TSMP results be delisted unless there is other evidence of impairment..

The current MTRL for lindane (gamma hexachlorocyclohexane or HCH), is 2.5 micrograms per kilogram (ug/kg or ppb) in fish filet tissue. The TSMP lindane concentration for kokanee salmon tissue sampled in Stampede Reservoir in 1989 was 2.6 ug/kg, exceeding the MTRL only slightly. No fish consumption advisory is currently in effect for Stampede Reservoir, and no ambient lindane data are available for the water column or sediment.

Watershed Characteristics

Stampede Reservoir is located on the Little Truckee River in Sierra County. Its watershed includes portions of Nevada and Sierra Counties. It has several tributary streams including Sagehen Creek. It is managed by a federal watermaster as part of the Truckee River system which provides domestic supplies to the Reno, Nevada area and supports threatened/endangered fish in Pyramid Lake. Water is released from Stampede Reservoir to the Little Truckee River and stored in Boca Reservoir before being released to the Truckee River. The watershed of Stampede Reservoir is largely undeveloped, but has been disturbed by logging, grazing and wildfires. Stampede Reservoir supports a recreational fishery.

Recommendation

Stampede Reservoir is proposed to be removed from the Section 303(d) list and added to a "watch list" of waters needing further monitoring and assessment to determine the need for TMDLs. Listing for lindane may be reconsidered in the future if there is evidence of significant impacts on beneficial uses of the reservoir.

Information Sources

California Office of Environmental Health Hazard Assessment, 1999. Fish consumption advisories statewide and General Information. Available on the Internet: http://www.oehha.ca.gov/general/99fish.html.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

California State Water Resources Control Board, Toxic Substances Monitoring Program database.

California State Water Resources Control Board, 1995. *Toxic Substances Monitoring Program (TSMP), Freshwater Bioaccumulation Monitoring Program, Data Base Description.* Revised September 1995.

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LAKE TAHOE HYDROLOGIC UNIT

California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

November 2001

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Telephone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

SNOW CREEK, HABITAT ALTERATIONS
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

Snow Creek was listed due the impacts on beneficial uses of fill in the wetland/riparian area near its confluence with Lake Tahoe. The creek is now recommended for delisting because a restoration project has been implemented.

The original disturbance involved partial grading of a meadow, possibly for development which never occurred, and dumping of fill by highway maintenance crews in the early 1960s. Before restoration, about 75 percent of the project area was occupied by sparsely vegetated fill. Much of the fill was contaminated with petroleum products, which were used for dust control at the time. Fill mounds up to five feet deep altered the course of the creek.

The California Tahoe Conservancy has acquired and restored the four-acre disturbed site in coordination with the Placer County Department of Public Works. About 30,000 cubic yards (2000 truckloads) of contaminated fill were hauled away. (The project's $4.2 million cost reflected the necessity for toxics cleanup.) The stream channel (950 feet) and ponds were restored. The existing constructed pond was made smaller and reconfigured as a seasonal meadow wetland. Channels were reconfigured to promote more frequent inundation of the meadow areas, and the area was revegetated with a variety of wetland and riparian plant species. In 2000, revegetation was projected to be successful within 2 years. Three new box culverts were installed under State Highway 28 to allow free fish passage and reduce flooding of the highway.

Watershed Characteristics

Snow Creek (Hydrologic Unit No. 634.20, latitude 39.240°N, longitude 120.050°W) is a tributary to Lake Tahoe on its north shore. The disturbed wetland/riparian area is adjacent to State Highway 28 in the community of Tahoe Vista. The main creek channel is 3.66 miles long, and the watershed area is 4.49 square miles.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

DeLong, Jeff, 2000. Larger Wetlands Project is Set for Lake Tahoe. *Reno Gazette-Journal,/RGJ.com*, Sunday October 15, 2000.

Erlich, Robert, Lahontan Regional Board staff, personal communication, October 2001 .

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

LAKE TAHOE, SEDIMENT, NITROGEN, PHOSPHORUS
2002 Section 303(d) Fact Sheet
Clarification of Existing Listing

Summary of Proposed Action

Lake Tahoe is currently Section 303(d) listed for nutrients and sediment. For clarity, the listing for "nutrients" is proposed to be replaced by separate listings for nitrogen and phosphorus. As noted below, other water quality standards are being violated as a result of increased sediment and nutrient loading. However, violations of these standards result from sediment and nutrient problems, and no separate new listings are proposed.

Watershed Characteristics

Lake Tahoe has a surface area of 192 square miles (120,000 acres), and its watershed area is 314 square miles. The lake has an average depth of 1027 feet, a maximum depth of 1646 feet, and 72 miles of shoreline. Because of its large volume, Lake Tahoe has a water residence time of 700 years. Lake Tahoe has 63 tributary streams, and these in turn have smaller streams and lakes at their headwaters. (There are more than 170 lakes and ponds in the Lake Tahoe watershed as a whole.) In addition, small "intervening areas" between streams contribute runoff directly to the lake. About two thirds of the watershed is in California (in Placer, El Dorado, and Alpine Counties) and one third in Nevada. About 75 percent of the watershed is in public ownership; most development on private lands has occurred near the lake. The only outflow from Lake Tahoe is to the Truckee River. The lake is managed as a reservoir, with the upper six feet under control of a federal watermaster; the effective storage capacity is 745,000 acre feet.

Lake Tahoe is known for its extraordinary clarity (historic Secchi depth up to 120 feet) and deep blue color. It is a recreational attraction because of its scenic quality and the availability of summer and winter outdoor activities and casino gaming in Nevada. Because of its high ecological and recreational value, Lake Tahoe is a designated "Outstanding National Resource Water" in which no long term degradation can be permitted.

Water Quality Objectives Not Attained

Lake Tahoe is considered to be an oligotrophic (low productivity) lake. It still has relatively low concentrations of nitrogen and phosphorus in spite of increased nutrient loading since the mid-20th Century, and water quality objectives for these parameters are not being violated. Lake Tahoe was historically nitrogen limited, but increased atmospheric nitrogen loading has led to phosphorus limitation. (Both nutrients are still considered important.) Because suspended sediment is affecting beneficial uses, the lake can be considered to be in violation of the regionwide narrative suspended sediment and suspended materials objectives. Sediment is of concern not only for its direct impacts, but also because it carries particulate nutrients into the lake. Iron is of concern as a nutrient in Lake Tahoe and its tributaries, and several tributaries are recommended to be listed for iron in 2002. There is insufficient information about the role of iron in Lake Tahoe to justify listing the lake for iron at this time.

Lake Tahoe has violations, or threatened violations, of a number of other narrative water quality objectives which are indicators of increased nutrient loading, including the following:

Nondegradation
Algal Growth Potential
Biostimulatory Substances
Biological indicators (algal productivity and phytoplankton, zooplankton, and periphyton biomass)
Clarity
Plankton Counts
Transparency

The most frequently measured indicators of compliance with these objectives are transparency and phytoplankton productivity. The water quality objectives for these parameters are set at levels measured between 1967 and 1971. Transparency (measured as Secchi depth) has decreased 30 percent, and phytoplankton productivity has increased almost 300 percent, since 1968.

Beneficial uses of Lake Tahoe are also being affected. Increased productivity and sediment loading, and decreased transparency are affecting the aesthetic enjoyment component of the Non-Contact Water Recreation beneficial use. Changes in nutrient loading may also be contributing to impairment of aquatic life uses. For example, the Tahoe benthic stonefly, a species found only in Lake Tahoe, depends on deep water plant beds which could be shaded out by significantly more turbid waters. By changing aquatic habitat conditions, increased pollutant loading may also favor the invasion of exotic plant and animal species.

It is not feasible to develop a TMDL for each parameter covered in the narrative objectives listed above. (For example, one cannot allocate loads or wasteloads of "transparency.") These violations are clearly the result of increased loading of sediment and nutrients, and their attainment can best be ensured through development of TMDLs for sediment, nitrogen, and phosphorus.

Extent of Impairment

The entire lake is Section 303(d) listed.

Potential Sources

The sources of sediment and nutrient loading to Lake Tahoe include erosion from past and present watershed disturbance, stormwater, and other nonpoint sources including urban fertilizer use and past wastewater disposal to land. (Wastewater is currently exported from the watershed for disposal.) Atmospheric deposition is an important source of nutrient loading. Another watershed problem affecting sediment and nutrient loading has been the widespread development and disturbance of wetland and riparian areas that formerly helped to filter out sediment and nutrients before they entered the lake.

TMDL Priority

Lake Tahoe has a high priority for TMDL development. Work on the TMDL has already begun, and it is currently scheduled for completion (through Regional Board action) in 2007.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

BLACKWOOD CREEK, NITROGEN
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Blackwood Creek, a tributary of Lake Tahoe, is currently listed for sediment. An additional listing for nitrogen is recommended.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Blackwood Creek	**Pollutant(s)**	Nitrogen
Hydrologic Unit	Lake Tahoe (634.20)	**Sources**	Atmospheric deposition, erosion, stormwater
Total Length	6.20 miles	**TMDL Priority**	High
Size Affected	6.20 miles	**TMDL End Date**	After 2015
Latitude/Longitude	39.108° N, 120.157° W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Blackwood Creek, in Placer County, is tributary to Lake Tahoe on its northwest shore. It enters the lake near the small communities of Tahoe Pines and Idlewild. It has a total watershed area of 11.2 square miles and a main channel length of 6.20 miles. There are five small tributaries. Between 1993 and 1996, the annual average runoff was estimated at 31,800 acre feet and the average annual mean daily streamflow at 44.0 cubic feet per second (cfs). Most of the watershed is now in U.S. Forest Service ownership. Barker Pass Road runs as a paved road near the creek for much of its length; the Pacific Crest Trail crosses the headwaters. Blackwood Creek's watershed was severely disturbed in the past by activities such as logging and gravel mining.

Water Quality Objectives Not Attained

Blackwood Creek is in violation of the numerical water quality objective for total nitrogen, 0.19 milligrams per liter (mg/L) as an annual mean.

Evidence of Impairment

Data from the Lake Tahoe Interagency Monitoring Program (LTIMP) reported in TRPA (1999), show that, on an annual mean basis, the total nitrogen objective was violated in Blackwood Creek in 6 of 8 years between Water Years 1989 and 1996. Annual average concentrations ranged from 0.103 mg/L in 1994 to 0.293 mg/L in 1995. The range of single value concentrations for total

Kjeldahl nitrogen (ammonia plus organic nitrogen) reported by Rowe (1998) for the LTIMP period of record (through 1996) was 0.02-1.7 mg/L, with a median value of 0.13 mg/L. The range of single value concentrations for nitrate plus nitrate was 0.002-0.086 mg/L, with a median value of 0.016 mg/L.

Extent of Impairment

LTIMP samples are collected near the mouth of Blackwood Creek. The entire creek (main channel length 6.20 miles) is proposed for listing.

Potential Sources

Atmospheric deposition, erosion due to past and present watershed disturbance, stormwater.

TMDL Priority

Because of its importance in nutrient loading to Lake Tahoe, Blackwood Creek is recommended to be ranked "high" priority for development of a nitrogen TMDL. Nutrient loading from the Blackwood Creek watershed will be addressed during development of the Lake Tahoe TMDL; if a more specific nitrogen TMDL is needed, if will be completed after 2015.

Information Sources:

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: http://204.87.241.11/98proceedings/Papers/50-ROWE.html.

Rowe, T.G., 2001. Loads and Yields of Suspended Sediment for Selected Watersheds in the Lake Tahoe Basin, California and Nevada. *Proceedings of the Seventh Federal Interagency Sedimentation Conference*, March 25 to 29, 2001, Reno Nevada.

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

BLACKWOOD CREEK, PHOSPHORUS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Blackwood Creek, a tributary of Lake Tahoe, is currently listed for sediment. An additional listing for phosphorus is recommended.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Blackwood Creek	**Pollutant(s)**	Phosphorus
Hydrologic Unit	Lake Tahoe (634.20)	**Sources**	Atmospheric deposition, erosion, stormwater, forest fire
Total Length	6.20 miles	**TMDL Priority**	High
Size Affected	6.20 miles	**TMDL End Date**	After 2015
Latitude/Longitude	39.108° N, 120.157° W	**Original Listing Year**	2002

Watershed Characteristics

Blackwood Creek, in Placer County, is tributary to Lake Tahoe on its northwest shore. It enters the lake near the small communities of Tahoe Pines and Idlewild. It has a total watershed area of 11.2 square miles and a main channel length of 6.20 miles. There are five small tributaries. Between 1993 and 1996, the annual average runoff was estimated at 31,800 acre feet and the average annual mean daily streamflow at 44.0 cubic feet per second (cfs). Most of the watershed is now in U.S. Forest Service ownership. Barker Pass Road runs as a paved road near the creek for much of its length; the Pacific Crest Trail crosses the headwaters. Blackwood Creek's watershed was severely disturbed in the past by activities such as logging and gravel mining along the central reaches of the stream.

Water Quality Objectives Not Attained

Blackwood Creek is in violation of the numerical water quality objective for total phosphorus, 0.015 milligrams per liter (mg/L), as an annual mean.

Evidence of Impairment

Lake Tahoe Interagency Monitoring Program (LTIMP) data summarized by the Tahoe Regional Planning Agency (1999) show that annual mean concentrations of total phosphorus violated the objective in 15 of 17 water years from 1980 to 1996. The Water Year 1996 mean concentration was 0.126 mg/L. Rowe (1998) cites a concentration range during the LTIMP period of record (through 1996) of 0.010 to 0.994 mg/L, with a median value of 0.031 mg/L total phosphorus.

Extent of Impairment

LTIMP samples are collected near the mouth of Blackwood Creek. The entire creek (main channel length 6.20 miles) is proposed for listing.

Potential Sources

Atmospheric deposition (including particulate phosphorus from forest fires), erosion due to past and present watershed disturbance, stormwater.

TMDL Priority

Because of its importance in nutrient loading to Lake Tahoe, Blackwood Creek is recommended to be ranked "high" priority for development of a phosphorus TMDL. Phosphorus loading from the Blackwood Creek watershed will be addressed during development of the Lake Tahoe TMDL; if a more specific phosphorus TMDL is needed, it will be completed after 2015.

Information Sources:

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: <http://204.87.241.11/98proceedings/Papers/50-ROWE.html> .

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

BLACKWOOD CREEK, IRON
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Blackwood Creek, a tributary of Lake Tahoe, is currently listed for sediment. An additional listing for iron is proposed.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Blackwood Creek	Pollutant(s)	Iron
Hydrologic Unit	Lake Tahoe (634.20)	Sources	Erosion, stormwater
Total Length	6.20 miles	TMDL Priority	Medium
Size Affected	6.20 miles	TMDL End Date	After 2015
Latitude/Longitude	39.108° N, 120.157° W	Original Listing Year	2002

Watershed Characteristics

Blackwood Creek, in Placer County, is tributary to Lake Tahoe on its northwest shore. It enters the lake near the small communities of Tahoe Pines and Idlewild. It has a total watershed area of 11.2 square miles and a main channel length of 6.20 miles. There are five small tributaries. Between 1993 and 1996, the annual average runoff was estimated at 31,800 acre feet and the average annual mean daily streamflow at 44.0 cfs. Most of the watershed is now in U.S. Forest Service ownership. Barker Pass Road runs as a paved road near the creek for much of its length; the Pacific Crest Trail crosses the headwaters. Blackwood Creek's watershed was severely disturbed in the past by activities such as logging and gravel mining along the central reaches of the stream.

Water Quality Objectives Not Attained

Blackwood Creek is in violation of the numerical water quality objective for total iron (0.03 milligrams per liter [mg/L], annual mean).

Evidence of Impairment

Lake Tahoe Interagency Monitoring Program (LTIMP) data summarized by the Tahoe Regional Planning Agency show that annual mean iron concentrations violated the objective every year from Water Year 1989 to Water Year 1996. LTIMP data summarized by Rowe (1998) shows a range of iron concentrations during the period of record (through 1996) from 103 to 14,800 mg/L, with a median concentration of 440 mg/L. (Rowe expresses iron concentrations in micrograms per liter [ug/L] in the text of his report, and the use of mg/L in his summary table is probably a typographical error.)

Iron is measured in the LTIMP as "total biologically available iron (BaFe)" or "total bioreactive iron." It is monitored because of its importance as a plant nutrient. Water quality objectives for iron in tributaries of Lake Tahoe were based on limited data collected before 1980 and probably do not reflect natural background concentrations.

Extent of Impairment

LTIMP samples are collected near the mouth of Blackwood Creek. The entire creek (main channel length 6.20 miles) is proposed for listing.

Potential Sources

Iron is naturally present in soils of the Blackwood Creek watershed. Loading of iron to the creek has probably increased over natural background levels due to watershed disturbance.

TMDL Priority

A high priority is recommended for this TMDL. However, due to other recommended priorities, the TMDL is not projected to be completed until after 2015. Revision of water quality objectives for iron in tributaries of Lake Tahoe may be considered before that date.

Information Sources:

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: http://204.87.241.11/98proceedings/Papers/50-ROWE.html.

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

HEAVENLY VALLEY CREEK, SEDIMENT
2002 Section Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of Heavenly Valley Creek between the National Forest boundary and the confluence with Trout Creek is proposed to be listed for sediment. (A sediment TMDL has been completed for the upper reach of the creek.)

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Heavenly Valley Creek	**Pollutant(s)**	Sediment
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Upstream erosion
Total Length	3 miles	**TMDL Priority**	Medium
Size Affected	1 mile	**TMDL End Date**	After 2015
Latitude/Longitude	38.924 °N, 119.916° W	**Original Listing Year**	2002

Watershed Characteristics

Heavenly Valley Creek, in El Dorado County, is a tributary of Trout Creek. Soils are derived from granitic parent materials. Its upper watershed, with a steep gradient, has been extensively disturbed by ski resort development. The lower reach flows through an urban area before joining Trout Creek. The watershed includes an area used for disposal of secondary wastewater effluent by the South Tahoe Public Utility District until 1968. The creek receives surface runoff from Pioneer Trail (a major thoroughfare) and urban development in the watershed.

Water Quality Objectives Not Attained

Although a numerical suspended sediment objective applies to all tributaries of Lake Tahoe, monitoring data are not available for this reach to determine compliance. Bedload sediment from the upstream reach has probably impacted benthic habitat uses and thus violated the narrative water quality objectives for sediment and settleable materials, which reference protection of beneficial uses.

Evidence of Impairment

As of 1996, the lower reach of Heavenly Valley Creek was rated as "marginal" fish habitat by the Tahoe Regional Planning Agency (TRPA). The TRPA's Environmental Improvement Program includes a project (#404) for stream habitat restoration. The project, with an estimated cost of $50,000, would involve stabilization of the banks of Heavenly Valley Creek through revegetation at Pioneer Trial and 0.5 miles above and below. Completion of this project, tentatively scheduled for 2004, is expected to restore this segment to "good" fish habitat condition. The project summary notes that further assessment is needed.

Suspended sediment is not routinely monitored within this segment of Heavenly Valley Creek. Monitoring at the U.S. Forest Service Property Line station indicates that erosion control measures implemented since 1991 are having an effect and that the upper reach of the creek is approaching

attainment of the suspended sediment objective (60 milligrams per liter [mg/L] as an annual 90th percentile level). U.S. Forest Service monitoring of changes in stream cross sections also indicates that large "slugs" of bedload sediment have moved downstream in the past. This sediment is presumed to have affected instream uses of the lower reaches of Heavenly Valley Creek.

Extent of Impairment

The segment proposed for listing is about 1 mile long.

Potential Sources

The major source of sediment is upstream watershed disturbance at the Heavenly Ski Resort. This segment of the creek is also affected by local streambank erosion , by stormwater from Pioneer Trail and other nonpoint sources.

TMDL Priority

This TMDL is recommended for a medium priority, with completion projected to occur after 2015. If the Tahoe Regional Planning Agency's proposed restoration project is successful, delisting of this segment may be feasible.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Tahoe Regional Planning Agency, 1996. *Draft 1996 Evaluation Report: Environmental Threshold Carrying Capacities and the Regional Plan Package for the Lake Tahoe Region*, December 1996.

Tahoe Regional Planning Agency, 1998. *Environmental Improvement Program for the Lake Tahoe Region.* Draft for Initial Adoption.

U.S. Forest Service, Lake Tahoe Basin Management Unit, 1998. *Heavenly Ski Resort 1997 Environmental Monitoring Report.*

U.S. Forest Service, Lake Tahoe Basin Management Unit, 1999. *Heavenly Ski Resort 1998 Environmental Monitoring Report.*

HEAVENLY VALLEY CREEK, CHLORIDE
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Heavenly Valley Creek is proposed to be listed for chloride. (A sediment TMDL for a different segment of Heavenly Valley Creek is currently awaiting final approvals.) Available data indicate that the standards violation is probably due mostly to background sources and that revision of water quality objectives may be more appropriate than TMDL development.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Heavenly Valley Creek	**Pollutant(s)**	Chloride
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Natural background, past wastewater disposal to land, road salt
Total Length	3 miles	**TMDL Priority**	Low
Size Affected	3 mile	**TMDL End Date**	After 2015
Latitude/Longitude	38.924 °N, 119.916° W	**Original Listing Year**	2002

Watershed Characteristics

Heavenly Valley Creek, in El Dorado County, is a tributary of Trout Creek. Soils are derived from granitic parent materials. Its upper watershed, with a steep gradient, has been extensively disturbed by ski resort development. The lower reach flows through an urban area before joining Trout Creek. The watershed includes an area used for disposal of secondary wastewater effluent by the South Tahoe Public Utility District until 1968. The creek receives surface runoff from Pioneer Trail (a major thoroughfare) and urban development in the watershed.

Water Quality Objectives Not Attained

Numerical water quality objectives for Trout Creek apply upstream to its tributaries. The chloride objectives for Trout Creek are an annual mean of 0.15 milligrams per liter (mg/L) and 0.20 mg/L as a 90th percentile value.

Evidence of Impairment

Chloride data for Heavenly Valley Creek are summarized in Table 2. Data collected by the U.S. Forest Service, Lake Tahoe Basin Management Unit, for the upper reaches of Heavenly Valley Creek (and for another tributary of Trout Creek with an undisturbed watershed) show violations of the water quality objective at all stations.

Table 2. Chloride Concentrations in Heavenly Valley Creek and a reference stream (Hidden Valley Creek)

Station	Year	Annual Mean	Range	Source of Data
Undisturbed Tributary of Heavenly Valley Creek (HVC-1)	1997	0.4 mg/L	0.1-1.3 mg/L	USFS/LTBMU
Undisturbed Tributary of Heavenly Valley Creek (HVC-1)	1998	0.4 mg/L	0.1-1.4 mg/L	USFS/LTBMU
Heavenly Valley Creek at Sky Meadows (HVC-1A)	1997	0.5 mg/L	0.1-1.4 mg/L	USFS/LTBMU
Heavenly Valley Creek at Sky Meadows (HVC-1A)	1998	0.5 mg/L	0.3-1.1 mg/L	USFS/LTBMU
Heavenly Valley Creek below Patsy's Chair (HVC-2)	1997	0.6 mg/L	0.1-1.4 mg/L	USFS/LTBMU
Heavenly Valley Creek below Patsy's Chair (HVC-2)	1998	1.3 mg/L	0.1-3.2 mg/L	USFS/LTBMU
Heavenly Valley Creek at Property Line (HVC-3)	1997	0.6 mg/L	0.1-1.9 mg/L	USFS/LTBMU
Heavenly Valley Creek at Property Line (HVC-3)	1998	0.8 mg/L	0.4-1.4 mg/L	USFS/LTBMU
Heavenly Valley Creek below Pioneer Trail	2000-2001	1.2 mg/L	0.7-1.8 mg/L	South Tahoe PUD
Hidden Valley Creek (43-H5)	1997	0.4 mg/L	0.1-1.0	USFS/LTBMU
Hidden Valley Creek (43-H5)	1998	0.4 mg/L	0.1- 1.0	USFS/LTBMU

Extent of Impairment

The entire creek is recommended for listing.

Potential Sources

Because the objective is exceeded at stations with undisturbed watersheds (HVC-1 and Hidden Valley Creek), the major source of chloride is probably atmospheric deposition. The LTBMU noted that chloride concentrations increased in developed portions of the ski resort. This might possibly be due to past use of salt for snow conditioning on ski runs.

In the lower watershed, chloride could be contributed from a former wastewater disposal area near Pioneer Trail, and from salt use for deicing on roads and driveways. Other possible sources are livestock and pet wastes, and urban fertilizer use.

TMDL Priority

This TMDL is recommended for a low priority, with completion projected to occur after 2015. The water quality objective for Trout Creek is based on limited data collected before 1980. (Chloride is not routinely monitored as part of the current Lake Tahoe Interagency Monitoring Program.) The data in Table 2 for stations with undisturbed watersheds indicate that the main source of chloride is probably atmospheric deposition. Chloride at these concentrations is probably not harmful to aquatic life uses. The Regional Board may consider updating chloride objectives for waters of the Lake Tahoe Basin based on current data as an alternative to development of a TMDL. Efforts to control the impacts of deicing chemicals, including road salt, on water quality in the Lake Tahoe Basin are part of the ongoing nonpoint source control program.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

South Tahoe Public Utility District, 2000-2001. Monitoring Data for Heavenly Valley Creek (in Regional Board files).

U.S. Forest Service, Lake Tahoe Basin Management Unit, 1998. *Heavenly Ski Resort 1997 Environmental Monitoring Report.*

U.S. Forest Service, Lake Tahoe Basin Management Unit, 1999. *Heavenly Ski Resort 1998 Environmental Monitoring Report.*

HEAVENLY VALLEY CREEK, PHOSPHORUS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of Heavenly Valley Creek within National Forest boundaries is proposed to be listed for phosphorus.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Heavenly Valley Creek	**Pollutant(s)**	Phosphorus
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Erosion, stormwater
Total Length	3 miles	**TMDL Priority**	High
Size Affected	3 mile	**TMDL End Date**	After 2015
Latitude/Longitude	38.924 °N, 119.916° W	**Original Listing Year**	2002

Watershed Characteristics

Heavenly Valley Creek, in El Dorado County, is a tributary of Trout Creek. Its upper watershed, with a steep gradient, has been extensively disturbed by ski resort development. (A sediment TMDL has been completed for this reach.) The lower reach flows through an urban area before joining Trout Creek. Soils are derived from granitic parent materials. The watershed includes an area used for disposal of secondary wastewater effluent by the South Tahoe Public Utility District until 1968. The creek receives surface runoff from Pioneer Trail (a major thoroughfare) and other paved streets and driveways.

Water Quality Objectives Not Attained

Numerical water quality objectives for Trout Creek apply upstream to its tributaries. The total phosphorus objective for Trout Creek is 0.015 milligrams per liter (mg/L) as an annual mean.

Evidence of Impairment

Table 2 summarizes monitoring data collected by the U.S. Forest Service, Lake Tahoe Basin Management Unit (LTBMU), for several stations on Heavenly Valley Creek within National Forest boundaries, and for Hidden Valley Creek, a nearby reference stream. Recent phosphorus data are not available for the segment of the creek between the National Forest property line and the confluence with Trout Creek.

Table 2. Total Phosphorus Data for Heavenly Valley Creek

Station	Year	Annual Mean (mg/L)	Range (mg/L)	Source of Data
Undisturbed Tributary of Heavenly Valley Creek (HVC-1)	1997	0.026	0.010-0.050	USFS/LTBMU
Undisturbed Tributary of Heavenly Valley Creek (HVC-1)	1998	0.029	0.018-0.055	USFS/LTBMU
Heavenly Valley Creek at Sky Meadows (HVC-1A)	1997	0.019	0.005-0.040	USFS/LTBMU
Heavenly Valley Creek at Sky Meadows (HVC-1A)	1998	0.021	0.008-0.055	USFS/LTBMU
Heavenly Valley Creek below Patsy's Chair (HVC-2)	1997	0.021	0.008-0.037	USFS/LTBMU
Heavenly Valley Creek below Patsy's Chair (HVC-2)	1998	0.054	0.011-0.195	USFS/LTBMU
Heavenly Valley Creek at Property Line (HVC-3)	1997	0.021	0.012-0.045	USFS/LTBMU
Heavenly Valley Creek at Property Line (HVC-3)	1998	0.034	0.010-0.090	USFS/LTBMU
Heavenly Valley Creek below Pioneer Trail				STPUD
Hidden Valley Creek (43-H5)	1997	0.021	0.012-0.030	USFS/LTBMU
Hidden Valley Creek (43-H5)	1998	0.027	0.018-0.048	USFS/LTBMU

Potential Sources

Table 2 shows that violations of the phosphorus objective occur even at stations with undisturbed watersheds. The phosphorus at these stations presumably comes from natural geologic sources and/or from atmospheric deposition (from sources such as road dust, windblown soil, and ash from forest fires, wood stoves, etc.). Additional phosphorus loading may occur at some stations from accelerated erosion due to watershed disturbance.

TMDL Priority

This TMDL is recommended for high priority. It may be coordinated with development of a phosphorus TMDL for Trout Creek. TMDL completion is projected to occur after 2015. The Regional Board may also consider revision of the phosphorus objective.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

U.S. Forest Service, Lake Tahoe Basin Management Unit, 1998. *Heavenly Ski Resort 1997 Environmental Monitoring Report.*

U.S. Forest Service, Lake Tahoe Basin Management Unit, 1999. *Heavenly Ski Resort 1998 Environmental Monitoring Report.*

HIDDEN VALLEY CREEK, CHLORIDE
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Hidden Valley Creek, a tributary of Trout Creek in the Lake Tahoe Basin, is proposed to be listed for violation of the water quality objective for chloride. Since the watershed of Hidden Valley Creek is undisturbed, the chloride presumably comes from natural background sources, and revision of the water quality objective may be more appropriate than development of a TMDL.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Hidden Valley Creek	**Pollutant(s)**	Chloride
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Natural background, atmospheric deposition
Total Length	2.95 miles	**TMDL Priority**	Low
Size Affected	2.95 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.858°N, 119.899°W	**Original Listing Year**	2002

Watershed Characteristics

"Hidden Valley Creek" is not an official geographic name. It is the name used by U.S. Forest Service, Lake Tahoe Basin Management Unit (LTBMU) staff for an unnamed tributary of Trout Creek in El Dorado County, with watershed characteristics (size, geology, vegetation) similar to those of Heavenly Valley Creek. Hidden Valley Creek originates from springs below Freel Peak, approximately 3.5 miles south of the Heavenly Valley Creek watershed. Its watershed area is about 1,162 acres. The LTBMU is monitoring Hidden Valley Creek as a reference stream for its watershed restoration program at the Heavenly Ski Resort.

Water Quality Objectives Not Attained

Numerical water quality objectives for Trout Creek apply upstream to its tributaries. The chloride objectives for Trout Creek are 0.15 milligrams per liter (mg/L) as an annual mean, and 0.20 mg/L as a 90th percentile value.

Evidence of Impairment

Table 2 shows chloride data for Hidden Valley Creek collected by the LTBMU in 1997 and 1998. The water quality objective was violated in both years.

Table 2. Chloride Concentration Data for Hidden Valley Creek

Station	Year	Annual Mean	Range
Hidden Valley Creek (43-H5)	1997	0.4 mg/L	0.1-1.0
Hidden Valley Creek (43-H5)	1998	0.4 mg/L	0.1-1.0

Extent of Impairment

The only available data are for Hidden Valley Creek near its mouth. The entire creek is recommended for listing.

Potential Sources

In comparing chloride data for Heavenly Valley and Hidden Valley Creeks, the LTBMU stated that generally chloride concentrations appear to be lower at the two undeveloped sites, and that chloride is assumed to enter streams through salts in precipitation.

TMDL Priority

This TMDL is recommended for a low priority, with completion projected to occur after 2015. The water quality objective for chloride in Trout Creek is based on limited data collected before 1980. Because the watershed of Hidden Valley Creek is undisturbed, the chloride presumably comes from atmospheric deposition. Chloride at these concentrations is probably not harmful to aquatic life uses. The Regional Board may consider updating chloride objectives for waters of the Lake Tahoe Basin based on current data as an alternative to development of a TMDL.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

U.S. Forest Service, Lake Tahoe Basin Management Unit, 1998. *Heavenly Ski Resort 1997 Environmental Monitoring Report.*

U.S. Forest Service, Lake Tahoe Basin Management Unit, 1999. *Heavenly Ski Resort 1998 Environmental Monitoring Report.*

HIDDEN VALLEY CREEK, PHOSPHORUS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Hidden Valley Creek, a tributary of Trout Creek in the Lake Tahoe Basin, is proposed to be listed for phosphorus.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Hidden Valley Creek	**Pollutant(s)**	Phosphorus
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Natural background, atmospheric deposition
Total Length	2.95 miles	**TMDL Priority**	High
Size Affected	2.95 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.858°N, 119.899°W	**Original Listing Year**	2002

Watershed Characteristics

"Hidden Valley Creek" is not an official geographic name. It is the name used by U.S. Forest Service, Lake Tahoe Basin Management Unit (LTBMU) staff for an unnamed tributary of Trout Creek in El Dorado County, with watershed characteristics (size, geology, vegetation) similar to those of Heavenly Valley Creek. Hidden Valley Creek originates from springs below Freel Peak, approximately 3.5 miles south of the Heavenly Valley Creek watershed. Its watershed area is about 1,162 acres. The LTBMU is monitoring Hidden Valley Creek as a reference stream for its watershed restoration program at the Heavenly Ski Resort.

Water Quality Objectives Not Attained

Numerical water quality objectives for Trout Creek apply upstream to its tributaries. The total phosphorus objective for Trout Creek is 0.015 milligrams per liter (mg/L) as an annual mean.

Evidence of Impairment

Table 2 summarizes data collected by the LTBMU for total phosphorus in Hidden Valley Creek. Annual means are in violation of the water quality objective in both years.

Table 2. Phosphorus data for Hidden Valley Creek.

Station	Year	Annual Mean (mg/L)	Range (mg/L)
Hidden Valley Creek (43-H5)	1997	0.021	0.012-0.030
Hidden Valley Creek (43-H5)	1998	0.027	0.018-0.048

Extent of Impairment

The entire creek is recommended for listing.

Potential Sources

Since the watershed of Hidden Valley Creek is undisturbed, the phosphorus presumably comes from natural geologic sources and/or from atmospheric deposition (from sources such as road dust, windblown soil, and ash from forest fires, wood stoves, etc.).

TMDL Priority

This TMDL is recommended to be given high priority, but is not projected for completion until after 2015. It may be developed in connection with a phosphorus TMDL for the entire Trout Creek watershed.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Liu, M.S., J.E. Reuter, and C.R. Goldman, 2001. Seasonal Significance of Atmospheric Deposition of Phosphorus and the Sources of Deposition for Lake Tahoe, CA-NV. Abstract of paper presented at meeting of American Society of Limnology and Oceanography, Albuquerque NM, February 2001.

U.S. Forest Service, Lake Tahoe Basin Management Unit, 1998. *Heavenly Ski Resort 1997 Environmental Monitoring Report.*

U.S. Forest Service, Lake Tahoe Basin Management Unit, 1999. *Heavenly Ski Resort 1998 Environmental Monitoring Report.*

GENERAL CREEK, PHOSPHORUS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

General Creek, a tributary of Lake Tahoe, is proposed to be added to the Section 303(d) list for violation of the water quality objective for total phosphorus.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	General Creek	**Pollutant(s)**	Phosphorus
Hydrologic Unit	Lake Tahoe (634.20)	**Sources**	Erosion, atmospheric deposition, stormwater
Total Length	9.17 miles	**TMDL Priority**	High
Size Affected	9.17 miles	**TMDL End Date**	After 2015
Latitude/Longitude	39.055°N, 120.112 °W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

General Creek, in Placer County, is tributary to Lake Tahoe on its western shore. It has a watershed area of 7.63 square miles and a main channel length of 9.17 miles. Soils are derived mostly from granitic parent materials. The watershed is forested and relatively undisturbed; it is mostly under U.S. Forest Service and California State ownership (Sugar Pine Point State Park). General Creek is used as a "reference stream" in the Lake Tahoe Interagency Monitoring Program. State Highway 89 crosses the lower part of the watershed, and there are developed campground and day use facilities in the State Park.

Water Quality Objectives Not Attained

The numerical water quality objective for total phosphorus in General Creek is 0.015 milligrams per liter (mg/L) as an annual mean.

Evidence of Impairment

Data from the Lake Tahoe Interagency Monitoring Program (LTIMP) summarized by the Tahoe Regional Planning Agency (1999) show that annual mean concentrations of Total Phosphorus in General Creek violated the water quality objective during 12 of 16 water years between Water Years 1981 and 1996. Annual mean values ranged from 0.011 to 0.031 mg/L. Rowe's summary of LTIMP data cited the range of phosphorus concentrations as 0.007 to 0.275 mg/L in General Creek between 1988 and 1996, and the median concentration as 0.021 mg/L.

Extent of Impairment

The entire creek is recommended for listing.

Potential Sources

Although the General Creek watershed is relatively undisturbed, it is not totally "pristine." Sources of phosphorus in the creek may include streambank erosion, road dust, windblown soil from unvegetated campgrounds and day use areas, and ash from forest fires, campfires, and home woodstoves or fireplaces.

TMDL Priority

A high priority ranking is recommended for this TMDL. Phosphorus loading from the General Creek watershed will be addressed in development of the Lake Tahoe phoshorus TMDL. If a more specific TMDL is needed for General Creek, it will be completed after 2015.

Information Sources:

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Liu, M.S., J.E. Reuter, and C.R. Goldman, 2001. Seasonal Significance of Atmospheric Deposition of Phosphorus and the Sources of Deposition for Lake Tahoe, CA-NV. Abstract of paper presented at meeting of American Society of Limnology and Oceanography, Albuquerque NM, February 2001.

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Rowe, T.G., 2001. Loads and Yields of Suspended Sediment for Selected Watersheds in the Lake Tahoe Basin, California and Nevada. *Proceedings of the Seventh Federal Interagency Sedimentation Conference*, March 25 to 29, 2001, Reno, Nevada.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: http://204.87.241.11/98proceedings/Papers/50-ROWE.htm.

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

GENERAL CREEK, IRON
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

General Creek, a tributary of Lake Tahoe, is proposed to be listed for iron.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	General Creek	**Pollutant(s)**	Iron
Hydrologic Unit	Lake Tahoe (634.20)	**Sources**	Erosion, stormwater
Total Length	9.17 miles	**TMDL Priority**	Medium
Size Affected	9.17 miles	**TMDL End Date**	After 2015
Latitude/Longitude	39.055°N, 120.112 °W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

General Creek, in Placer County, is tributary to Lake Tahoe on its western shore. It has a watershed area of 7.63 square miles and a main channel length of 9.17 miles. Soils are derived mostly from granitic parent materials. The watershed is forested and relatively undisturbed; it is mostly under U.S. Forest Service and California State ownership (Sugar Pine Point State Park). General Creek is used as a "reference stream" in the Lake Tahoe Interagency Monitoring Program. State Highway 89 crosses the lower part of the watershed, and there are developed campground and day use facilities in the State Park

Water Quality Objectives Not Attained

The numerical water quality objective for total iron in General Creek is 0.03 milligrams per liter (mg/L).

Evidence of Impairment

As reported by the Tahoe Regional Planning Agency in 1999, the mean annual concentration of total iron measured in General Creek in the Lake Tahoe Interagency Monitoring Program (LTIMP) exceeded the objective during the eight water years when iron was sampled between Water Years 1989 and 1996. Annual mean concentrations ranged from 0.084 mg/L to 0.385 mg/L. Rowe's analysis of LTIMP data cited a range of instantaneous "total bioreactive iron" concentrations in General Creek of 32-7,650 mg/L with a median concentration of 101 mg/L. (Rowe expresses iron concentrations in micrograms per liter [ug/L] in the text of his report, and the use of mg/L in his summary table is probably a typographical error.)

Iron is measured in the LTIMP as "total biologically available iron (BaFe)" or "total bioreactive iron." It is monitored because of its importance as a plant nutrient. Water quality objectives for iron in tributaries of Lake Tahoe were based on limited data collected before 1980 and probably do not reflect natural background concentrations.

Extent of Impairment

The entire creek is proposed for listing.

Potential Sources

Iron is naturally present in soils of the General Creek watershed. Loading of iron to the creek has probably increased over natural background levels due to watershed disturbance.

TMDL Priority

A medium priority is recommended for this TMDL. However, due to other priorities, the TMDL is not projected to be completed until after 2015. Revision of water quality objectives for iron in tributaries of Lake Tahoe may be considered before that date.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: http://204.87.241.11/98proceedings/Papers/50-ROWE.html.

Rowe, T.G., 2001. Loads and Yields of Suspended Sediment for Selected Watersheds in the Lake Tahoe Basin, California and Nevada. *Proceedings of the Seventh Federal Interagency Sedimentation Conference*, March 25 to 29, 2001, Reno, Nevada.

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

UPPER TRUCKEE RIVER, PHOSPHORUS
2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

The Upper Truckee River, a tributary to Lake Tahoe, is proposed to be listed for phosphorus.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Upper Truckee River	**Pollutant(s)**	Phosphorus
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Atmospheric deposition, erosion stormwater, fertilizer, etc.
Total Length	21.5 miles	**TMDL Priority**	High
Size Affected	21.5 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.942°N, 119.995° W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The Upper Truckee River is the largest stream tributary to Lake Tahoe in terms of flow and watershed size, and it may be delivering some of the largest nutrient and sediment loads to the lake. The Upper Truckee River watershed, with an area of 56.5 square miles, is almost entirely within El Dorado County; about 3 square miles of the upper watershed is in Alpine County. Land surface elevations range from lake level (about 6,625 feet above sea level) to 10,063 feet at Red Lake Peak. Slopes range from nearly flat at lake level to as much as 50% in the upper elevations. There are 24 tributary streams to the Upper Truckee River. The main tributary drainages to the Upper Truckee River, with watershed areas, are as follows: Grass Lake Creek (6.4 square miles), Angora Creek (5.7 square miles), Echo Creek (5.4 square miles), and Big Meadow Creek (5.1 square miles). Major wetlands include Grass Lake, Osgood Swamp, Truckee Marsh, Benwood Meadow, and Big Meadow. Grass Lake is the largest quaking bog in California. Major lakes in the watershed include Upper and Lower Echo Lakes, and smaller lakes include Dardanelles, Round, Showers, Elbert, Tamarack, Ralston, and Angora Lakes. Most of the watershed is in U.S. Forest Service ownership. The upper reach of the Upper Truckee River, above Christmas Valley, has been recommended for inclusion in the federal Wild and Scenic Rivers system. Water is diverted out of the Lake Tahoe Basin to the American River from Lower Echo Lake.

The Upper Truckee River watershed was severely disturbed in the 19th and early 20th Centuries by logging and grazing, and in the later 20th Century by hydromodification and urban development. The river has been channelized near the South Lake Tahoe airport and near its confluence with Lake Tahoe, and a large portion of the Truckee Marsh near its mouth has been developed as the Tahoe Keys subdivision. The *Lake Tahoe Watershed Assessment* gave the river an Aquatic Ecosystem Rating of "imperiled."

Water Quality Objectives Not Attained

The numerical water quality objective for total phosphorus for the Upper Truckee River is 0.015 milligrams per liter (mg/L).

Evidence of Impairment

The Tahoe Regional Planning Agency's (1999) summary of data collected in the Lake Tahoe Interagency Monitoring Program (LTIMP) shows that annual mean concentrations of total phosphorus in the Upper Truckee River violated the water quality objective in all 17 water years of sampling between Water Years 1980 and 1996. Rowe's (1998) analysis of LTIMP data collected between 1988 and 1996 shows a range of total phosphorus concentrations between 0.004 and 0.222 mg/L, with a median concentration of 0.30 mg/L. LTIMP data from the U.S. Geological Survey's NWIS database show that the objective was also violated in 1997, 1998, and 1999.

Potential Sources

Potential sources of phosphorus loading to the Upper Truckee River include erosion, stormwater, urban fertilizer use (including use on two golf courses), and the loss of natural filtration capacity due to development and disturbance of wetlands and riparian areas.

TMDL Priority

This TMDL is recommended to be ranked high priority. Phosphorus loading from the Upper Truckee River will be addressed during development of the Lake Tahoe phosphorus TMDL. If needed, a more specific phosphorus TMDL for the Upper Truckee River will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

Liu, M.S., J.E. Reuter, and C.R. Goldman, 2001. Seasonal Significance of Atmospheric Deposition of Phosphorus and the Sources of Deposition for Lake Tahoe, CA-NV. Abstract of paper presented at meeting of American Society of Limnology and Oceanography, Albuquerque NM, February 2001.

Murphy, D.M. and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

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Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

U.S. Geological Survey, 2001. Water Quality Samples for California, USGS 10336610 Upper Truckee River at South Lake Tahoe Calif. NWIS Database; <http:www.usgs.gov/ca/nwis>

UPPER TRUCKEE RIVER, IRON
2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

The Upper Truckee River, a tributary of Lake Tahoe, is proposed to be listed for iron.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Upper Truckee River	**Pollutant(s)**	Iron
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Erosion, stormwater
Total Length	21.5 miles	**TMDL Priority**	Medium
Size Affected	21.5 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.942°N, 119.995° W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The Upper Truckee River is the largest stream tributary to Lake Tahoe in terms of flow and watershed size, and it may be delivering some of the largest nutrient and sediment loads to the lake. The Upper Truckee River watershed, with an area of 56.5 square miles, is almost entirely within El Dorado County; about 3 square miles of the upper watershed is in Alpine County. Land surface elevations range from lake level (about 6,625 feet above sea level) to 10,063 feet at Red Lake Peak. Slopes range from nearly flat at lake level to as much as 50% in the upper elevations. There are 24 tributary streams to the Upper Truckee River. The main tributary drainages to the Upper Truckee River, with watershed areas, are as follows: Grass Lake Creek (6.4 square miles), Angora Creek (5.7 square miles), Echo Creek (5.4 square miles), and Big Meadow Creek (5.1 square miles). Major wetlands include Grass Lake, Osgood Swamp, Truckee Marsh, Benwood Meadow, and Big Meadow. Grass Lake is the largest quaking bog in California. Major lakes in the watershed include Upper and Lower Echo Lakes, and smaller lakes include Dardanelles, Round, Showers, Elbert, Tamarack, Ralston, and Angora Lakes. Most of the watershed is in U.S. Forest Service ownership. The upper reach of the Upper Truckee River, above Christmas Valley, has been recommended for inclusion in the federal Wild and Scenic Rivers system. Water is diverted out of the Lake Tahoe Basin to the American River from Lower Echo Lake.

The Upper Truckee River watershed was severely disturbed in the 19th and early 20th Centuries by logging and grazing, and in the later 20th Century by hydromodification and urban development. The river has been channelized near the South Lake Tahoe airport and near its confluence with Lake Tahoe, and a large portion of the Truckee Marsh near its mouth has been developed as the Tahoe Keys subdivision. The *Lake Tahoe Watershed Assessment* gave the river an Aquatic Ecosystem Rating of "imperiled."

Water Quality Objectives Not Attained

The water quality objective for total iron in the Upper Truckee River is 0.03 milligrams per liter (mg/L) as an annual mean.

Evidence of Impairment

The Tahoe Regional Planning Agency's (1999) summary of data from the Lake Tahoe Interagency Monitoring Program shows that annual mean concentrations of total iron in the Upper Truckee River violated the water quality objective during every water year of sampling (Water Year 1989 through Water Year 1996). The highest annual mean concentration was 0.849 mg/L in Water Year 1995. Rowe's (1998) analysis of LTIMP data collected between 1988 shows that the range of "total bioreactive iron" concentrations was 53-4210 mg/L in the Upper Truckee River, with a median value of 394 mg/L. (Rowe expresses iron concentrations in micrograms per liter [ug/L] in the text of his report, and the use of mg/L in his summary table is probably a typographical error.)

Iron is measured in the LTIMP as "total biologically available iron (BaFe)" or "total bioreactive iron." It is monitored because of its importance as a plant nutrient. Water quality objectives for iron in tributaries of Lake Tahoe were based on limited data collected before 1980 and probably do not reflect natural background concentrations.

Extent of Impairment

The entire Upper Truckee River is recommended for listing.

Potential Sources

Iron is naturally present in soils of the Upper Truckee River watershed. Loading of iron to the river has probably increased over natural background levels due to watershed disturbance. Additional iron may be contributed from stormwater.

TMDL Priority

A medium priority is recommended for this TMDL, which is projected for completion after 2015. Revision of water quality objectives for iron in tributaries of Lake Tahoe may be considered before that date.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: http://204.87.241.11/98proceedings/Papers/50-ROWE.html.

Rowe, T.G., and K.K. Allander, 2000. *Surface- and Ground-Water Characteristics in the Upper Truckee River and Trout Creek Watersheds, South Lake Tahoe, California and Nevada, July-December 1996.* U.S. Geological Survey Water-Resources Investigations Report 00-4001. Available on the Internet: http://water.usgs.gov/pubs/wri/wri004001/.

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

UPPER TRUCKEE RIVER, PATHOGENS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of the Upper Truckee River upstream of Christmas Valley is proposed to be listed for "pathogens" due to violations of the water quality objective for coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Upper Truckee River	**Pollutant(s)**	Pathogens
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Livestock, human recreational users, dogs, wildlife.
Total Length	21.5 miles	**TMDL Priority**	High
Size Affected	~9 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.942°N, 119.995° W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The Upper Truckee River is the largest stream tributary to Lake Tahoe in terms of flow and watershed size, and it may be delivering some of the largest nutrient and sediment loads to the lake. The Upper Truckee River watershed, with an area of 56.5 square miles, is almost entirely within El Dorado County; about 3 square miles of the upper watershed is in Alpine County. Land surface elevations range from lake level (about 6,625 feet above sea level) to 10,063 feet at Red Lake Peak. Slopes range from nearly flat at lake level to as much as 50% in the upper elevations. There are 24 tributary streams to the Upper Truckee River. The main tributary drainages to the Upper Truckee River, with watershed areas, are as follows: Grass Lake Creek (6.4 square miles), Angora Creek (5.7 square miles), Echo Creek (5.4 square miles), and Big Meadow Creek (5.1 square miles). Major wetlands include Grass Lake, Osgood Swamp, Truckee Marsh, Benwood Meadow, and Big Meadow. Grass Lake is the largest quaking bog in California. Major lakes in the watershed include Upper and Lower Echo Lakes, and smaller lakes include Dardanelles, Round, Showers, Elbert, Tamarack, Ralston, and Angora Lakes. Most of the watershed is in U.S. Forest Service ownership. The upper reach of the Upper Truckee River, above Christmas Valley, has been recommended for inclusion in the federal Wild and Scenic Rivers system. Water is diverted out of the Lake Tahoe Basin to the American River from Lower Echo Lake.

The Upper Truckee River watershed was severely disturbed in the 19th and early 20th Centuries by logging and grazing, and in the later 20th Century by hydromodification and urban development. The river has been channelized near the South Lake Tahoe airport and near its confluence with Lake Tahoe, and a large portion of the Truckee Marsh near its mouth has been developed as the Tahoe Keys subdivision. The *Lake Tahoe Watershed Assessment* gave the river an Aquatic Ecosystem Rating of "imperiled."

The Meiss grazing allotment covers 11,000 acres near the headwaters of the Upper Truckee River. Meiss Meadows, near Carson Pass, has been used for grazing since 1868. Currently up to 200 cow-calf pairs graze the area each year.

Water Quality Objectives Not Attained

The water quality objective for coliform bacteria in surface waters of the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN. This objective applies to all surface waters of the Lahontan Region.

Evidence of Impairment

Through analysis of data collected in a cooperative U.S. Forest Service/Regional Board monitoring program, Regional Board staff have documented violations of the water quality objective during years of grazing since 1991. Staff's analysis of data collected in the Dardanelles (Meiss) grazing allotment in 1999 when no grazing occurred, and in 2000 when grazing was allowed, showed violations of the water quality objective at two stations during the late grazing season when livestock were present. No violations were found at a third station during either year. Log means of fecal coliform data collected at the Regional Board's Station 1 in upper Christmas Valley in July and August 2001 ranged from 24 to 33 colonies per 100 ml, in violation of the objective. The 40/100 ml limit was also exceeded in September 2001.

Extent of Impairment

The segment proposed for listing extends from the headwaters of the Upper Truckee River to Lahontan Regional Board staff's monitoring Station 1 at Hawley Grade.

TMDL Priority

This TMDL is recommended for high priority because of the resource value of the Upper Truckee River watershed and the potential for human health problems. However, it is recommended for completion after 2015 because of other high priorities. The U.S. Forest Service has made a commitment to control grazing so as to ensure attainment of the standard, and Regional Board staff

have requested that a recreation strategy be developed to reduce the loading of fecal coliform bacteria from other anthropogenic sources. Monitoring will continue, and if the standard is attained, this water body/pollutant combination will be recommended for delisting during a future cycle.

Information Sources

Bourelle, A. 1999. Regulations may force cattle out. *Tahoe Daily Tribune*, November 23, 1999.

California Regional Water Quality Control Board, Lahontan Region, 1975. *Water Quality Control Plan for the North Lahontan Basin.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. Letter dated February 23, 2001, from Lauri Kemper, Chief, Lake Tahoe Watershed Unit, to Maribeth Gustafson, Forest Supervisor, Lake Tahoe Basin Management Unit, "Summary of Fecal Coliform Statistics on Meiss Grazing Allotment-1999 and 2000 Seasons, and Recommendations for 2001 Season."

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

California Regional Water Quality Control Board, Lahontan Region and U.S. Forest Service, Lake Tahoe Basin Management Unit, 2000-2001. Unpublished fecal coliform data for the Upper Truckee River.

BIG MEADOW CREEK, PATHOGENS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

A segment of Big Meadow Creek, in the Lake Tahoe Basin, is proposed to be listed for "pathogens" due to violations of the water quality objective for coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals, and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Big Meadow Creek	**Pollutant(s)**	Pathogens
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	livestock, humans, dogs, wildlife, etc.
Total Length	~3.5 miles	**TMDL Priority**	High
Size Affected	~2 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.779°N, 119.998°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Big Meadow Creek is a tributary of the Upper Truckee River, which in turn is tributary to Lake Tahoe. Its watershed area is 5.1 square miles. Most of the watershed is in El Dorado County, but there is one tributary stream with its headwaters in Alpine County. The main creek is about 3.5 miles long. The watershed is mostly forested, but includes a large meadow and smaller riparian/meadow areas. The watershed has been heavily disturbed by historic and recent grazing. It is currently used for dispersed recreation including summer hiking and camping and winter cross-country skiing.

Water Quality Objectives Not Attained

The water quality objective for coliform bacteria in surface waters of the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN. This objective applies to all surface waters of the Lahontan Region.

Evidence of Impairment

Regional Board staff compared monitoring data from three stations on Big Meadow Creek during 1999 (when grazing occurred) and 2000 (when there was no grazing). At the downstream station, BM-1, there was a nearly 10-fold increase in fecal coliform bacteria during the grazing season. However, the objective was violated four times during the July 16-October 1, 2000 (non-grazing) period, indicating probable influence of horses, hikers, campers, dogs, wildlife, etc.). The middle station, BM-2 showed consistent violations with grazing and no violations without grazing. The upstream station, BM-3, had violations in four out of six samples with grazing, and two out of ten samples without grazing. During the grazing season in 1999, samples collected when livestock were present had violations from 50-70% of the time, while the corresponding period in 2000 had only 0-9% violations. The U.S. Forest Service's raw data for 2001 show that violations of the 40/100 ml objective occurred in August and September.

Extent of Impairment

The segment of Big Meadow Creek proposed for listing extends from the headwaters to just below the U.S.Forest Service foot bridge at lower Big Meadow (U.S. Forest Service monitoring station BM-1).

TMDL Priority

This TMDL is recommended for high priority because of the resource value of the Upper Truckee River watershed and the potential for human health problems. However, it is recommended for completion after 2015 because of other high priorities. The U.S. Forest Service has made a commitment to control grazing so as to ensure attainment of the standard within the Meiss Grazing Allotment, and Regional Board staff have requested that a recreation strategy be developed to reduce the loading of fecal coliform bacteria from other anthropogenic sources. Monitoring will continue, and if the standard is attained, this water body/pollutant combination will be recommended for delisting during a future cycle.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. Letter dated February 23, 2001, from Lauri Kemper, Chief, Lake Tahoe Watershed Unit, to Maribeth Gustafson, Forest Supervisor, Lake Tahoe Basin Management Unit, "Summary of Fecal Coliform Statistics on Meiss Grazing Allotment—1999 and 2000 Seasons, and Recommendations for 2001 Season."

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Rowe, T.G., and K.K. Allander, 2000. *Surface- and Ground-Water Characteristics in the Upper Truckee River and Trout Creek Watersheds, South Lake Tahoe, California and Nevada, July-December 1996.* U.S. Geological Survey Water-Resources Investigations Report 00-4001. Available on the Internet: http://water.usgs.gov/pubs/wri/wri004001/.

TROUT CREEK, PHOSPHORUS
2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

Trout Creek, a tributary of Lake Tahoe, is proposed to be added to the Section 303(d) list for violations of the water quality objective for total phosphorus.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Trout Creek	**Pollutant(s)**	Phosphorus
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Erosion, stormwater, atmospheric deposition, fertilizer use.
Total Length	10.7 miles	**TMDL Priority**	High
Size Affected	10.7 miles	**TMDL End Date**	After 2015
Latitude/Longitude	39.941°N, 119.996°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The Trout Creek watershed is located within El Dorado County, east of the Upper Truckee River watershed. It is the second largest watershed in the Lake Tahoe basin, with an area of 41.2 square miles. Elevation ranges from lake level (about 6225 feet) to 10,811 feet at Freel Peak. Slopes ranges from nearly flat to 50% at higher elevations. Major tributaries with watershed areas include Cold Creek (12.8 square miles), Saxon Creek (8.2 square miles), Heavenly Valley Creek (3.0 square miles), and Hidden Valley Creek (1.7 square miles). Major wetlands include the Truckee Marsh, High Meadows, and Hell Hole. The only lake in this watershed is Star Lake.

The Trout Creek watershed has been disturbed by historic logging and livestock grazing, ski resort development in the Heavenly Valley Creek watershed, and urban development near Lake Tahoe. The watershed includes a closed municipal landfill, older subdivisions which formerly used septic systems, an area formerly used for land disposal of secondary effluent, and the current South Tahoe Public Utility District wastewater treatment plant and storage facilities.

Water Quality Objectives Not Attained

The water quality objective for total phosphorus in Trout Creek is 0.015 milligrams per liter (mg/L) as an annual mean.

Evidence of Violation

Annual mean phosphorus concentrations for Trout Creek from Lake Tahoe Interagency Monitoring Program (LTIMP) data violated the water quality objectives in all 14 of the water years between 1980 and 1996 during which Trout Creek was sampled. (Data are summarized in the Tahoe Regional Planning Agency's Annual Report.) Rowe's (1998) analysis of LTIMP data collected between 1988 and 1996 shows a range in concentration from 0.003 to 0.393 mg/L, with a median value of 0.041 mg/L.

Extent of Violation

The entire creek is proposed for listing.

Potential Sources

The major sources of phosphorus in the Trout Creek watershed are probably erosion, stormwater and atmospheric deposition, and fertilizer use. Development and disturbance of wetlands and riparian areas in the Trout Creek watershed has reduced their former natural filtering capacity for nutrients and probably increased phosphorus loading to Lake Tahoe.

TMDL Priority

This TMDL is recommended for a high priority ranking. Phosphorus loading from the Trout Creek watershed will be addressed during development of the Lake Tahoe phoshorus TMDL. If a more specific TMDL for Trout Creek is needed, it will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Liu, M.S., J.E. Reuter, and C.R. Goldman, 2001. Seasonal Significance of Atmospheric Deposition of Phosphorus and the Sources of Deposition for Lake Tahoe, CA-NV. Abstract of paper presented at meeting of American Society of Limnology and Oceanography, Albuquerque NM, February 2001.

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: <http://204.87.241.11/98proceedings/Papers/50-ROWE.html>

Rowe, T.G., and K.K. Allander, 2000. *Surface- and Ground-Water Characteristics in the Upper Truckee River and Trout Creek Watersheds, South Lake Tahoe, California and Nevada, July-December 1996.* U.S. Geological Survey Water-Resources Investigations Report 00-4001. Available on the Internet: <http://water.usgs.gov/pubs/wri/wri004001/>

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

TROUT CREEK, NITROGEN
2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

Trout Creek, a tributary of Lake Tahoe, is proposed to be added to the Section 303(d) list due to violation of the water quality objective for total nitrogen.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Trout Creek	**Pollutant(s)**	Nitrogen
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Erosion, stormwater, atmospheric deposition, fertilizer use
Total Length	10.7 miles	**TMDL Priority**	High
Size Affected	10.7 miles	**TMDL End Date**	After 2015
Latitude/Longitude	39.941°N, 119.996°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The Trout Creek watershed is located within El Dorado County, east of the Upper Truckee River watershed. It is the second largest watershed in the Lake Tahoe basin with an area of 41.2 square miles. Elevation ranges from lake level (about 6225 feet) to 10,811 feet at Freel Peak. Slopes range from nearly flat to 50 percent at higher elevations. Major tributaries with watershed areas include Cold Creek (12.8 square miles), Saxon Creek (8.2 square miles), Heavenly Valley Creek (3.0 square miles), and Hidden Valley Creek (1.7 square miles). Major wetlands include the Truckee Marsh, High Meadows, and Hell Hole. The only lake in this watershed is Star Lake.

The Trout Creek watershed has been disturbed by historic logging and livestock grazing, ski resort development in the Heavenly Valley Creek watershed, and urban development near Lake Tahoe. The watershed includes a closed municipal landfill, older subdivisions which formerly used septic systems, an area formerly used for land disposal of secondary effluent, and the current South Tahoe Public Utility District wastewater treatment plant and storage facilities.

Water Quality Objectives Not Attained

The water quality objective for total nitrogen in Trout Creek is 0.19 milligrams per liter (mg/L) as an annual mean.

Evidence of Impairment

Lake Tahoe Interagency Monitoring Program (LTIMP) data summarized by the Tahoe Regional Planning Agency (1999) show that annual mean concentrations of total nitrogen in Trout Creek were in violation of the water quality objective during six of the 8 water years of sampling between 1989 and 1996. The highest annual mean value reported was 0.275 mg/L during Water Year 1995. Rowe (1998) summarized LTIMP data separately for total ammonia plus organic nitrogen

and for dissolved nitrate plus nitrite, for the period between 1998 and 1996. During that time, the concentration of total ammonia plus organic nitrogen in Trout Creek ranged from 0.02 to 2.1 mg/L with a median value of 0.21 mg/L, and dissolved nitrate plus nitrate ranged from 0.002 to 0.060 mg/L with a median value of 0.008 mg/L.

Extent of Impairment

The entire creek is recommended for listing.

Potential Sources

Nitrogen in the Trout Creek watershed comes from natural sources such as nitrogen fixation by plants, and from anthropogenic sources including atmospheric deposition, urban stormwater and fertilizer use, past livestock grazing, and past septic system use and wastewater disposal to land.

TMDL Priority

A high priority is recommended for this TMDL. Nitrogen loading from the Trout Creek watershed will be addressed during the development of the Lake Tahoe nitrogen TMDL. If a more specific nitrogen TMDL for Trout Creek is needed, it will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: http://204.87.241.11/98proceedings/Papers/50-ROWE.html.

Rowe, T.G., and K.K. Allander, 2000. *Surface- and Ground-Water Characteristics in the Upper Truckee River and Trout Creek Watersheds, South Lake Tahoe, California and Nevada, July-December 1996.* U.S. Geological Survey Water-Resources Investigations Report 00-4001. Available on the Internet: http://water.usgs.gov/pubs/wri/wri004001/.

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

TROUT CREEK, IRON
2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

Trout Creek, a tributary of Lake Tahoe, is proposed to be listed for violation of the water quality objective for total iron.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Trout Creek	**Pollutant(s)**	Iron
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Erosion, stormwater, atmospheric deposition
Total Length	10.7 miles	**TMDL Priority**	Medium
Size Affected	10.7 miles	**TMDL End Date**	After 2015
Latitude/Longitude	39.941°N, 119.996°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The Trout Creek watershed is located within El Dorado County, east of the Upper Truckee River watershed. It is the second largest watershed in the Lake Tahoe basin with an area of 41.2 square miles. Elevation ranges from lake level (about 6225 feet) to 10,811 feet at Freel Peak. Slopes range from nearly flat to 50 percent at higher elevations. Major tributaries with watershed areas include Cold Creek (12.8 square miles), Saxon Creek (8.2 square miles), Heavenly Valley Creek (3.0 square miles), and Hidden Valley Creek (1.7 square miles). Major wetlands include the Truckee Marsh, High Meadows, and Hell Hole. The only lake in this watershed is Star Lake.

The Trout Creek watershed has been disturbed by historic logging and livestock grazing, ski resort development in the Heavenly Valley Creek watershed, and urban development near Lake Tahoe. The watershed includes a closed municipal landfill, older subdivisions which formerly used septic systems, an area formerly used for land disposal of secondary effluent, and the current South Tahoe Public Utility District wastewater treatment plant and storage facilities.

Water Quality Objectives Not Attained

The water quality objective for total iron in Trout Creek is 0.03 milligrams per liter (mg/L) as an annual mean.

Evidence for Impairment

Data from the Lake Tahoe Interagency Monitoring Program (LTIMP) summarized by the Tahoe Regional Planning Agency (TRPA) in 1999 show that annual average concentrations of total iron from Trout Creek violated the water quality objective every year between Water Years 1989 and 1996. Rowe's (1998) analysis of LTIMP data reported "total bioreactive iron" concentrations ranging from 137 to 8,750 mg/L in Trout Creek between 1988 and 1996, with a median value of 620 mg/L. (Rowe expresses iron concentrations in micrograms per liter [ug/L] in the text of his report, and the use of mg/L in his summary table is probably a typographical error.)

Iron is measured in the LTIMP as "total biologically available iron (BaFe)" or "total bioreactive iron." It is monitored because of its importance as a plant nutrient. Water quality objectives for iron in tributaries of Lake Tahoe were based on limited data collected before 1980 and probably do not reflect natural background concentrations.

Extent of Impairment

The entire creek is recommended for listing.

Potential Sources

Iron is naturally present in soils of the Trout Creek watershed. Loading of iron to the creek has probably increased over natural background levels due to increases in erosion and stormwater runoff.

TMDL Priority

A medium priority is recommended for this TMDL, which is projected for completion after 2015. Revision of water quality objectives for iron in tributaries of Lake Tahoe may be considered before that date.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 2001. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: http://204.87.241.11/98proceedings/Papers/50-ROWE.html

Rowe, T.G., and K.K. Allander, 2000. *Surface- and Ground-Water Characteristics in the Upper Truckee River and Trout Creek Watersheds, South Lake Tahoe, California and Nevada, July-December 1996.* U.S. Geological Survey Water-Resources Investigations Report 00-4001. Available on the Internet: <http://water.usgs.gov/pubs/wri/wri004001/>

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

TROUT CREEK, PATHOGENS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

A one-mile segment of Trout Creek is proposed to be listed for "pathogens" due to violations of the water quality objective for coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Trout Creek	**Pollutant(s)**	Pathogens
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	livestock, humans, dogs, wildlife, etc.
Total Length	10.7 miles	**TMDL Priority**	High
Size Affected	~ 1 mile	**TMDL End Date**	After 2015
Latitude/Longitude	39.941°N, 119.996°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The Trout Creek watershed is located within El Dorado County, east of the Upper Truckee River watershed. It is the second largest watershed in the Lake Tahoe basin with an area of 41.2 square miles. Elevation ranges from lake level (about 6225 feet) to 10,811 feet at Freel Peak. Slopes range from nearly flat to 50 percent at higher elevations. Major tributaries with watershed areas include Cold Creek (12.8 square miles), Saxon Creek (8.2 square miles), Heavenly Valley Creek (3.0 square miles), and Hidden Valley Creek (1.7 square miles). Major wetlands include the Truckee Marsh, High Meadows, and Hell Hole. The only lake in this watershed is Star Lake.

The Trout Creek watershed has been disturbed by historic logging and livestock grazing, ski resort development in the Heavenly Valley Creek watershed, and urban development near Lake Tahoe. The watershed includes a closed municipal landfill, older subdivisions which formerly used septic systems, an area formerly used for land disposal of secondary effluent, and the current South Tahoe Public Utility District wastewater treatment plant and storage facilities.

Water Quality Objectives Not Attained

The water quality objective for coliform bacteria in surface waters of the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN. This objective applies to all surface waters of the Lahontan Region.

Evidence of Impairment

At Regional Board Station 7, "Trout Creek at Highway 50," one samples exceeded the 20/100 ml log mean objective in June 2001, and all samples exceeded this objective in July 2001. The 40/100 ml objective was exceeded in every month between June and September, 2001.

At Regional Board Station 10, "Lower Trout Creek", the 20/100 ml log mean objective was exceeded in July 2001. The 40/100 ml objective was exceeded in July and August.

Violations of both objectives were also documented in 2000.

Extent of Impairment

The segment of Trout Creek proposed for listing extends downstream from the Highway 50 bridge in South Lake Tahoe to the creek's confluence with the Upper Truckee River/Lake Tahoe backwater, and is about one mile long..

Potential Sources

Livestock wastes are probably the major source of fecal coliform bacteria. Other possible sources include wildlife, pets, and human (transient or recreational) users of the Trout Creek meadow.

TMDL Priority

This TMDL is recommended for a high priority with completion projected to occur after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2000-2001. Unpublished fecal coliform data for Trout Creek

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Rowe, T.G., and K.K. Allander, 2000. *Surface- and Ground-Water Characteristics in the Upper Truckee River and Trout Creek Watersheds, South Lake Tahoe, California and Nevada, July-December 1996.* U.S. Geological Survey Water-Resources Investigations Report 00-4001. Available on the Internet: http://water.usgs.gov/pubs/wri/wri004001/.

TALLAC CREEK, PATHOGENS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

A segment of Tallac Creek, a tributary of Lake Tahoe, is proposed to be listed for "pathogens" due to violations of the narrative water quality objective for fecal coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Tallac Creek	**Pollutant(s)**	Pathogens
Hydrologic Unit	Lake Tahoe (634.10)	**Sources**	Livestock, human recreational users, pets, wildlife
Total Length	~3 miles	**TMDL Priority**	High
Size Affected	~0.5 mile	**TMDL End Date**	After 2015
Latitude/Longitude	38.941°N, 120.058°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Tallac Creek originates in the Desolation Wilderness on the slopes of Mount Tallac, and flows into Lake Tahoe in the Baldwin Beach area. The watershed area is 2932 acres. Tallac Creek has two small tributary streams, and Floating Island Lake is located within its watershed. The U.S. Forest Service Baldwin Grazing Allotment is located on 210 acres along lower Tallac Creek near the Baldwin and Ski Beach recreation areas. The allotment supports grazing by 50 horses and mules from Cascade Stables between July 1 and September 1. The Tallac Creek watershed also includes the U.S. Forest Service Spring Creek summer home tract.

Water Quality Objectives Not Attained

The narrative water quality objective for fecal coliform bacteria in the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN. This objective applies to all surface waters of the Lahontan Region.

Evidence of Impairment

Extent of Impairment

The reach of Tallac Creek proposed for listing extends downstream from the Highway 89 bridge (U.S. Forest Service monitoring station B-2) to Lake Tahoe (below U.S.Forest Service station B-1).

Potential Sources

Livestock wastes are probably the major sources of fecal coliform loading to the segment of Tallac Creek proposed for listing. Wildlife, human recreational users of the watershed and their pets are other possible sources.

TMDL Priority

This TMDL is recommended for a high priority, with completion projected to occur after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region and U.S. Forest Service, Lake Tahoe Basin Management Unit, 2000-2001. Unpublished fecal coliform data for Tallac Creek..

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

U.S. Forest Service, Lake Tahoe Basin Management Unit, 2001. Wildlife/Range Management. Available on the Internet: www.r5.fs.fed.us/ltbmu/management/wildlife/range

WARD CREEK, NITROGEN
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Ward Creek, a tributary of Lake Tahoe, is currently listed for sediment. An additional listing for nitrogen is proposed.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Ward Creek	**Pollutant(s)**	Nitrogen
Hydrologic Unit	Lake Tahoe (634.20)	**Sources**	Erosion, stormwater, atmospheric deposition
Total Length	5.90 miles	**TMDL Priority**	High
Size Affected	5.90 miles	**TMDL End Date**	After 2015
Latitude/Longitude	39.120° N, 120.154 °W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Ward Creek, in Placer County, is tributary to Lake Tahoe on its western shore, near the community of Sunnyside. It has one tributary stream. Ward Creek has a watershed area of 9.75 square miles and a main channel length of 5.90 miles. Its average annual runoff between 1993 and 1996 was 23,200 acre-feet; the average annual mean daily streamflow for this period was 32.1 cubic feet per second. In addition to the development near its mouth, the Alpine Peaks subdivision and roads and lifts from the Alpine Meadows ski resort are located in Ward Creek's upper watershed. It is one of the streams which has received long term sampling under the Lake Tahoe Interagency Monitoring Program (LTIMP), and it has been the site of a number of University of California, Davis Tahoe Research Group research projects.

Water Quality Objectives Not Attained

The water quality objective for total nitrogen in Ward Creek is 0.15 mg/L (milligrams per liter) as an annual mean.

Evidence of Impairment

The Tahoe Regional Planning Agency's (1999) summary of data from the LTIMP shows that annual mean concentrations of total nitrogen in Ward Creek exceeded the water quality objective in seven of eight water years between Water Years 1989 and 1996. Rowe (1998) also analyzed LTIMP data collected between 1988 and 1996. He found that "total ammonia plus organic nitrogen" (total Kjeldahl nitrogen) concentrations in Ward Creek ranged from 0.2-1.2 mg/L with a median concentration of 0.12 mg/L, and "dissolved nitrite plus nitrate" ranged from 0.001 to 0.072 mg/L with a median concentration of 0.010 mg/L. Rowe's analysis of mean daily yields of nitrogen showed Ward Creek to have the highest total Kjeldahl nitrogen yield of the ten LTIMP streams studied.

Extent of Impairment

The entire creek is recommended for listing.

Potential Sources

Nitrogen in Ward Creek probably comes from natural sources such as nitrogen fixation, and from atmospheric deposition, erosion, and stormwater.

TMDL Priority

A high priority is recommended for the Ward Creek nitrogen TMDL. Nitrogen loading from the Ward Creek watershed will be addressed as part of the Lake Tahoe nitrogen TMDL. If a more specific TMDL is needed for Ward Creek, it will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 2001. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: http://204.87.241.11/98proceedings/Papers/50-ROWE.html.

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

WARD CREEK, PHOSPHORUS
2002 303(d) Fact Sheet
Listing

Summary of Proposed Action.

Ward Creek, a tributary of Lake Tahoe, is proposed to be added to the Section 303(d) List for violations of the water quality objective for Total Phosphorus.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Ward Creek	**Pollutant(s)**	Phosphorus
Hydrologic Unit	Lake Tahoe (634.20)	**Sources**	Erosion, atmospheric deposition
Total Length	5.90 miles	**TMDL Priority**	High
Size Affected	5.90 miles	**TMDL End Date**	After 2015
Latitude/Longitude	39.120° N, 120.154 °W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Ward Creek, in Placer County, is tributary to Lake Tahoe on its northwestern shore, near the community of Sunnyside. It has one tributary stream. Ward Creek has a watershed area of 9.75 square miles and a main channel length of 5.90 miles. Its average annual runoff between 1993 and 1996 was 23,200 acre-feet; the average annual mean daily streamflow for this period was 32.1 cubic feet per second. In addition to the development near its mouth, the Alpine Peaks subdivision and roads and lifts from the Alpine Meadows ski resort are located in Ward Creek's upper watershed. The Ward Creek watershed has been disturbed by past logging and grazing. It is one of the streams which has received long term sampling under the Lake Tahoe Interagency Monitoring Program (LTIMP), and has been the site of a number of University of California, Davis Tahoe Research Group research projects.

Water Quality Objectives Not Attained

The numerical water quality objective for total phosphorus in Ward Creek is 0.015 milligrams per liter (mg/L), as an annual mean.

Evidence of Impairment

A summary of data from the LTIMP by the Tahoe Regional Planning Agency (1999) shows that concentrations of total phosphorus in Ward Creek violated the water quality objective in 15 of 17 water years between Water Years 1980 and 1996. Rowe's (1998) analysis of LTIMP data collected between 1988 and 1996 showed that phosphorus concentrations in Ward Creek ranged from 0.008 mg/L to 20.02 mg/L, with a median value of 0.032.

Extent of Impairment

The entire creek is recommended for listing.

Potential Sources

Phosphorus in the Ward Creek watershed is probably associated largely with eroded sediment, but may also come from atmospheric deposition, from sources such as wood ash and windblown dust. Erosion from streambanks and from the "badlands" area near the headwaters of Ward Creek has been cited as a significant sediment source; the University of California, Davis Tahoe Research Group is conducting research to identify source areas more precisely.

TMDL Priority

A high priority is recommended for the Ward Creek phosphorus TMDL. Nutrient loading from the Ward Creek watershed to will be addressed as part of the Lake Tahoe phosphorus TMDL. If a more specific TMDL is needed for Ward Creek, it will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 2001. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Liu, M.S., J.E. Reuter, and C.R. Goldman, 2001. Seasonal Significance of Atmospheric Deposition of Phosphorus and the Sources of Deposition for Lake Tahoe, CA-NV. Abstract of paper presented at meeting of American Society of Limnology and Oceanography, Albuquerque NM, February 2001.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: http://204.87.241.11/98proceedings/Papers/50-ROWE.html.

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

WARD CREEK, IRON
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Ward Creek, a tributary of Lake Tahoe, is proposed to be listed for violations of the water quality objective for total iron.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Ward Creek	**Pollutant(s)**	Iron
Hydrologic Unit	Lake Tahoe (634.20)	**Sources**	Erosion, stormwater
Total Length	5.90 miles	**TMDL Priority**	Medium
Size Affected	5.90 miles	**TMDL End Date**	After 2015
Latitude/Longitude	39.120° N, 120.154 °W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Ward Creek, in Placer County, is tributary to Lake Tahoe on its northwest shore, near the community of Sunnyside. It has one tributary stream. Ward Creek has a watershed area of 9.75 square miles and a main channel length of 5.90 miles. Its average annual runoff between 1993 and 1996 was 23,200 acre-feet; the average annual mean daily streamflow for this period was 32.1 cubic feet per second. In addition to the development near its mouth, the Alpine Peaks subdivision and roads and lifts from the Alpine Meadows ski resort are located in Ward Creek's upper watershed. It is one of the streams which has received long term sampling under the Lake Tahoe Interagency Monitoring Program (LTIMP), and has been the site of a number of University of California, Davis Tahoe Research Group research projects.

Water Quality Objectives Not Attained

The numerical water quality objective for total iron in Ward Creek is 0.03 milligrams per liter (mg/L), annual mean.

Evidence of Impairment

The Tahoe Regional Planning Agency's (1999) summary of data from the LTIMP shows that annual mean concentrations of total iron exceeded the water quality objective during every water year from Water Year 1989 to 1996. The highest annual mean concentration was 1.690 mg/L in Water Year 1996. Rowe's (1998) analysis of LTIMP data collected between 1988 and 1996 showed that instantaneous concentrations of total bioreactive iron ranged from 8 mg/L to 33,900 mg/L in Ward Creek, with a median concentration of 159 mg/L. (Rowe expresses iron concentrations in micrograms per liter [ug/L] in the text of his report, and the use of mg/L in his summary table is probably a typographical error.)

Iron is measured in the LTIMP as "total biologically available iron (BaFe)" or "total bioreactive iron." It is monitored because of its importance as a plant nutrient. Water quality objectives for iron in tributaries of Lake Tahoe were based on limited data collected before 1980 and probably do not reflect natural background concentrations.

Extent of Impairment

The entire creek is recommended for listing.

Potential Sources

Iron is naturally present in soils of the Ward Creek watershed. Loading of iron to the creek has probably increased over natural background levels due to watershed disturbance.

TMDL Priority

A medium priority is recommended for this TMDL, which is projected for completion after 2015. Revision of water quality objectives for iron in tributaries of Lake Tahoe may be considered before that date.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 2001. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Rowe, T.G., 1998. *Loads and Yields of Sediment and Nutrients for Selected Watersheds in the Lake Tahoe Basin, California and Nevada.* U.S. Geological Survey, paper presented at Water Quality Monitoring Council 1998 Conference. Available on the Internet: http://204.87.241.11/98proceedings/Papers/50-ROWE.html.

Tahoe Regional Planning Agency, 1999. *Annual Water Quality Report.*

Water Body Fact Sheets for 2002
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Lahontan Region

WEST FORK AND EAST FORK CARSON RIVER HYDROLOGIC UNITS

California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

November 2001

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Telephone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

WEST FORK CARSON RIVER, HEADWATERS TO WOODFORDS, PHOSPHORUS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of the West Fork Carson River between its headwaters and the community of Woodfords is proposed to be listed for phosphorus.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	West Fork Carson River	**Pollutant(s)**	Phosphorus
Hydrologic Unit	West Fork Carson River (633.00)	**Sources**	Erosion, stormwater, atmospheric deposition
Total Length	~ 21 miles (in CA)	**TMDL Priority**	High
Size Affected	~15 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.778° N 119.821°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The East and West Forks of the Carson River are located in Alpine County. The forks join to form the Carson River near Genoa, Nevada. Both the East and West Forks originate on the eastern side of the Sierra Nevada in or near federal wilderness areas. Most of the California portion of the Carson River watershed is in public ownership, and the local economy depends heavily on tourism. The watershed also includes lands of the Washoe Tribe of California and Nevada. The Carson River watershed is popular for sport fishing, rafting, and other outdoor recreation activities which depend on high water quality.

The West Fork originates in the Lost Lakes and flows through scenic Hope Valley, where public funds have recently been spent to acquire important wetland/riparian habitat and a restoration project to address the impacts of historic (pre-1989) grazing is under way. There are several small lakes at the headwaters of the West Fork, some of which are managed as reservoirs to support irrigation in the lower watershed. Water diversions are limited by the California-Nevada Interstate Water Compact and managed by a federal watermaster under a court decree. The drainage area of the West Fork Carson River upstream of the USGS gaging station near Woodfords is 65.40 square miles.

Development in the upper watershed includes campgrounds, Sorensen's Resort, a small subdivision, roads, and two inactive mines. At lower elevations, the river passes through the communities of Woodfords and Paynesville. Highway 88 is located near the West

Fork from Hope Valley to the state line. Near Woodfords, the watershed is still recovering from the impacts of wildfire. Cattle ranching is important in the lower section of West Fork watershed, where pasturelands are irrigated with secondary wastewater effluent exported from the Lake Tahoe Basin.

Water Quality Objectives Not Attained

The water quality objective for total phosphorus in this segment of the West Fork Carson River is 0.02 milligrams per liter (mg/L), expressed as an annual mean of monthly means. This a running average incorporating historical data. The phosphorus objective is based on data collected in 1981 and 1982. The staff report for the 1983 Basin Plan update states that Regional Board staff did not use storm event data collected by the U.S. Geological Survey in computing the objective.

Evidence of Impairment

Regional Board staff computed the mean of monthly means for phosphorus using data collected by the South Tahoe Public Utility District near Woodfords between 1981 and 2000. The means of monthly means during the assessment period beginning in 1997 were as follows: 1997, 0.09 mg/L; 1998, 0.03 mg/L; 1999, 0.02 mg/L, 2000, 0.03 mg/L. The 1997 figure and subsequent annual means were presumably skewed by the influence of the January 1997 flood, which was greater than a 100 year flood for this reach.

Extent of Impairment

The segment of the Carson River from its headwaters to Woodfords is proposed for listing. (There are some historical water quality data for Hope Valley, but there is currently no routine water quality monitoring above Woodfords.)

Potential Sources

Sources of phosphorus loading to the upper West Fork Carson River may include eroded sediment (from streambanks and from other sources such as road and highway maintenance, construction sites, and slopes denuded by forest fires), stormwater, and atmospheric deposition. (In the Lake Tahoe Basin, atmospheric deposition of phosphorus from road dust and wood ash has been identified as an important nonpoint source.) Zonge and Swanson (1996) measured stream bank erosion in Hope Valley and showed that incised stream banks retreated more than 10 inches during a wet year.

TMDL Priority

This TMDL is recommended for a high priority, with completion after 2015. Revision of water quality objectives for the West Fork Carson River, to express them as annual

means rather than means of monthly means, may be considered before that time.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1983. *West Fork Carson River and Indian Creek Watersheds Water Quality Control Plan Update: 1983.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region 2001. Internal Memo from John Steude and Alan Miller to Judith Unsicker, *Summary of water quality analysis for potential CWA listing of the lower [sic] of the West Fork of the Carson River, Alpine County.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Nevada Division of Water Planning, no date. *The Flood of 1997, Final Report.* Available on the Internet: http://www.state.nv.us/cnr/ndwp/flood-97/floodana.htm.

Liu, M.S., J.E. Reuter, and C.R. Goldman, 2001. *Seasonal Significance of Atmospheric Deposition of Phosphorus and the Sources of Deposition for Lake Tahoe, CA-NV.* Abstract of paper presented at meeting of American Society of Limnology and Oceanography, Albuquerque NM, February 2001.

South Tahoe Public Utility District. Unpublished water quality data.

Zonge, L. and S. Swanson, 1996. Changes in Streambanks in the Sierra Nevada Mountains: Perspectives from a Dry and a Wet Year. *Restoration Ecology* 4(2): 192-199.

WEST FORK CARSON RIVER, HEADWATERS TO WOODFORDS, NITROGEN
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of the West Fork Carson River upstream from Woodfords is proposed to be listed for violation of the water quality objective for total nitrogen.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	West Fork Carson River	**Pollutant(s)**	Nitrogen
Hydrologic Unit	West Fork Carson River (633.00)	**Sources**	Erosion, stormwater, atmospheric deposition
Total Length	~21 miles (in CA)	**TMDL Priority**	High
Size Affected	~15 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.778° N, 119.821°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The East and West Forks of the Carson River are located in Alpine County. The forks join to form the Carson River near Genoa, Nevada. Both the East and West Forks originate on the eastern side of the Sierra Nevada in or near federal wilderness areas. Most of the California portion of the Carson River watershed is in public ownership, and the local economy depends heavily on tourism. The watershed also includes lands of the Washoe Tribe of California and Nevada. The Carson River watershed is popular for sport fishing, rafting, and other outdoor recreation activities which depend on high water quality.

The West Fork originates in the Lost Lakes and flows through scenic Hope Valley, where public funds have recently been spent to acquire important wetland/riparian habitat and a restoration project to address the impacts of historic (pre-1989) grazing is under way. There are several small lakes at the headwaters of the West Fork, some of which are managed as reservoirs to support irrigation in the lower watershed. Water diversions are limited by the California-Nevada Interstate Water Compact and managed by a federal watermaster under a court decree. The drainage area of the West Fork Carson River upstream of the USGS gaging station near Woodfords is 65.40 square miles.

Development in the upper watershed includes campgrounds, Sorensen's Resort, a small subdivision, roads, and two inactive mines. At lower elevations the river passes through the communities of Woodfords and Paynesville. Highway 88 is located near the West

Fork from Hope Valley to the state line. Near Woodfords, the watershed is still recovering from the impacts of wildfire. Cattle ranching is important in the lower section of the West Fork watershed, where pastures are irrigated with secondary wastewater effluent exported from the Lake Tahoe Basin.

Water Quality Objectives Violated

Water quality objectives for nitrogen in this segment of the West Fork Carson River, in milligrams per liter (mg/L), are as follows: Total Kjeldahl nitrogen, 0.13 mg/L; nitrate 0.02 mg/L, and total nitrogen, 15 mg/L. All objectives are expressed as "means of monthly means"; these are running averages incorporating historical data.

Evidence of Impairment

Regional Board staff calculated means of monthly means based on data collected by the South Tahoe Public Utility District at Woodfords between 1981 and 2000. (Total Kjeldahl N samples were available only since 1991.) For the Woodfords station, the current means of monthly means were as follows: total Kjeldahl N = 0.20 mg/L; nitrate (as N) =0.04 mg/L; total N = 0.20. All of these values exceed the objectives.

Extent of Impairment

The reach of the river above Woodfords is recommended for listing.

Potential Sources

Scientific research in the Lake Tahoe Basin, to the north of the Carson River watershed, has shown that much of the nitrogen loading to Lake Tahoe comes from long distance transport and deposition from upwind sources. It is probable that similar nitrogen loading to the Carson River watershed is occurring. Local sources of nitrogen loading to this segment may include septic systems, erosion, stormwater, historic livestock grazing, and natural nitrogen fixation by plants and soil bacteria.

TMDL Priority.

This TMDL is recommended for high priority with completion after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1983. *West Fork Carson River and Indian Creek Watersheds Water Quality Control Plan Update: 1983.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region 2001. Internal Memo from John Steude and Alan Miller to Judith Unsicker, *Summary of water quality analysis for potential CWA listing of the lower [sic] of the West Fork of the Carson River, Alpine County.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

South Tahoe Public Utility District. Unpublished water quality data.

WEST FORK CARSON RIVER, HEADWATERS TO WOODFORDS, PERCENT SODIUM
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of the West Fork Carson River upstream of Woodfords is proposed to be listed for violations of the narrative water quality objective for "Percent Sodium."

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	West Fork Carson River	**Pollutant(s)**	Percent Sodium
Hydrologic Unit	West Fork Carson River (633.00)	**Sources**	Road salt, septic systems, natural
Total Length	~21 miles (in CA)	**TMDL Priority**	Medium
Size Affected	~15 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.778° N, 119.821°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The East and West Forks of the Carson River are located in Alpine County. The forks join to form the Carson River near Genoa, Nevada. Both the East and West Forks originate on the eastern side of the Sierra Nevada in or near federal wilderness areas. Most of the California portion of the Carson River watershed is in public ownership, and the local economy depends heavily on tourism. The watershed also includes lands of the Washoe Tribe of California and Nevada. The Carson River watershed is popular for sport fishing, rafting, and other outdoor recreation activities which depend on high water quality.

The West Fork originates in the Lost Lakes and flows through scenic Hope Valley, where public funds have recently been spent to acquire important wetland/riparian habitat and a restoration project to address the impacts of historic (pre-1989) grazing is under way. There are several small lakes at the headwaters of the West Fork, some of which are managed as reservoirs to support irrigation in the lower watershed. Water diversions are limited by the California-Nevada Interstate Water Compact and managed by a federal watermaster under a court decree. The drainage area of the West Fork Carson River upstream of the USGS gaging station near Woodfords is 65.40 square miles.

Development in the upper watershed includes campgrounds, Sorensen's Resort, a small subdivision, roads, and two inactive mines. At lower elevations the river passes through the communities of Woodfords and Paynesville. Highway 88 is located near the West Fork from Hope Valley to the state line. Near Woodfords, the watershed is still

recovering from the impacts of wildfire. Cattle ranching is important in the lower section of the West Fork watershed, where pasturelands are irrigated with secondary wastewater effluent exported from the Lake Tahoe Basin.

Water Quality Objectives Violated

The "percent sodium" objective is meant to protect crops against the impacts of excess sodium, which can damage soils and interfere with water uptake. It reflects the amount of sodium (Na) present in relation to the amounts of calcium (Ca), magnesium (Mg) and potassium (K). Percent sodium is computed as follows:

$$\frac{(Na \times 100)}{Na + Ca + Mg + K}$$

Concentrations of the above elements are expressed as milliequivalents per liter. Percent sodium has been superseded as an agricultural criterion by "Sodium Absorption Ratio," which is calculated differently.

The "percent sodium" objective for the West Fork Carson River (20 percent expressed as a mean of monthly means) dates from the 1975 *Water Quality Control Plan for the North Lahontan Basin* and is based on a historic database of 114 samples collected at Woodfords. It is below the recommended criteria for irrigation (30-60 percent) available at the time the objective was last updated in 1983-84.

Evidence of Impairment

Regional Board staff calculated annual means of monthly means for percent sodium using data collected by the South Tahoe Public Utility District between 1981 and 2000. The figure for 2000 was 21.7 %.

Potential Sources

Possible anthropogenic sources of sodium in the upper West Fork watershed are road salt used on Highway 88 and wastewater disposed to septic systems.

TMDL Priority

This TMDL is recommended for a medium priority, with completion projected to occur after 2015 if a TMDL is still needed. It may be possible to ensure attainment of the objective before that time through source controls. Alternatively, Regional Board staff may consider revising the percent sodium objective to reflect current agricultural criteria.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1975. *Water Quality Control Plan for the North Lahontan Basin.*

California Regional Water Quality Control Board, Lahontan Region, 1983. *West Fork Carson River and Indian Creek Watersheds Water Quality Control Plan Update: 1983.*

California Regional Water Quality Control Board, Lahontan Region, 1995. Water Quality Control Plan for the Lahontan Region.

California Regional Water Quality Control Board, Lahontan Region 2001. Internal Memo from John Steude and Alan Miller to Judith Unsicker, Summary of water quality analysis for potential CWA listing of the lower [sic] of the West Fork of the Carson River, Alpine County.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

South Tahoe Public Utility District. Unpublished water quality data.

WEST FORK CARSON RIVER, WOODFORDS TO PAYNESVILLE, PERCENT SODIUM
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of the West Fork Carson River between Woodfords and Paynesville is proposed to be listed for violations of the water quality objective for "percent sodium."

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	West Fork Carson River	**Pollutant(s)**	Percent Sodium
Hydrologic Unit	West Fork Carson River (633.00)	**Sources**	Road salt, septic systems, natural
Total Length	~21 miles (in CA)	**TMDL Priority**	Medium
Size Affected	~ 4 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.809° N, 119.778°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The East and West Forks of the Carson River are located in Alpine County. The forks join to form the Carson River near Genoa, Nevada. Both the East and West Forks originate on the eastern side of the Sierra Nevada in or near federal wilderness areas. Most of the California portion of the Carson River watershed is in public ownership, and the local economy depends heavily on tourism. The watershed also includes lands of the Washoe Tribe of California and Nevada. The Carson River watershed is popular for sport fishing, rafting, and other outdoor recreation activities which depend on high water quality.

Development in the upper watershed includes campgrounds, Sorensen's Resort, a small subdivision, roads, and two inactive mines. At lower elevations, the river passes through the communities of Woodfords and Paynesville. Highway 88 is located near the West Fork from Hope Valley to the state line. Near Woodfords, the watershed is still recovering from the impacts of wildfire.

Cattle ranching is important in the lower section of the West Fork watershed, where pasturelands are irrigated with secondary wastewater effluent exported from the Lake Tahoe Basin. Ranchers using effluent are under reclamation waste discharge requirements from the Lahontan Regional Board. Diversions from the West Fork occur at and below Woodfords and can significantly affect instream flows from Woodfords to the state line. Most diversions are for irrigation; however, the South Tahoe Public Utility District diverts water to maintain the level of Indian Creek Reservoir.

Water Quality Objectives Not Attained

The "percent sodium" objective is meant to protect crops against the impacts of excess sodium, which can damage soils and interfere with water uptake. It reflects the amount of sodium (Na) present in relation to the amounts of calcium (Ca), magnesium (Mg) and potassium (K). Percent sodium is computed as follows:

$$\frac{(Na \times 100)}{Na + Ca + Mg + K}$$

Concentrations of the above elements are expressed as milliequivalents per liter. Percent sodium has been superseded as an agricultural criterion by "Sodium Absorption Ratio", which is calculated differently.

The "percent sodium" objective for the West Fork Carson River (20% expressed as a mean of monthly means) dates from the 1975 *Water Quality Control Plan for the North Lahontan Basin*, and is based on a historic database of 114 samples collected at Woodfords. It is below the recommended criteria for irrigation (30-60 percent) available at the time the objective was last updated in 1983-84.

Evidence of Impairment

The mean of monthly means percent sodium value calculated for the West Fork at Paynesville, using data collected by the South Tahoe Public Utility District between 1981 and 2000, was 23 percent.

Extent of Impairment

The proposed listing is for the segment of the river about 4 miles long between Woodfords and Paynesville. (There are no recent water quality data for the segment of the river between Paynesville and the state line. Due to agricultural diversions, this segment may dry up completely during dry years. The State of Nevada uses data collected at Paynesville to represent conditions at the state line.)

Potential Sources

In addition to sources mentioned for the upstream segment (road salt and wastewater disposed to septic systems), potential sources of sodium include irrigation with wastewater effluent, livestock wastes, and septic systems tributary to the lower segment.

TMDL Priority

This TMDL is recommended for a medium priority, with completion projected to occur after 2015 if a TMDL is still needed. It may be possible to ensure attainment of the objective before that time through source controls. Alternatively, Regional Board staff may consider revising the percent sodium objective to reflect current agricultural criteria.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1975. *Water Quality Control Plan for the North Lahontan Basin.*

California Regional Water Quality Control Board, Lahontan Region, 1983. *West Fork Carson River and Indian Creek Watersheds Water Quality Control Plan Update: 1983.*

California Regional Water Quality Control Board, Lahontan Region, 1995. Water Quality Control Plan for the Lahontan Region.

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California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Nevada Division of Environmental Protection, Bureau of Water Quality Planning. 2001. State of Nevada Surface Water Monitoring Network, Carson River Basin. Available on the Internet: http://ndep.state.nv.us/bwqp/C9.html.

South Tahoe Public Utility District. Unpublished water quality data.

WEST FORK CARSON RIVER, WOODFORDS TO PAYNESVILLE, NITROGEN
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of the West Fork Carson River between Woodfords and Paynesville is proposed to be Section 303(d) listed for violations of the water quality objectives for nitrate and total nitrogen.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	West Fork Carson River	**Pollutant(s)**	Nitrogen
Hydrologic Unit	West Fork Carson River (633.00)	**Sources**	Pasture runoff, stormwater, erosion, atmospheric deposition
Total Length	~21 miles (in CA)	**TMDL Priority**	High
Size Affected	~4 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.809° N, 119.778°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The East and West Forks of the Carson River are located in Alpine County and join to form the Carson River near Genoa, Nevada. Both the East and West Forks originate on the eastern side of the Sierra Nevada in or near federal wilderness areas. Most of the California portion of the Carson River watershed is in public ownership, and the local economy depends heavily on tourism. The watershed also includes lands of the Washoe Tribe of California and Nevada. The Carson River watershed is popular for sport fishing, rafting, and other outdoor recreation activities which depend on high water quality.

Development in the upper watershed includes campgrounds, Sorensen's Resort, a small subdivision, roads, and two inactive mines. At lower elevations the river passes through the communities of Woodfords and Paynesville. Highway 88 is located near the West Fork from Hope Valley to the state line. Near Woodfords, the watershed is still recovering from the impacts of wildfire. Cattle ranching is important in the lower section of the West Fork watershed, where pasturelands are irrigated with secondary wastewater effluent exported from the Lake Tahoe Basin. Ranchers using effluent are under reclamation waste discharge requirements from the Lahontan Regional Board. Diversions from the West Fork occur at and below Woodfords and can significantly affect instream flows from Woodfords to the state line. Most diversions are for irrigation; however, the South Tahoe Public Utility District diverts water to maintain the level of Indian Creek Reservoir.

Water Quality Objectives Violated

For the Woodfords to Paynesville segment of the West Fork, the water quality objectives for nitrate (as N), total Kjeldahl nitrogen, and total nitrogen, in milligrams per liter (mg/L), are 0.03, 0.22, and 0.25 mg/L, expressed as means of monthly means. (These are running averages incorporating historic data.) The Regional Board's 1983 Basin Plan staff report noted higher nutrient concentrations and agricultural impacts on water quality in this reach of the river.

Evidence of Impairment

Staff calculated means of monthly means using data collected by the South Tahoe Public Utility District between 1981 and 2000. Means of monthly means for nitrate (as N), total Kjeldahl nitrogen, and total nitrogen were 0.06 mg/L, 0.21 mg/L, and 0.27 mg/L. The means of monthly means for nitrate and total nitrogen exceeded the water quality objectives.

Extent of Impairment

The reach of the West Fork Carson River between Woodfords and Paynesville is recommended for listing.

Potential Sources

In addition to the upstream sources causing violation of objectives at Woodfords (atmospheric deposition, septic systems, erosion, stormwater, grazing, and natural fixation by plants and soil bacteria), this reach of the river is affected by agricultural stormwater. Data for total and fecal coliform bacteria in this reach indicate that livestock wastes are affecting the river. Floodwaters from the severe January 1997 storm event may also have affected nutrient concentration in the river.

TMDL Priority

This TMDL is recommended for high priority, with completion projected to occur after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1983. *West Fork Carson River and Indian Creek Watersheds Water Quality Control Plan Update: 1983.*

California Regional Water Quality Control Board, Lahontan Region, *1995. Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region 2001. Internal Memo from John Steude and Alan Miller to Judith Unsicker, Summary of water quality analysis for potential CWA listing of the lower [sic] of the West Fork of the Carson River, Alpine County.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Murphy, D.M., and C.M. Knopp, editors, 2000. *Lake Tahoe Watershed Assessment.* Gen. Tech. Rep. PSW-GTR-176, USDA Forest Service, Pacific Southwest Research Station, Albany, CA, Vols. I and II.

Nevada Division of Environmental Protection, Bureau of Water Quality Planning. 2001. State of Nevada Surface Water Monitoring Network, Carson River Basin. Available on the Internet: http://ndep.state.nv.us/bwqp/C9.html.

South Tahoe Public Utility District. Unpublished water quality data.

WEST FORK CARSON RIVER, WOODFORDS TO PAYNESVILLE, PATHOGENS
2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of the West Fork Carson River between Woodfords and the California-Nevada state line is proposed to be listed for "pathogens" due to violations of the water quality objective for fecal coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals, and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	West Fork Carson River	**Pollutant(s)**	Pathogens
Hydrologic Unit	West Fork Carson River (633.00)	**Sources**	Livestock, wildlife
Total Length	~21 miles (in CA)	**TMDL Priority**	Medium
Size Affected	~4 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.809° N, 119.778°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The East and West Forks of the Carson River are located in Alpine County. The forks join to form the Carson River near Genoa, Nevada. Both the East and West Forks originate on the eastern side of the Sierra Nevada in or near federal wilderness areas. Most of the California portion of the Carson River watershed is in public ownership, and the local economy depends heavily on tourism. The watershed also includes lands of the Washoe Tribe of California and Nevada. The Carson River watershed is popular for sport fishing, rafting, and other outdoor recreation activities which depend on high water quality.

Development in the upper watershed includes campgrounds, Sorensen's Resort, a small subdivision, roads, and two inactive mines. At lower elevations, the river passes through the communities of Woodfords and Paynesville. Highway 88 is located near the West Fork from Hope Valley to the state line. Near Woodfords, the watershed is still recovering from the impacts of wildfire. Cattle ranching is important in the lower section of the West Fork watershed, where pasturelands are irrigated with secondary wastewater effluent exported from the Lake Tahoe Basin. Ranchers using effluent are under reclamation waste discharge requirements from the Lahontan Regional Board. Diversions from the West Fork occur at and below Woodfords, and can significantly affect instream flows from Woodfords to the state line. Most diversions are for irrigation; however, the

South Tahoe Public Utility District diverts water to maintain the level of Indian Creek Reservoir.

Water Quality Objectives Violated

The regionwide narrative water quality objective for coliform bacteria in surface waters of the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN.

This objective applies to all surface waters of the Lahontan Region. Because the South Tahoe Public Utility District's Alpine County monitoring program involves monthly sampling, the 40/100 ml limit in the last part of the objective was the criterion used in assessment for update of the Section 303(d) list.

The Lahontan Basin Plan does not currently include water quality objectives for fecal streptococci. However, these bacteria are also indicators of fecal pollution and therefore of impairment. Fecal streptococci can be used to assess sources of contamination. If the ratio of fecal coliform numbers to fecal streptococcus numbers is greater than 4, a human source is generally indicated, and a ratio of less than 0.7 points to animal sources.

Evidence of Impairment

Samples collected at Woodfords by the South Tahoe Public Utility District (STPUD) between June 2000 and May 2001 had no violations of the fecal coliform objective. Colony numbers ranged from <3 to <30/ml. Fecal streptococcus were detected, at 30/ml, on two out of ten sampling dates. Table 2 summarizes data for total coliform, fecal coliform, and fecal streptococcus bacteria in the West Fork Carson River at Paynesville, from samples collected by the STPUD in 2000-2001. Violations of the fecal coliform objective occurred in four of the ten months sampled. Numbers of total and fecal coliform bacteria were higher during the summer grazing season.

Table 2. South Tahoe Public Utility District Monitoring Data for Bacteria, West Fork Carson River at Paynesville (colonies per 100 ml).

Sampling date	Total coliform	Fecal Coliform	Fecal streptococcus
Paynesville (SW05)			
06/06/00	430	430	-
07/05/00	430	40	-
08/01/00	390	230	-
09/05/00	430	30	-
10/03/00	430	90	-
11/01/00	390	40	30
12/05/00	23	4	-
03/06/01	93	4	-
04/03/01	43	<3	-
05/01/01	43	43	40
Stateline (SW06)			
06/06/00	430	230	
07/05/00	230	40	-
08/01/00	11,000	430	-
09/05/00	150	90	-
10/03/00	140	140	-
11/01/00	750	40	<30
12/05/00	-	-	-
03/06/01	93	3	-
04/03/01	43	9	-
05/01/01	230	23	230

The Nevada Division of Environmental Protection samples water quality at the Paynesville station every other month (six times per year). Data for 1997 and 1998 are summarized in Table 3. These data are not directly comparable with the fecal coliform bacteria data summarized above. However, the high numbers occurring during the summer indicate the probable impacts of livestock wastes and pasture runoff.

Table 3. Nevada Division of Environmental Protection Monitoring Data for Bacteria, West Fork Carson River at Paynesville (Most Probable Number [of colonies] per 100 ml).

Sampling Date	Fecal Streptococcus	E. coli
14 Jan 1997	<10	<10
12 Mar 1997	<10	10
28 May 1997	30	10
22 July 1997	170	99
16 Sep 1997	10	31
12 Nov 1997	40	<10
14 Jan 1998	<10	<10
17 March 1998	<10	31
26 May 1998	20	<10
21 July 1998	230	87
15 Sep 1998	110	530
17 Nov 1998	40	75

Extent of Impairment

The segment of the West Fork Carson River between Woodfords and the California-Nevada state line is recommended for listing.

Potential Sources

The primary source of fecal coliform bacteria in the West Fork is probably livestock wastes. Wildlife and recreational users of the watershed may also be sources. Bacteria are monitored in the lower West Fork Carson River watershed because of public concern about the impacts of irrigation with secondary effluent. However, the effluent is disinfected and is not likely to be the source of the violations.

TMDL Priority

This TMDL is recommended for a medium priority, with completion projected after 2015. Management practices for irrigation and grazing in this watershed are expected to change as a result of ongoing watershed planning activities for the Carson River watershed, and the Regional Board's nonpoint source program. If these practices are successful, it may be possible to delist this segment of the river instead of developing a TMDL.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Menon, A.S., 2001. *Shellfish Safety: Bacterial Indicators on [sic] Shellfish Water Quality. Canadian Shellfish Quality Resource.* Available on the Internet: <http:www.shellfishquality.ca/indicators.htm>.

Nevada Division of Environmental Protection, Bureau of Water Quality Planning. 2001. State of Nevada Surface Water Monitoring Network, Carson River Basin. Available on the Internet: http://ndep.state.nv.us/bwqp/C9.html

South Tahoe Public Utility District. Unpublished water quality data.

EAST FORK CARSON RIVER, NUTRIENTS
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

The East Fork Carson River is recommended for removal from the Section 303(d) list because the original listing was done on the mistaken assumptions by Regional Board staff, and there is no current evidence of impairment by nutrients in California. The river was listed for nutrients in the 1980s because the State of Nevada had listed it for violations of pH criteria in a reach beginning at the state line. (Increases in pH can result indirectly from algae blooms, which in turn result from high levels of nutrients and warm temperatures. The pH violations were probably connected to the drought of the late 1980s and early 1990s.) Nevada subsequently removed this water body/pollutant combination from its 303(d) list, and the current (1998) Nevada list does not include it. Nevada's online monitoring data for the Carson River watershed show that the reach beginning at the state line is monitored at the Riverview Mobile Home Park (Latitude 38°52'22", Longitude 119°41' 20") south of Gardnerville near Highway 395, which is about 12-13 miles downstream from the California state line. Data for pH at the Riverview station should not be assumed to be representative of conditions in California at the state line. The reach above the mobile home park probably receives nutrients from Indian Creek and from agricultural runoff, septic systems, and stormwater in Nevada, and river pH will be influenced by local algal productivity. (This reach of the river also receives inflow on the Nevada side of the state line from Bryant Creek, which is affected by acid mine drainage.)

Samples collected at the Riverview station between March 12, 1997 and May 29, 2001 had laboratory pH values ranging from 7.02 to 8.5, and field pH values ranging from 6.32 to 8.7. None of the 24 laboratory pH measurements taken during this period exceeded the California water quality objective (6.5-8.5 units). Four of the 26 field pH measurements were higher than 8.5 units and one was lower than 6.5. Even if the Riverview station were representative of conditions at the state line, the deviations from the California standard are not great enough to affect beneficial uses, and Lahontan Regional Board staff would not recommend listing on the basis of the current data.

Watershed Conditions

The East and West Forks of the Carson River are located in Alpine County, south of Lake Tahoe. The forks join to form the Carson River near Genoa, Nevada. Several tributaries, including Indian Creek and Bryant Creek, cross the California-Nevada state line separately from the main forks. Both the East and West Forks originate in the upper reaches of the eastern side of the Sierra Nevada in or near federal wilderness areas. The watershed is popular for sport fishing, rafting, and other outdoor recreation activities which depend on high water quality. A segment of the East Fork between Hangman's Bridge and the Nevada state line is designated as a State Wild and Scenic River, and is a

popular river rafting area. Some reaches of the East Fork are under study for possible inclusion in the federal Wild and Scenic River system. The watershed supports two subspecies of threatened trout, the Lahontan and Paiute cutthroat trout.

Most of the California portion of the watershed is in public ownership, and the local economy depends heavily on tourism. The watershed also includes lands of the Washoe Tribe of California and Nevada. Cattle ranching is important in the lower sections of the East and West Fork watersheds, and grazing on rangeland extends to the upper watersheds. The East Fork Carson River watershed has also been disturbed by historic logging, grazing, and mining. State Highways 89 and 4 are located close to the river and its tributaries. Water diversions in the Carson River watershed are limited by the California-Nevada Interstate Water Compact and a court decree.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Nevada Division of Environmental Protection, Bureau of Water Quality Planning. 1998. Nevada's 1998 303(d) List. Available on the Internet: http://ndep.state.nv.us/bwqp/riv303d98.pdf.

Nevada Division of Environmental Protection, Bureau of Water Quality Planning. 2001. State of Nevada Surface Water Monitoring Network, Carson River Basin. Available on the Internet: http://ndep.state.nv.us/bwqp/C9.html.

MONITOR CREEK, METALS
2002 Section 303(d) Fact Sheet
Clarification

Summary of Proposed Action

Monitor Creek, a tributary of the East Fork Carson River in Alpine County (Hydrologic Unit No. 632.10), is currently Section 303(d)-listed for "metals." Regional Board staff used this term to cover overall impairment of the creek by acid mine drainage, including impacts on instream beneficial uses. Since staff's current approach is to be more specific about the nature of impairment, the "metals" listing is proposed to be replaced by separate entries for iron, silver, aluminum, and manganese, to reflect the individual pollutants which currently appear to be affecting beneficial uses. (Separate new listings are proposed for two non-metallic pollutants, sulfate and total dissolved solids, which are also related to the acid mine drainage problem.) If further monitoring shows that listings for different metals are warranted, the list will be revised during the next (2004) update cycle.

Watershed Characteristics

Monitor Creek is located in eastern Alpine County (latitude 38.66°N, longitude 119.73°W). Monitor Creek (about 4 miles long) originates near Monitor Pass as Heenan Creek (about 2 miles long), which is impounded by Heenan Reservoir. Releases from the reservoir are made for irrigation in Nevada. Heenan Reservoir is used by the California Department of Fish and Game as rearing habitat and a catch-and-release fishery for the threatened Lahontan cutthroat trout. The Heenan Creek watershed is used for grazing. Monitor Creek joins the East Fork Carson River near the junction of State Highways 4 and 89, and the creek runs near Highway 89 for most of its length.

The Monitor Creek watershed includes altered and unaltered Pliocene volcanic rocks, with zones of silicification and intrusion containing gold, silver, copper, lead, zinc, antimony, arsenic, barite and manganese in complex, high-sulfide ores. Monitor Creek has been affected by mining since the Comstock era in the 1860s. ("Monitor" refers to the water cannons formerly used for hydraulic mining, and it was the name of a mining town in the watershed which existed from about 1863-1911.) There are a number of inactive mines in the Colorado Hill area to the north of the creek, and tailings from an inactive ore mill are located within the creek. There are currently no active mines in the watershed; most of the land is within U.S. Forest Service ownership.

Water Quality Standards Not Attained

In California, water quality standards include designated beneficial uses and narrative or numerical water quality objectives, equivalent to federal "criteria," established to protect those uses. Monitor Creek is designated for a variety of uses, including municipal, recreational, and aquatic life uses. Because of the presence of Lahontan cutthroat trout, it is also designated for the Rare, Threatened, or Endangered Species Habitat use.

The water quality objectives applicable to Monitor Creek that apply to metals in acid mine drainage include: (1) narrative objectives for nondegradation, chemical constituents, color, settleable materials, toxicity, and turbidity, and (2) numerical objectives for metals in the U.S. Environmental Protection Agency's California Toxics Rule. The narrative objective for "chemical constituents" references the California Department of Health Services' Maximum Contaminant Levels (MCLs) for drinking water. The narrative objective for "settleable materials" provides that:

> *"Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or that adversely affects the water for beneficial uses. For natural high quality waters, the concentrations of settleable materials shall not be raised by more than 0.1 milliliter per liter."*

Evidence of Impairment

A Section 205(j)-funded study of the chemistry and biology of Monitor Creek was done by University of Nevada researchers in 1990-91. It showed that **iron** levels immediately below the Zaca Mine adit may regularly exceed the USEPA freshwater aquatic life chronic exposure criterion (1 milligrams per liter or mg/L). "Biologically available iron" concentrations from four sampling runs ranged from 1-3 mg/L. The study report observed that the reach below several tailings piles and drainage from the Zaca Mine adit was affected by a reddish-brown precipitate, possibly ferric sulfate.

The study also indicated, based on one sampling run, that the chronic exposure criterion for **silver** may be exceeded at stations throughout Monitor Creek. The values ranged from 0.2-0.7 mg/L, compared to a criterion of 0.12 mg/L. (Silver concentrations in samples from the East Fork Carson River upstream and downstream of Monitor Creek were comparable to those in the creek.) Elevated silver was observed in one Toxic Substances Monitoring Program sample of fish tissue from Monitor Creek.

An **aluminum** sample taken by Western States Minerals Corporation just above the confluence of Monitor Creek with the East Fork Carson River had a concentration of 0.4 mg/L, compared to the EPA chronic toxicity criterion of 0.087 mg/L. **Manganese** in Monitor Creek may exceed the federal and state drinking water MCL of 0.05 mg/L.

The Section 205(j) study showed a number of impacts on **beneficial uses**. The lowest mean algal chlorophyll a, carotenoid, and phaeopigment concentrations were found at stations below the mine tailings and Zaca Mine adit. Benthic invertebrate numbers and diversity were lower in Monitor Creek than in the East Fork Carson River. Station M2, below the Zaca mine adit, had the lowest species richness and numbers and was "nearly devoid of benthos during most samples." These adverse impacts on beneficial uses are probably related to the physical impacts of metal precipitates.

Extent of Impairment

Indicators of impairment increase downstream in Monitor Creek, and worsen below the Zaca Mine adit. The entire creek (below Heenan Reservoir) is currently listed for metals, and the proposed revised listings for separate metals and settleable solids will cover the same segment.

Potential Sources

The primary source of metals is believed to be acid drainage from inactive mines, millsites and tailing piles. There may be some contribution from natural erosion from undisturbed portions of the watershed.

TMDL Priority

The Monitor Creek metals problem is currently assigned a "High" priority with TMDL completion projected in 2011. It is likely that TMDLs for all of the pollutants associated with acid mine drainage will be coordinated as one set of Basin Plan amendments.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

California Regional Water Quality Control Board, Lahontan Region, 2001. Email from Jason Churchill to Judith Unsicker, Monitor Creek 303(d) Listing, October 12, 2001.

California State Water Resources Control Board, Toxic Substances Monitoring Program database.

Vinyard, G.L, and R.W. Watts, 1992. *Wasteload Allocation Study, Monitor Creek, East Fork Carson River Hydrologic Unit.* Aquatic Ecology Laboratory, University of Nevada, Reno.

MONITOR CREEK, SULFATE
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Monitor Creek, a tributary of the East Fork Carson River that is already listed for metals, is proposed to be listed for sulfate.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Monitor Creek	**Pollutant(s)**	Sulfate
Hydrologic Unit	East Fork Carson River, 632.10	**Sources**	Acid mine drainage, erosion
Total Length	4 miles	**TMDL Priority**	High
Size Affected	4 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.658°N, 119.725°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Monitor Creek is located in eastern Alpine County. It originates near Monitor Pass as Heenan Creek (about 2 miles long), which is impounded by Heenan Reservoir. Releases from the reservoir are made for irrigation in Nevada. Heenan Reservoir is used by the California Department of Fish and Game as rearing habitat and a catch-and-release fishery for the threatened Lahontan cutthroat trout. The Heenan Creek watershed is used for grazing. Monitor Creek joins the East Fork Carson River near the junction of State Highways 4 and 89, and the creek runs near Highway 89 for most of its length.

The Monitor Creek watershed includes altered and unaltered Pliocene volcanic rocks, with zones of silicification and intrusion containing gold, silver, copper, lead, zinc, antimony, arsenic, barite and manganese in complex, high sulfide ores. Monitor Creek has been affected by mining since the Comstock era in the 1860s. ("Monitor" refers to the water cannons formerly used for hydraulic mining, and it was the name of a mining town in the watershed which existed from about 1863-1911.) There are a number of inactive mines in the Colorado Hill area to the north of the creek, and tailings from an inactive ore mill are located within the creek. There are currently no active mines in the watershed; most of the land is within U.S. Forest Service ownership.

Water Quality Objectives Violated

The water quality objectives for sulfate in the East Fork Carson River and its tributaries are 4.0 milligrams per liter (mg/L) as an annual mean and 8.0 mg/L as an annual 90th percentile level. The state drinking water Secondary Maximum Contaminant Level for sulfate (250 mg/L) also applies under the "Chemical Constituents" objective.

Evidence of Impairment

During the 1990-91 Section 205(j) study, the mean values of sulfate at 6 of 7 sampling stations in Monitor Creek exceeded 100 mg/L, with maximum values of about 800 mg/L at a station below the Zaca Mine adit and 700 mg/L at the creek's confluence with the East Fork Carson River.

Violations of the pH objective (6.5 to 8.5 pH units), presumed to come from sulfuric acid, occur near the discharge from the Zaca Mine adit. A separate listing for "pH" is not being proposed, since it is assumed that control of acid mine drainage, including sulfate, will address the pH problem.

Extent of Impairment

The segment of the creek between Heenan Reservoir and the confluence with the East Fork Carson River is proposed for listing.

Potential Sources

The major source of sulfate loading to Monitor Creek is assumed to be acid mine drainage.

TMDL Priority

This TMDL is recommended for high priority. The sulfate problem in Monitor Creek will likely be addressed through the CERCLA cleanup process. If a separate TMDL seems necessary after completion of the TMDLs for metals, it will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. Water Quality Control Plan for the Lahontan Region.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Vinyard, G.L, and R.W. Watts, 1992. *Wasteload Allocation Study, Monitor Creek, East Fork Carson River Hydrologic Unit.* Aquatic Ecology Laboratory, University of Nevada, Reno.

MONITOR CREEK, TOTAL DISSOLVED SOLIDS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Monitor Creek, a tributary of the East Fork Carson River that is already listed for metals, is proposed to be listed for total dissolved solids (TDS).

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Monitor Creek	**Pollutant(s)**	Total dissolved solids
Hydrologic Unit	East Fork Carson River (632.10)	**Sources**	Acid mine drainage, etc.
Total Length	4 miles	**TMDL Priority**	High
Size Affected	4 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.658°N, 119.725°W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Monitor Creek is located in eastern Alpine County. It originates near Monitor Pass as Heenan Creek (about 2 miles long), which is impounded by Heenan Reservoir. Releases from the reservoir are made for irrigation in Nevada. Heenan Reservoir is used by the California Department of Fish and Game as rearing habitat and a catch-and-release fishery for the threatened Lahontan cutthroat trout. The Heenan Creek watershed is used for grazing. Monitor Creek joins the East Fork Carson River near the junction of State Highways 4 and 89, and the creek runs near Highway 89 for most of its length.

The Monitor Creek watershed includes altered and unaltered Pliocene volcanic rocks, with zones of silicification and intrusion containing gold, silver, copper, lead, zinc, antimony, arsenic, barite and manganese in complex, high sulfide ores. Monitor Creek has been affected by mining since the Comstock era in the 1860s. ("Monitor" refers to the water cannons formerly used for hydraulic mining, and it was the name of a mining town in the watershed which existed from about 1863-1911.) There are a number of inactive mines in the Colorado Hill area to the north of the creek, and tailings from an inactive ore mill are located within the creek. There are currently no active mines in the watershed; most of the land is within U.S. Forest Service ownership.

Water Quality Objectives Not Attained

The numerical water quality objectives for total dissolved solids for the East Fork Carson River and its tributaries are 80 milligrams per liter (mg/L) as an annual mean, and 100

mg/L as an annual 90th percentile level. The drinking water Secondary Maximum Contaminant Level (500 mg/L for TDS) also applies under the "Chemical Constituents" objective.

Evidence of Impairment

During a 1990-91 Section 205 (j) study (Vinyard and Watts, 1992), mean values of TDS exceeded the objective at all stations, and mean values above 500 mg/L occurred at 4 of 7 stations. Maximum values over 1000 mg/L were recorded at stations below mine tailings and the Zaca Mine adit.

Extent of Impairment

The segment of Monitor Creek between Heenan Reservoir and the confluence with the East Fork Carson River is proposed for listing.

Potential Sources

Sulfate from acid mine drainage probably accounts for most of the TDS loading. Other possible sources are erosion, stormwater (i.e., including road salt applied to Highway 89), and releases from Heenan Reservoir.

TMDL Priority

This TMDL is recommended for high priority. The total dissolved solids problem will likely be addressed through the CERCLA cleanup process. If a separate TMDL for total dissolved solids is needed after completion of TMDLs for metals, it will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Vinyard, G.L, and R.W. Watts, 1992. *Wasteload Allocation Study, Monitor Creek, East Fork Carson River Hydrologic Unit.* Aquatic Ecology Laboratory, University of Nevada, Reno.

INDIAN CREEK, PATHOGENS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Indian Creek, in the East Fork Carson River watershed, is recommended to be listed for "pathogens" due to violations of the water quality objective for fecal coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Indian Creek	**Pollutant(s)**	Pathogens
Hydrologic Unit	East Fork Carson River (632.20)	**Sources**	Livestock, wildlife
Total Length	~17 miles (10 in CA)	**TMDL Priority**	Medium
Size Affected	~7 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38.885° N, 119.702° W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Indian Creek, in Alpine County, is a tributary of the East Fork Carson River that crosses the California State Line separately from the main East Fork. Its headwaters are on National Forest land west of State Highway 89 between Woodfords and Markleeville. There are several small tributaries of Indian Creek. Indian Creek flows through irrigated pasture in Diamond and Dutch Valleys in California, and Long Valley in Nevada, and joins the East Fork Carson River near Dresslerville, Nevada. Some of the water from the creek enters Mud Lake, Nevada. The main channel of the creek has been routed beneath Harvey Place Reservoir within a pipe. Indian Creek Reservoir, which formerly stored treated wastewater exported from the Lake Tahoe Basin, was constructed on a tributary of Indian Creek, and discharges from this reservoir currently reenter the main channel of Indian Creek east of Harvey Place Reservoir.

The main land use in the Indian Creek watershed in California and Nevada is agriculture. Pastures are irrigated with water diverted from Indian Creek and the West Fork Carson River and with secondary wastewater effluent exported from South Lake Tahoe and stored in Harvey Place Reservoir. The U.S. Bureau of Land Management manages a recreation area surrounding the reservoir, including a campground, boat ramps, and day use facilities.

Water Quality Objectives Not Attained

The water quality objective for coliform bacteria in surface waters of the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN.

This objective applies to all surface waters of the Lahontan Region. Because the South Tahoe Public Utility District's Alpine County monitoring program involves monthly sampling, the 40/100 ml limit in the last part of the objective was the criterion used in assessment for update of the Section 303(d) list.

The Lahontan Basin Plan does not currently include specific water quality objectives for E. coli or fecal streptococci. However, these bacteria are also indicators of fecal pollution and therefore of impairment. Fecal streptococci can be used to assess sources of contamination. If the ratio of fecal coliform numbers to fecal streptococcus numbers is greater than 4, a human source is generally indicated, and a ratio of less than 0.7 points to animal sources.

Evidence of Impairment

Table 2 below summarizes data collected by the South Tahoe Public Utility District at three stations on Indian Creek between June 2000 and May 2001. Violations of the water quality objective for fecal coliform bacteria occurred at all three stations. Fecal coliform numbers were highest during the summer and early fall months, during the grazing-irrigation season.

Potential Sources

The primary source of fecal coliform bacteria in Indian Creek is probably livestock wastes. Wildlife and recreational users of the watershed may also be sources. Bacteria are monitored in the Indian Creek watershed because of public concern about the impacts of irrigation with secondary effluent. However, the effluent is disinfected and is not likely to be the source of the violations.

Table 2. South Tahoe Public Utility District Monitoring Data for Bacteria in Indian Creek (Most Probable Number [colonies] per 100 ml). Shaded rows indicate different stations in upstream to downstream order.

Sampling Date	Total Coliform	Fecal Coliform	Fecal Streptococcus
SWO2			
06/06/00	<30	<30	-
07/05/00	230	40	-
08/01/00	930	90	-
09/05/00	930	430	-
10/03/00	70	30	-
11/01/00	40	40	-
12/05/00	93	43	-
03/06/01	43	3	-
04/03/01	15	<3	-
05/01/01	43	9	90
SWO3			
06/06/00	430	430	-
07/05/00	2400	930	-
08/01/00	4600	2400	-
09/05/00	90	40	-
10/03/00	40	40	-
11/01/00	930	430	150
12/05/00	-	-	-
03/06/01	43	<31	-
04/03/01	43	43	-
05/01/01	43	9	150
SWO4			
06/06/00	2400	930	
07/05/00	90	90	
08/01/00	1500	230	
09/05/00	4600	30	
10/03/00	930	150	
11/01/00	390	230	40
12/05/00	-	-	
03/06/01	9	3	
04/03/01	9	9	
05/01/01	43	15	430

TMDL Priority

This TMDL is recommended for a medium priority, with completion projected after 2015. Management practices for irrigation and grazing in this watershed are expected to change as a result of ongoing watershed planning activities for the Carson River watershed, and the Regional Board's nonpoint source program. If these practices are successful, it may be possible to delist Indian Creek instead of developing a TMDL.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1983. *West Fork Carson River and Indian Creek Watersheds Water Quality Control Plan Update: 1983.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Menon, A.S., 2001. *Shellfish Safety: Bacterial Indicators on [sic] Shellfish Water Quality. Canadian Shellfish Quality Resource.* Available on the Internet: <http:www.shellfishquality.ca/indicators.htm>.

Nevada Division of Environmental Protection, Bureau of Water Quality Planning. 1998. Nevada's 1998 303(d) List. Available on the Internet: http://ndep.state.nv.us/bwqp/riv303d98.pdf.

South Tahoe Public Utility District. Unpublished water quality data.

Water Body Fact Sheets for 2002
Section 303(d) List Update
Lahontan Region

EAST AND WEST WALKER RIVER HYDROLOGIC UNITS

California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

November 2001

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Telephone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

Note: This packet contains water body-specific fact sheets for ten water body/pollutant combinations in the East Walker River watershed. Two additional water bodies in the West Walker River watershed, Hot Creek and Fales Hot Springs, are proposed for delisting. See the entries for these water bodies in the summary fact sheet for "Nine Naturally Impaired Waters."

Notes on Numerical Water Quality Objectives for Nitrogen and Phosphorus in the East Walker River Watershed

This group of fact sheets summarizes the rationale for recommendations that the East Walker River and some of its tributaries be placed on the Section 303(d) list for nitrogen and/or phosphorus. The numerical water quality objectives for the East Walker River watershed, in Table 3-15 on page 3-42 of the 1995 *Water Quality Control Plan for the Lahontan Region* (Basin Plan), need clarification. The Basin Plan has two sets of numerical objectives for the East Walker River watershed, one for the "East Walker River at Bridgeport" and the other for "Robinson Creek and all tributaries above Bridgeport Valley." The objectives for tributaries above Bridgeport Valley are more stringent than those for the East Walker at Bridgeport. Both sets of objectives date from the 1975 *Water Quality Control Plan for the North Lahontan Basin*, which was superseded by the 1995 Basin Plan. Objectives for the East Walker River were apparently based on water quality data collected at the U.S. Geological Survey gaging station downstream of Bridgeport Reservoir, and they apply to waters both upstream and downstream of this station.

The boundaries of "Bridgeport Valley," as used in the second set of objectives, apparently coincide with those of Hydrologic Subunit 630.30. The major tributary streams originate near the Sierra Nevada crest within Hydrologic Subunit 630.40. Thus the more stringent water quality objectives apply to the upstream reaches of the tributary streams, and the less stringent objectives for the East Walker River apply to tributary reaches within Bridgeport Valley. Numerical objectives based on high concentrations of nutrients released from eutrophic Bridgeport Reservoir are not necessarily appropriate for protection of beneficial uses for either reach of the East Walker River (upstream and downstream of Bridgeport Reservoir) or for the lower reaches of tributary streams. (The narrative water quality objective for "nondegradation" precludes lowering of water quality in waters with better quality than that required by standards, unless specific findings can be made.)

Most of the current water quality objectives for the East Walker River and its tributaries are set at levels higher than the U.S. Environmental Protection Agency (USEPA's) recommended nutrient criteria for rivers and streams of the "Mountainous West" nutrient ecoregion which includes the Sierra Nevada. (A table summarizing these criteria is available at: http://www.epa.gov/waterscience/criteria/nutrient/ecoregions/sumtable.pdf.) The USEPA's recommended numbers are 0.12 milligrams per liter (mg/L) for total nitrogen, and 0.01 mg/L for total phosphorus, both expressed as annual medians. The Lahontan Regional Board is participating in a statewide process that could result in development of more specific Sierra Nevada nutrient criteria. Water quality objectives for the East Walker River watershed should be updated when resources are available and set at levels which will ensure protection of all beneficial uses.

EAST WALKER RIVER ABOVE BRIDGEPORT RESERVOIR, PATHOGENS
Section 2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of the East Walker River upstream of Bridgeport Reservoir is proposed to be listed for "pathogens" as a result of violations of the narrative water quality objective for fecal coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals, and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	East Walker River	**Pollutant(s)**	Pathogens
Hydrologic Unit	East Walker River (630.30)	**Sources**	Livestock, stormwater, wildlife
Total Length	~18 miles	**TMDL Priority**	Medium
Size Affected	~10 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38 °15' 20" N, 119° 13' 30" W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The East Walker River, in Mono County, originates in the Hunewill Hills, east of the Sierra Nevada crest, and flows about 10 miles through Bridgeport Valley above Bridgeport Reservoir. Other streams tributary to the East Fork or directly to Bridgeport Reservoir are Virginia, Green, Robinson, Buckeye, and Swauger Creeks. The headwaters of these creeks, which include a number of small lakes, are within the Hoover Wilderness. Upper and Lower Twin Lakes are the largest natural lakes in the watershed. The river flows through the town of Bridgeport before entering Bridgeport Reservoir near U.S. Geological Survey station No.10290200. The reservoir is about 5 miles long. The segment of the East Fork below Bridgeport Reservoir, about eight miles long, is joined by several smaller tributaries coming from the Sweetwater Mountains to the north and the Bodie Hills to the South. The East and West Walker Rivers join in Nevada to form the Walker River which has its terminus in Walker Lake. There are extensive wetlands in Bridgeport Valley that are used for livestock grazing. Bridgeport Reservoir is eutrophic, and TMDLs for nitrogen and phosphorus are currently under development.

Water Quality Objectives Not Attained

The narrative water quality objective for fecal coliform bacteria in the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN.

This objective applies to all surface waters of the Lahontan Region. Because the current U.S. Geological Survey (USGS) monitoring program for bacteria in the East Walker River watershed involves monthly sampling, the 40/100 ml limit in the last part of the objective was the criterion used in assessment for update of the Section 303(d) list.

The Lahontan Basin Plan does not currently include water quality objectives for fecal streptococci. However, these bacteria are also indicators of fecal pollution and, therefore, of impairment. Fecal streptococci can be used to assess sources of contamination. If the ratio of fecal coliform numbers to fecal streptococcus numbers is greater than 4, a human source is generally indicated. A ratio of less than 0.7 indicates non-human (animal) sources.

Evidence of Impairment

The results of bacterial sampling by the U.S. Geological Survey at Station 10290200, above Bridgeport Reservoir, are shown in Table 2. At least eight of seventeen fecal coliform samples exceeded the 40/100 ml limit in the narrative water quality objective. According to USGS staff, the "K" code indicates that the bacteria count was outside the acceptable range or ideal count. An ideal count for fecal coliform is 20-60 colonies plate. For fecal streptococcus the ideal count is 20-100 per plate. Table 2 shows that high bacterial counts at both stations coincide with months when livestock are present in the upper East Walker River watershed.

Table 2. Monitoring data for bacteria in the East Walker RIver above Bridgeport Reservoir (colonies per 100 ml)

Sampling Date	Fecal coliform	Fecal streptococci
04-12-00	K3	34
05-10-00	82	200
06-07-00	K360	300
06-07-00	K270	250
06-07-00	270	280
07-11-00	170	76
08-08-00	130	54
09-12-00	93	K22
10-11-00	210	58
11-13-00	K10	K32
12-11-00	K4	K2
01-11-01	K3	15
02-13-01	K2	
03-12-01	K2	60
04-10-01	8	-
05-09-01	63	59
06-05-01	170	240

Extent of Impairment

The entire segment of the East Walker River above Bridgeport Reservoir is recommended for listing.

Potential Sources

Inspection of the relative numbers of fecal coliform and fecal streptococcus in Table 2 indicates that fecal contamination is from animal sources. Livestock wastes are probably the major source of fecal bacteria. There may be some contribution of bacteria from pet wastes in stormwater from Bridgeport; however, the highest numbers of bacteria are found during the summer, when there is relatively little precipitation. Other possible sources include birds, wildlife, and human recreational users of the watershed.

TMDL Priority

This TMDL is recommended for medium priority, with completion projected to occur after 2015. Problems with bacteria from livestock wastes will be addressed to some extent through the development and implementation of nutrient TMDLs for Bridgeport Reservoir, and through implementation of agricultural Best Management Practices under the Regional Board's nonpoint source program. Monitoring by Regional Board staff in the Lake Tahoe Basin shows that management practices that restrict livestock access to surface waters lead to significant reductions in numbers of fecal coliform bacteria.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Menon, A.S., 2001. *Shellfish Safety: Bacterial Indicators on [sic] Shellfish Water Quality.* Canadian Shellfish Quality Resource. Available on the Internet: <http:www.shellfishquality.ca/indicators.htm>.

Honeywell, P.D., 2001. Email from Paul Honeywell, U.S. Geological Survey to Kim Gorman of Regional Board staff, dated 3/13/01 "Re: Bridgeport Data." Email explains error codes.

U.S. Geological Survey, 2001. Unpublished water quality data.

EAST WALKER RIVER BELOW BRIDGEPORT RESERVOIR, NITROGEN
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of the East Walker River between the Bridgeport Reservoir outlet and the California-Nevada State line is proposed to be listed for violation of the water quality objective for total nitrogen. (This segment of the East Walker River is currently Section 303(d) listed for sediment and metals. Delisting for metals is being recommended.)

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	East Walker River	**Pollutant(s)**	Nitrogen
Hydrologic Unit	East Walker River (630.10)	**Sources**	Reservoir releases, stormwater, erosion
Total Length	~18 miles	**TMDL Priority**	High
Size Affected	~8 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38°19'40" N, 119°12'50" W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The East Walker River, in Mono County, originates in the Hunewill Hills, east of the Sierra Nevada crest, and flows about 12 miles through Bridgeport Valley above Bridgeport Reservoir. Other streams tributary to the East Fork or directly to Bridgeport Reservoir are Virginia, Green, Robinson, Buckeye, and Swauger Creeks. The headwaters of these creeks, which include a number of small lakes, are within the Hoover Wilderness. Upper and Lower Twin Lakes are the largest natural lakes in the watershed. The river flows through the town of Bridgeport before entering Bridgeport Reservoir. The reservoir is about 5 miles long. The segment of the East Fork below Bridgeport reservoir, about eight miles long, is joined by several smaller tributaries coming from the Sweetwater Mountains to the north and the Bodie Hills to the South. The East and West Walker Rivers join in Nevada to form the Walker River, which has its terminus in Walker Lake. Extensive wetlands in Bridgeport Valley are used for livestock grazing. Bridgeport Reservoir is eutrophic, and TMDLs for nitrogen and phosphorus are currently under development. The segment of the river below Bridgeport Reservoir is a trophy trout fishery, and lands adjoining this segment have been acquired by the California Department of Fish and Game. This reach of the river flows parallel to State Highway 182 and is probably affected by stormwater runoff from the highway.

Water Quality Objectives Not Attained

The numerical water quality objectives for total nitrogen in the East Walker River are 0.50 milligrams per liter (mg/L) as an annual mean and 0.80 mg/L as a 90th percentile level. (Objectives expressed as 90th percentiles mean that only 10 % of all samples are allowed to be higher than the stated number.)

Evidence of Impairment

The mean total nitrogen concentration for nine samples collected by the U.S. Geological Survey at the gaging station below Bridgeport Reservoir was 0.64 mg/L, exceeding the annual mean objective. The range of total nitrogen concentrations was 0.109-1.32 mg/L. Three of nine samples (33%) exceeded the 90th percentile limit.

In the 1999 North Mono County Resource Conservation District (RCD) study, the mean concentration of total nitrogen for eight samples collected below the reservoir was 0.75 mg/L, with a range of 0.1 to 2.2. Four of these samples (50%) exceeded the 90th percentile value.

The mean total nitrogen concentration for seven samples collected by the Nevada Division of Environmental Protection at its East Walker River "Stateline" station between March 1997 and November 1998 was 0.72 mg/L; concentrations ranged from 0.46 to 1.19 mg/L. The "Stateline" station is actually in California about four miles upstream from the state line.

Extent of Impairment

The segment of the East Walker River below Bridgeport Reservoir and above the California – Nevada State Line is recommended to be listed for nitrogen.

Potential Sources

Releases from Bridgeport Reservoir are the major sources of nutrient loading to the lower East Walker River in California. Some additional nutrient loading presumably comes from tributary streams (Murphy Creek, Fryingpan Creek, and other unnamed streams), stormwater runoff from Highway 182, atmospheric deposition, and nonpoint sources such as range livestock grazing.

TMDL Priority

This TMDL is recommended for a high priority. Nutrient loading from Bridgeport Reservoir to the lower segment of the East Walker River will be addressed during development of TMDLs for the reservoir. If a more specific TMDL is needed for the lower river, it will be completed after 2015. Regional Board staff may consider developing separate sets of water quality objectives for the segments of the East Walker River upstream and downstream of Bridgeport Reservoir.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Nevada Division of Environmental Protection, Bureau of Water Quality Planning. State of Nevada Surface Water Monitoring Network, Walker River Basin, 1997-98 data for East Fork at Stateline. Available on the Internet: http://ndep.state.nv.us/bwqp/mon_w5.htm.

North Mono County Resource Conservation District, 2000. *Report on the Upper Walker River Water Quality Study, 1999.*

U.S. Geological Survey, 2001. Unpublished water quality data provided via FTP.

EAST WALKER RIVER BELOW BRIDGEPORT RESERVOIR, PHOSPHORUS
2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of the East Walker River between eutrophic Bridgeport Reservoir and the California-Nevada state line is proposed to be listed for violation of the water quality objective for total phosphorus. This segment of the East Walker River is currently listed for sediment and metals. Delisting for metals is being recommended.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	East Walker River	**Pollutant(s)**	Phosphorus
Hydrologic Unit	East Walker River (630.10)	**Sources**	Reservoir releases, stormwater, erosion
Total Length	~18 miles	**TMDL Priority**	High
Size Affected	~8 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38°19'40" N, 119°12'50" W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The East Walker River, in Mono County, originates in the Hunewill Hills, east of the Sierra Nevada crest, and flows about 12 miles through Bridgeport Valley above Bridgeport Reservoir. Other streams tributary to the East Fork or directly to Bridgeport Reservoir are Virginia, Green, Robinson, Buckeye, and Swauger Creeks. The headwaters of these creeks, which include a number of small lakes, are within the Hoover Wilderness. Upper and Lower Twin Lakes are the largest natural lakes in the watershed. The segment of the East Fork below Bridgeport reservoir, about eight miles long, is joined by several smaller tributaries coming from the Sweetwater Mountains to the north and the Bodie Hills to the South. Some streams (e.g., Bodie and Rough Creeks) flow eastward from the Bodie Hills and Sweetwater Mountains and join the East Walker River in Nevada. The East and West Walker Rivers join in Nevada to form the Walker River, which has its terminus in Walker Lake. There are extensive wetlands in Bridgeport Valley that are used for livestock grazing. Bridgeport Reservoir is eutrophic, and TMDLs for nitrogen and phosphorus are currently under development. The segment of the river below Bridgeport Reservoir is a trophy trout fishery, and lands adjoining this segment have been acquired by the California Department of Fish and Game. This reach of the river flows parallel to State Highway 182 and is probably affected by stormwater runoff from the highway.

Water Quality Objectives Not Attained

The numerical water quality objectives for total phosphorus in the East Walker River are 0.06 milligrams per liter (mg/L) as an annual mean and 0.10 mg/L as a 90th percentile level. (Objectives expressed as 90th percentiles mean that only 10 % of all samples are allowed to be higher than the stated number.)

Evidence of Impairment

The mean concentration of total phosphorus in eleven samples collected by the U.S. Geological Survey (USGS) at the gaging station below the reservoir between April 2000 and February 2001 was 0.083 mg/L. The mean annual concentration in nine USGS samples for 2000 was 0.094 mg/L. Four of the nine samples collected in 2000 exceeded the 90th percentile value.

Extent of Impairment

The reach of the East Walker River between Bridgeport Reservoir and the California-Nevada State line is recommended for listing.

Potential Sources

Releases from Bridgeport Reservoir are the major sources of nutrient loading to the lower East Walker River in California. Some additional nutrient loading presumably comes from tributary streams (Murphy Creek, Fryingpan Creek, and other unnamed streams), stormwater runoff from Highway 182, atmospheric deposition, and nonpoint sources such as range livestock grazing.

TMDL Priority

This TMDL is recommended for a high priority. Nutrient loading from Bridgeport Reservoir to the lower segment of the East Walker River will be addressed during development of TMDLs for the reservoir. If a more specific TMDL is needed for the lower river, it will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

U.S. Geological Survey, 2001. Unpublished water quality data provided via FTP.

EAST WALKER RIVER, METALS
2002 Section 303(d) Fact Sheet
Delisting

Evidence to Support Delisting

The East Walker River in Mono County (Hydrologic Subunit Nos. 630.10 and 6.30.30) is currently Section 303(d) listed for sediment and metals. It was listed for metals based on "elevated" concentrations of metals in fish tissue samples collected in the segment of the river downstream of Bridgeport Reservoir as under the statewide Toxic Substances Monitoring Program (TSMP). During the 1997-98 Section 303(d) list update process, the State Water Resources Control Board and Regional Boards agreed that TSMP "elevated data level" statistics, calculated from statewide data involving many different fish species, should not be grounds for listing unless tissue levels exceeded human fish consumption criteria, or unless there was other evidence of impairment due to toxics. The Lahontan Regional Board recommended delisting of other water bodies listed on the basis of TSMP data during the 1997-1998 Section 303(d) list update process. The East Walker River was not included in this recommendation because of insufficient time for discussion among Regional Board staff. During the 2001-2002 list update cycle, Lahontan Regional Board staff are recommending that water bodies not be listed for TSMP data if those data are the only evidence of impairment, even if tissue levels exceed human fish consumption criteria, because TSMP sample numbers are small and not statistically representative of local fish populations.

The "elevated" TSMP results for the East Walker River were for metals in fish livers, which are not generally consumed. Liver data included detectable cadmium, copper, lead, selenium, silver, and zinc; the liver concentrations of copper, lead, silver and zinc were at levels that were considered "elevated" in the 1980s. (TSMP "elevated data levels" are the 85th and 95th percentile levels of all historic data collected statewide, and thus change from year to year.)

Table 1 summarizes TSMP data from edible fish filet tissue for metals with analytical results above detection levels. The historic mercury levels do not exceed the current "Maximum Tissue Residue Level" human consumption criterion issued by the California Office of Environmental Health Hazard Assessment (0.37 parts per million or ppm). However, they are high enough to warrant additional monitoring of mercury when resources permit. An inactive mill for

Table 1. Toxic Substances Monitoring Program Results: Mercury and Selenium Concentrations in Fish Filet Tissue Sampled at East Walker River at Bridgeport, in parts per million (ppm)

Sampling Date	Species	Mercury (ppm)	Selenium (ppm)
11/06/80	Brown Trout	0.09	
10/27/83	Brown Trout	0.32	
10/27/83	Brown Trout	0.15	
10/16/84	Brown Trout	0.10	
10/30/85	Brown Trout	0.22	
10/30/85	Mountain Whitefish	0.04	
10/23/86	Brown Trout	0.20	0.16
10/28/87	Sucker	0.31	0.14
10/28/87	Brown Trout	0.05	0.18
10/18/88	Brown Trout	0.12	0.14

processing of mercury ore in the nearby Aurora Canyon Creek watershed is a CERCLA (Superfund) site. Aurora Canyon Creek is tributary to the East Walker River above Bridgeport Reservoir and can receive stormwater from the millsite during periods of high runoff. Mercury levels in limited soil and sediment samples downstream of the millsite exceeded some criteria used in the CERCLA assessment process. The East Walker River watershed is highly mineralized and includes inactive mines in both the Sweetwater Mountains and the Bodie Hills. Metals may enter the river naturally through erosion and stormwater from undisturbed sites or may be contributed from accelerated erosion and surface runoff as a result of human activities.

Watershed Characteristics

The East Walker River, in Mono County, originates in the Hunewill Hills, east of the Sierra Nevada crest, and flows about 12 miles through Bridgeport Valley above Bridgeport Reservoir. Other streams tributary to the East Fork or directly to Bridgeport Reservoir are Virginia, Green, Robinson, Buckeye, and Swauger Creeks. The headwaters of these creeks, which include a number of small lakes, are within the Hoover Wilderness. Upper and Lower Twin Lakes are the largest natural lakes in the watershed. The segment of the East Fork below Bridgeport reservoir, about eight miles long, is joined by several smaller tributaries coming from the Sweetwater Mountains to the north and the Bodie Hills to the south. Some streams (e.g., Bodie and Rough Creeks) flow eastward from the Bodie Hills and Sweetwater Mountains and join the East Walker River in Nevada. The East and West Walker Rivers join in Nevada to form the Walker River, which has its terminus in Walker Lake.

Recommendation

The East Walker River is recommended to be delisted for metals, and to be placed on a "watch list" for further monitoring and assessment.

Information Sources

Brown and Root Environmental, 1996. *Draft Final Site Inspection Report, Aurora Canyon Millsite, Bakersfield District, California.* Contract No. 1422-N651-C4-3049, January 19, 1996.

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

California State Water Resources Control Board, 2001. Toxic Substances Monitoring Program database printout for Walker River watershed, March 2001.

VIRGINIA CREEK, PATHOGENS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Virginia Creek, a tributary of the East Walker River, is proposed to be listed for "pathogens" as a result of violations of the narrative water quality objective for fecal coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Virginia Creek	**Pollutant(s)**	Pathogens
Hydrologic Unit	East Walker River (630.30 and 630.40)	**Sources**	Livestock, wildlife
Total Length	~17 miles	**TMDL Priority**	Medium
Size Affected	~17 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38°11'30"N, 119°12'30"W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Virginia Creek, in Mono County, has headwaters in the Virginia Lakes near the Sierra Nevada crest. It flows northeast for about 8 miles to the vicinity of Conway Summit, and then flows about 9 miles north, in close proximity to Highway 395, before joining the East Walker River south of Bridgeport. Its tributaries include Dog and Clearwater Creeks. There is roaded access to the Virginia Lakes from the Conway Summit area. The lower watershed is used for livestock grazing.

Water Quality Objectives Not Attained

The narrative water quality objective for fecal coliform bacteria in the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN.

This objective applies to all surface waters of the Lahontan Region. Because the current U.S. Geological Survey (USGS) monitoring program for bacteria in the East Walker River watershed involves one monthly sample, the 40/100 ml limit in the last part of the objective was the criterion used in assessment for update of the Section 303(d) list.

The Lahontan Basin Plan does not currently include water quality objectives for fecal streptococci. However, these bacteria are also indicators of fecal pollution and therefore of impairment. Fecal

streptococci can be used to assess sources of contamination. If the ratio of fecal coliform numbers to fecal streptococcus numbers is greater than 4, a human source is generally indicated, and a ratio of less than 0.7 points to animal sources.

Evidence of Impairment

The results of bacterial sampling by the USGS at Virginia Creek are summarized in Table 2. At least six of fourteen fecal coliform samples exceeded the 40/100 ml limit in the narrative water quality objective. According to USGS staff, the "K" code indicates that the bacteria count was outside the acceptable range or ideal count. An ideal count for fecal coliform is 20-60 colonies per plate. For fecal streptococcus the ideal count is 20-100 colonies per plate. Table 2 shows that high bacterial counts at both stations coincide with months when livestock are present in the Virginia Creek watershed.

Table 2. Monitoring Data for Bacteria in Virginia Creek (colonies per 100 ml)

Sampling Date	Fecal coliform	Fecal streptococci
4/12/00	K7	K2
5/10/00	25	K1
6/05/00	110	K11
7/12/00	>100	50
8/09/00	68	K23
9/13/00	62	K20
10/10/00	59	K10
11/13/00	110	K8
12/13/00	39	K2
01/10/01	6	K64
02/15/01	-	K2
03/12/01	13	K2
04/11/01	1	5
05/10/01	4	28
06/06/01	7	64

Extent of Impairment

Bacteria samples were collected at the USGS gage in Bridgeport Valley. Because no data are available for upstream reaches of Virginia Creek, the entire creek is recommended for listing.

Potential Sources

Bacteria colony numbers for the Virginia Creek samples were smaller than those for the other East Walker River tributaries sampled, and the large number of "K" codes does not permit evaluation of fecal coliform to fecal streptococcus ratios. Livestock wastes are probably the major source of bacteria. Wildlife, septic systems, and human recreational users of the watershed are other potential sources.

TMDL Priority

This TMDL is recommended for medium priority, with completion projected to occur after 2015. Problems with bacteria from livestock wastes will be addressed to some extent through the development and implementation of nutrient TMDLs for Bridgeport Reservoir, and through implementation of agricultural Best Management Practices under the Regional Board's nonpoint source program. Monitoring by Regional Board staff in the Lake Tahoe Basin shows that management practices that restrict livestock access to surface waters lead to significant reductions in numbers of fecal coliform bacteria.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Honeywell, P.D., 2001. Email from Paul Honeywell of U.S. Geological Survey to Kim Gorman of Regional Board staff, dated 3/13/01, "Re: Bridgeport Data." Email explains error codes.

Menon, A.S., 2001. *Shellfish Safety: Bacterial Indicators on [sic] Shellfish Water Quality.* Canadian Shellfish Quality Resource. Available on the Internet: <http:www.shellfishquality.ca/indicators.htm> .

U.S. Geological Survey, 2001. Unpublished water quality data.

ROBINSON CREEK, PATHOGENS
2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of Robinson Creek between Twin Lakes and Bridgeport Reservoir is proposed to be listed for "pathogens" as a result of violations of the narrative water quality objective for fecal coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals, and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Robinson Creek	**Pollutant(s)**	Pathogens
Hydrologic Unit	East Walker River (630.30 and 630.40)	**Sources**	Livestock, wildlife, septic systems
Total Length	~16 miles	**TMDL Priority**	Medium
Size Affected	~9 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38°16' 23" N, 119°15'15" W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Robinson Creek, in Mono County, originates near the Sierra Nevada crest. There are several small lakes and streams near its headwaters. Upper and Lower Twin Lakes are "onstream" glacial lakes which have several other tributary streams of their own, and are managed as reservoirs. Below Lower Twin Lake, Robinson Creek flows about nine miles to Bridgeport Reservoir. The upper Twin Lakes watershed includes a resort and residential development on public and private lands; there are several U.S. Forest Service campgrounds along Lower Robinson Creek. Near Bridgeport Reservoir, the creek flows through wet meadows used for livestock grazing. Bridgeport Reservoir is eutrophic and will be the subject of TMDLs for nitrogen and phosphorus.

Water Quality Objectives Not Attained

The narrative water quality objective for fecal coliform bacteria in the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 m."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN.

This objective applies to all surface waters of the Lahontan Region. Because the current U.S. Geological Survey (USGS) monitoring program for bacteria in the East Walker River watershed involves one monthly sample, the 40/100 ml limit in the last part of the objective was the criterion used in assessment for update of the Section 303(d) list.

The Lahontan Basin Plan does not currently include water quality objectives for fecal streptococci. However, these bacteria are also indicators of fecal pollution and therefore of impairment. Fecal streptococci can be used to assess sources of contamination. If the ratio of fecal coliform numbers to fecal streptococcus numbers is greater than 4, a human source is generally indicated, and a ratio of less than 0.7 points to animal sources.

Evidence of Impairment.

The USGS sampled bacteria at three Robinson Creek stations in 2000 and early 2001. There was only one violation of the water quality objective for the upstream station (Robinson Creek at Twin Lakes, Station 10290500), with 47 fecal coliform colonies per 100 ml in June 2001, and one fecal streptococcus colony per 100 ml. Data for the two lower stations are summarized in Table 2. The 40/100 ml limit in the narrative water quality objective was exceeded at both stations during the summer. According to USGS staff, the "K" code indicates that the bacteria count was outside the acceptable range or ideal count. An ideal count for fecal coliform is 20-60 colonies per plate. For fecal streptococcus the ideal count is 20-100 colonies per plate. Table 2 shows that high bacterial counts at both stations coincide with months when livestock are present in the lower Robinson Creek watershed.

Table 2. Monitoring data for bacteria in Robinson Creek (colonies per 100 ml)

Sampling Month	Robinson Creek at Hwy 395 (Station 10291100)		Robinson Creek at Bridgeport Reservoir (Station 10291200)	
	Fecal coliform	Fecal streptococci	Fecal coliform	Fecal streptococci
April 2000	K7	130	K2	K8
May 2000	K7	61	K16	88
June 2000	K200	140	K250	130
June 2000			280	110
July 2000	450	100	>600	350
August 2000	2100	66	K50	K100
September 2000	3600	88	K670	260
October 2000	K33	K14	69	K18
November 2000	K5	K2	55	K6
December 2000	K2	K1	K5	K4
January 2001	K2	2	K2	3
February 2001	K6	-	<1	-
March 2001	K1	2	K3	59
April 2001	1	6	1	6
May 2001	47	140	50	120
June 2001	630	69	54	62

Extent of Impairment

Because there are no recent available data on bacteria in Robinson Creek above Twin Lakes or in the reach between the Twin Lakes gaging station and Highway 395, the Reach of Robinson Creek between the Twin Lakes outlet and Bridgeport Reservoir is recommended for listing.

Potential Sources

Inspection of the relative numbers of fecal coliform and fecal streptococcus bacteria in Table 2 indicates that fecal contamination at the Bridgeport Reservoir station, and at the Highway 395 site in June and July 2000, was from animal sources. The high ratios in the August and September 2000, and June 2001 samples at the Highway 395 station may indicate a human source. Livestock wastes are probably the major source of fecal bacteria loading to lower Robinson Creek. Other possible sources include birds, wildlife, failing septic systems, and human recreational users of the watershed.

TMDL Priority

This TMDL is recommended for medium priority, with completion projected to occur after 2015. Problems with bacteria from livestock wastes will be addressed to some extent through the development and implementation of nutrient TMDLs for Bridgeport Reservoir, and through implementation of agricultural Best Management Practices under the Regional Board's nonpoint source program. Monitoring by Regional Board staff in the Lake Tahoe Basin shows that management practices that restrict livestock access to surface waters lead to significant reductions in numbers of fecal coliform bacteria.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Honeywell, P.D., 2001. Email from Paul Honeywell, U.S. Geological Survey to Kim Gorman of Regional Board staff, dated 3/13/01 "Re: Bridgeport Data." Email explains error codes.

Menon, A.S., 2001. *Shellfish Safety: Bacterial Indicators on [sic] Shellfish Water Quality.* Canadian Shellfish Quality Resource. Available on the Internet: <http:www.shellfishquality.ca/indicators.htm>.

U.S. Geological Survey, 2001. Unpublished water quality data provided via FTP.

ROBINSON CREEK, HWY 395 TO BRIDGEPORT RESERVOIR, NITROGEN
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The segment of Robinson Creek between Highway 395 and Bridgeport Reservoir is proposed for listing due to violation of the water quality objective for total nitrogen.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Robinson Creek	**Pollutant(s)**	Nitrogen
Hydrologic Unit	East Walker River (630.30 and 630.40)	**Sources**	Livestock wastes, wildlife, atmospheric deposition, erosion, stormwater
Total Length	~16 miles	**TMDL Priority**	High
Size Affected	~1.5 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38°16' 23" N, 119°15'15" W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Robinson Creek, in Mono County, originates near the Sierra Nevada crest. There are several small lakes and streams near its headwaters. Upper and Lower Twin Lakes are "onstream" glacial lakes which have several other tributary streams of their own, and are managed as reservoirs. Below Lower Twin Lake, Robinson Creek flows about nine miles to Bridgeport Reservoir. The upper Twin Lakes watershed includes a resort and residential development on public and private lands; there are several U.S. Forest Service campgrounds along Lower Robinson Creek. Near Bridgeport Reservoir, the creek flows through wet meadows used for livestock grazing. Bridgeport Reservoir is eutrophic and will be the subject of TMDLs for nitrogen and phosphorus.

Water Quality Objectives Not Attained

The numerical water quality objectives for total nitrogen in the East Walker River and its tributaries within Bridgeport Valley are 0.50 milligrams per liter (mg/L) as an annual mean and 0.80 mg/L as a 90th percentile level. (Objectives expressed as 90th percentiles mean that only 10 % of all samples are allowed to be higher than the stated number.)

Evidence of Impairment

Concentrations of total nitrogen in monthly samples collected by the U.S. Geological Survey in Robinson Creek at Bridgeport Reservoir between January and June, 2001 ranged from 0.115 mg/L to 0.807. One of 6 samples (16.7%) exceeded the 90th percentile value.

Extent of Impairment

The segment of Robinson Creek between Highway 395 and Bridgeport Reservoir, about 1.5 miles long, is recommended for listing.

Potential Sources

Livestock wastes are probably the major source of nitrogen loading to this segment of Robinson Creek. Other potential sources include wildife, atmospheric deposition, stormwater from Highway 395, erosion, and nitrogen fixation by wetland algae and and soil microorganisms.

TMDL Priority

This TMDL is recommended for high priority. Nitrogen loading from Robinson Creek will be addressed during development of a nitrogen TMDL for Bridgeport Reservoir. If a separate TMDL is necessary for the creek, it will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

U.S. Geological Survey, 2001. Unpublished water quality data.

BUCKEYE CREEK, PHOSPHORUS
Section 2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

Buckeye Creek, a tributary of Bridgeport Reservoir, is proposed to be listed for violation of the water quality objective for total phosphorus.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Buckeye Creek	**Pollutant(s)**	Phosphorus
Hydrologic Unit	East Walker River (630.30 and 630.40)	**Sources**	Livestock waste, erosion, atmospheric deposition.
Total Length	~13 miles	**TMDL Priority**	High
Size Affected	~13 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38° 15' 50" N, 119° 16' 37" W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Buckeye Creek, in Mono County, originates within the Hoover Wilderness near the Sierra Nevada crest and flows northeast to Bridgeport Reservoir. It has a number of tributary streams including Eagle and Swauger Creeks. Buckeye Hot Spring is located near the creek above Bridgeport Valley; there is a campground near the spring. Within Bridgeport Valley, Buckeye Creek has a braided channel and flows through wetlands that are used for livestock grazing.

Water Quality Objectives Not Attained

The numerical water quality objectives for total phosphorus for tributaries of the East Walker River within Bridgeport Valley are those for the river itself. These objectives are 0.06 milligrams per liter (mg/L) as an annual mean and 0.10 mg/L as a 90th percentile level. (Objectives expressed as 90th percentiles mean that only 10 % of all samples are allowed to be higher than the stated number.)

Evidence of Impairment

Concentrations of total phosphorus in nine samples collected by the U.S. Geological Survey (USGS) from Buckeye Creek at Highway 395 in 2000 ranged from 0.116 mg/L in April to 0.008 mg/L in November, with a mean value of 0.029. The April sample exceeded the 90th percentile objective. Concentrations of total phosphorus in six samples collected by the USGS at this station in 2001 ranged from 0.008 mg/L in January to 0.115 mg/L in May, with a mean value of 0.0.029. The May sample exceeded the 90th percentile objective; however, it was reported as an "estimated" value.

Extent of Impairment

Because additional monitoring is needed to define the extent of phosphorus problems in Buckeye Creek upstream of Bridgeport Valley, the entire creek is recommended for listing at this time.

Potential Sources

Phosphorus is present in soils and may reach Buckeye Creek through erosion. Other possible sources are livestock wastes, atmospheric deposition of phosphorus suspended in wood smoke (e.g., from forest fires) or road dust, and potential natural inputs from Buckeye Hot Springs.

TMDL Priority

This TMDL is recommended for a high priority. Phosphorus loading from Buckeye Creek will be addressed to some extent during the development of a phosphorus TMDL for Bridgeport Reservoir. A separate TMDL for the creek, if needed, will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Honeywell, P.D., 2001. Email from Paul Honeywell, U.S. Geological Survey to Kim Gorman of Regional Board staff, dated 3/13/01 "Re: Bridgeport Data." Email explains error codes.

U.S. Geological Survey, 2001. Unpublished water quality data provided via FTP.

BUCKEYE CREEK, PATHOGENS
Section 2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

Buckeye Creek, a tributary of Bridgeport Reservoir, is proposed to be listed for "pathogens" as a result of violations of the narrative water quality objective for fecal coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals, and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Buckeye Creek	**Pollutant(s)**	Pathogens
Hydrologic Unit	East Walker River (630.30 and 630.40)	**Sources**	Livestock waste, wildlife
Total Length	~13 miles	**TMDL Priority**	Medium
Size Affected	~13 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38°15' 50" N, 119°16' 37" W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Buckeye Creek, in Mono County, originates within the Hoover Wilderness near the Sierra Nevada crest and flows northeast to Bridgeport Reservoir. It has a number of tributary streams including Eagle and Swauger Creeks. Buckeye Hot Spring is located near the creek above Bridgeport Valley; there is a campground near the spring. Within Bridgeport Valley, Buckeye Creek has a braided channel and flows through wetlands that are used for livestock grazing.

Water Quality Objectives Not Attained

The narrative water quality objective for fecal coliform bacteria in the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN.

This objective applies to all surface waters of the Lahontan Region. Because the current U.S. Geological Survey (USGS) monitoring program for bacteria in the East Walker River watershed involves one monthly sample, the 40/100 ml limit in the last part of the objective was the criterion used in assessment for update of the Section 303 (d) list.

The Lahontan Basin Plan does not currently include water quality objectives for fecal streptococci. However, these bacteria are also indicators of fecal pollution and therefore of impairment. Fecal streptococci can be used to assess sources of contamination. If the ratio of fecal coliform numbers to fecal streptococcus numbers is greater than 4, a human source is generally indicated, and a ratio of less than 0.7 points to animal sources.

Evidence of Impairment

The results of bacterial sampling by the USGS at two Buckeye Creek stations are summarized in Table 2. At least five of ten fecal coliform samples at the Highway 395 station, and at least six of 14 samples at the Bridgeport Reservoir station, exceeded the 40/100 ml limit in the narrative water quality objective. According to USGS staff, the "K" code indicates that the bacteria count was outside the acceptable range or ideal count. An ideal count for fecal coliform is 20-60 colonies per plate. For fecal streptococcus the ideal count is 20-100 colonies per plate. Table 2 shows that high bacterial counts at both stations coincide with months when livestock are present in the Buckeye Creek watershed.

Table 2. Monitoring data for bacteria in Buckeye Creek (colonies per 100 ml)

Sampling Month	Buckeye Creek at Hwy 395		Buckeye Creek at Bridgeport Reservoir	
	Fecal coliform	Fecal streptococci	Fecal coliform	Fecal streptococci
April 2000	-	-	K2	K4
May 2000	73	38	K13	23
June 2000	K180	120	>200	300
June 2000	-	-	>300	160
June 2000	-	-	190	120
July 2000	>600	380	>600	260
August 2000	K290	560	K55	K71
September 2000	530	K40	>600	520
October 2000	100	K58	110	52
November 2000	41	28	37	38
December 2000	K11	K2	K7	K20
January 2001	K6	4	K2	7
February 2001	K3	-	K2	-
March 2001	-	-	K1	6
April 2001	1	1	1	-
May 2001	15	58	120	120
June 2001	50	44	1600	150

There was one violation of the objective at a third station (Buckeye Creek near Bridgeport) in June 2001, with 47 fecal coliform colonies per 100 ml and 14 fecal streptococcus colonies per 100 ml.

Extent of Impairment

Because impairment is evident at two stations on Buckeye Creek, and because grazing occurs in much of the watershed, the entire creek is recommended for listing.

Potential Sources

Inspection of the relative numbers of fecal coliform and fecal streptococcus in Table 2 indicates that fecal contamination is from animal sources. Livestock wastes are probably the major source of fecal bacteria. Other possible sources include birds, wildlife, and human recreational users of the watershed.

TMDL Priority

This TMDL is recommended for medium priority, with completion projected to occur after 2015. Problems with bacteria from livestock wastes will be addressed to some extent through the development and implementation of nutrient TMDLs for Bridgeport Reservoir and through implementation of agricultural Best Management Practices under the Regional Board's nonpoint source program. Monitoring by Regional Board staff in the Lake Tahoe Basin shows that management practices that restrict livestock access to surface waters lead to significant reductions in numbers of fecal coliform bacteria.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Honeywell, P.D., 2001. Email from Paul Honeywell, U.S. Geological Survey to Kim Gorman of Regional Board staff, dated 3/13/01 "Re: Bridgeport Data." Email explains error codes.

Menon, A.S., 2001. *Shellfish Safety: Bacterial Indicators on [sic] Shellfish Water Quality. Canadian Shellfish Quality Resource.* Available on the Internet: <http:www.shellfishquality.ca/indicators.htm>.

U.S. Geological Survey, 2001. Unpublished water quality data provided via FTP.

SWAUGER CREEK, PHOSPHORUS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Swauger Creek, a tributary of Buckeye Creek in the East Walker River watershed, is recommended to be listed for violation of the water quality objective for total phosphorus.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Swauger Creek	**Pollutant(s)**	Pathogens
Hydrologic Unit	East Walker River (630.30 and 630.40)	**Sources**	Livestock, wildlife
Total Length	~13 miles	**TMDL Priority**	High
Size Affected	~13 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38 °17' 00" N, 119°17'55" W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Swauger Creek, in Mono County, originates in the Sweetwater Mountains and flows south and southeast near Highway 395 before joining Buckeye Creek, west of Bridgeport Reservoir. It has several tributaries including Huntoon Creek, Long Valley Creek, and Harvey Creek. Livestock grazing is the main land use in the watershed.

Water Quality Objectives Not Attained

The numerical water quality objectives for total phosphorus for tributaries of the East Walker River within Bridgeport Valley are those for the river itself. These objectives are 0.06 milligrams per liter (mg/L) as an annual mean and 0.10 mg/L as a 90th percentile level. (Objectives expressed as 90th percentiles mean that only 10 % of all samples are allowed to be higher than the stated number.)

Evidence of Impairment

Concentrations of total phosphorus in nine samples collected in Swauger Creek in 2000 ranged from 0.023 to 0.107 mg/L, with a mean value of 0.068 mg/L. . Concentrations of total phosphorus in six samples collected in 2001 ranged from 0.047 to .0.117 mg/L, with a mean value of 0.73 mg/L. The creek was in violation of both the annual mean and 90th percentile objectives during each of the two years of sampling.

Extent of Impairment

Because additional monitoring is needed to define the extent of phosphorus problems in Swauger Creek, the entire creek is recommended for listing at this time.

Potential Sources

Phosphorus is present in soils and may reach Swauger Creek through erosion. Other possible sources are livestock wastes, stormwater from Highway 395, and atmospheric deposition of phosphorus suspended in wood smoke (e.g., from forest fires) or road dust.

TMDL Priority

This TMDL is recommended for a higher priority. Phosphorus loading from Swauger Creek will be addressed to some extent during the development of a phosphorus TMDL for Bridgeport Reservoir. A separate TMDL for the creek, if needed, will be completed after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

U.S. Geological Survey, 2001. Unpublished water quality data.

SWAUGER CREEK, PATHOGENS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

Swauger Creek, a tributary of Buckeye Creek in the East Walker River watershed, is proposed to be listed for "pathogens" as a result of violations of the narrative water quality objective for fecal coliform bacteria. Fecal coliform bacteria in water are indicators of contamination from the feces of warm-blooded animals and of the possible presence of many different kinds of pathogenic microorganisms.

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Swauger Creek	**Pollutant(s)**	Pathogens
Hydrologic Unit	East Walker River (630.30 and 630.40)	**Sources**	Livestock, wildlife, septic system, human recreational users.
Total Length	~13 miles	**TMDL Priority**	Medium
Size Affected	~13 miles	**TMDL End Date**	After 2015
Latitude/Longitude	38 °17' 00" N, 119°17'55" W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Swauger Creek, in Mono County, originates in the Sweetwater Mountains and flows south and southeast near Highway 395 before joining Buckeye Creek west of Bridgeport Reservoir. It has several tributaries including Huntoon Creek, Long Valley Creek, and Harvey Creek. Livestock grazing is the main land use in the watershed.

Water Quality Objectives Not Attained

The narrative water quality objective for fecal coliform bacteria in the Lahontan Basin Plan states:

> *"Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes.*
>
> *The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml."*

The units used in the water quality objective are the numbers of bacterial colonies per 100 milliliters (ml), sometimes referred to as the "Most Probable Number" or MPN.

This objective applies to all surface waters of the Lahontan Region. Because the current U.S. Geological Survey (USGS) monitoring program for bacteria in the East Walker River watershed involves one monthly sample, the 40/100 ml limit in the last part of the objective was the criterion used in assessment for update of the Section 303(d) list.

The Lahontan Basin Plan does not currently include water quality objectives for fecal streptococci. However, these bacteria are also indicators of fecal pollution and therefore of impairment. Fecal streptococci can be used to assess sources of contamination. If the ratio of fecal coliform numbers to fecal streptococcus numbers is greater than 4, a human source is generally indicated, and a ratio of less than 0.7 points to animal sources.

Evidence of Impairment

The results of bacterial sampling by the USGS at Swauger Creek are shown in Table 2. At least five of sixteen fecal coliform samples exceeded the 40/100 ml limit in the narrative water quality objective. According to USGS staff, the "K" code indicates that the bacteria count was outside the acceptable range or ideal count. An ideal count for fecal coliform is 20-60 colonies per plate. For fecal streptococcus the ideal count is 20-100 per plate. Table 2 shows that high bacterial counts at both stations coincide with months when livestock are present in the Swauger Creek watershed.

Table 2. Monitoring data for bacteria in Swauger Creek (colonies per 100 ml)

Sampling Date	Fecal Coliform	Fecal Streptococcus
03-13-00	K2	11
04-13-00	K6	55
05-11-00	K2	K8
06-06-00	59	91
07-12-00	50	>1000
08-09-00	73	K94
09-13-00	250	310
10-12-00	K28	160
11-14-00	K8	96
12-12-00	K8	55
01-09-01	K2	88
02-14-01	K1	-
03-13-01	K1	30
04-12-01	1	16
05-09-01	3	73
06-05-01	130	330

Extent of Impairment

Because data on bacteria are available for only one station, and because grazing occurs throughout the watershed, the entire length of Swauger Creek is recommended for listing.

Potential Sources

Because so many of the data have "K" codes, it is difficult to compare ratios of fecal coliform to fecal streptococcus to determine possible sources for fecal bacteria at this station. The ratios point to animal sources on some sampling dates and human sources on others. Livestock wastes are probably the major source of fecal bacteria. Other possible sources include wildlife, failing septic systems, and human recreational users of the watershed.

TMDL Priority

This TMDL is recommended for medium priority, with completion projected to occur after 2015. Problems with bacteria from livestock wastes will be addressed to some extent through the development and implementation of nutrient TMDLs for Bridgeport Reservoir and through implementation of agricultural Best Management Practices under the Regional Board's nonpoint source program. Monitoring by Regional Board staff in the Lake Tahoe Basin shows that management practices that restrict livestock access to surface waters lead to significant reductions in numbers of fecal coliform bacteria.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Honeywell, P.D., 2001. Email from Paul Honeywell, U.S. Geological Survey to Kim Gorman of Regional Board staff, dated 3/13/01 "Re: Bridgeport Data." Email explains error codes.

Menon, A.S., 2001. *Shellfish Safety: Bacterial Indicators on [sic] Shellfish Water Quality.* Canadian Shellfish Quality Resource. Available on the Internet: <http:www.shellfishquality.ca/indicators.htm>.

U.S. Geological Survey, 2001. Unpublished water quality data.

NINE NATURALLY IMPAIRED WATERS, SALINITY, METALS, AND ARSENIC
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

The nine water bodies listed in Tables 1 and 2 are saline or geothermal surface waters which were listed in the late 1980s or early 1990s for salinity and/or toxic trace metals. Although constituents exceed drinking water standards, all of these water bodies were given potential Municipal and Domestic Supply (MUN) beneficial use designations as a result of Basin Plan amendments which applied the MUN use to almost all waters in the Lahontan Region. The Regional Board amended its Basin Plan in 2000 to remove the MUN use, and the conflict with drinking water standards, for the waters in Table 1. These amendments have been approved by the State Board and are pending final approvals from other agencies. Regional Board staff conducted a scientific literature review and prepared a detailed Use Attainability Analysis which shows that:

- These waters meet the "Sources of Drinking Water Policy" (State Board Resolution 88-63) criteria for exclusion from the MUN use due to their poor quality, and are unlikely to be in demand as drinking water due to the relatively small amounts of water available;

- The salts and trace elements affecting these water bodies come from natural sources (volcanic, geothermal, and/or evaporative concentration in closed basins over geologic time);

- Saline and geothermal waters support unique biological communities adapted to their extreme environmental conditions, and should not be considered "impaired" in relation to freshwater aquatic life criteria. The USEPA's (1997) guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

These waters, and other "naturally impaired" waters in the Lahontan Region, are recommended for removal from the Section 303(d) list because the salts and trace elements in question are not "pollutants" under the definition in the Clean Water Act. See the Regional Board staff report on the Section 303(d) List update for further discussion of naturally impaired waters in relation to listing.

Because of the extensive documentation already provided in the Use Attainability Analysis, separate fact sheets have not been prepared for these waters.

Table 1. Naturally Impaired Waters Addressed in Lahontan Region's 2000 Basin Plan Amendments

Water Body Name	County	HU No.	Reason for Listing
Wendel Hot Springs	Lassen	637.20	Metals
Amedee Hot Springs	Lassen	637.20	Metals
Hot Creek	Mono	631.40	Metals
Fales Hot Springs	Mono	631.40	Metals
Little Hot Creek	Mono	603.10	Arsenic
Little Alkali Lake	Mono	603.10	Arsenic
Deep Springs Lake	Inyo	605.00	Salinity/TDS/Chlorides
Keough Hot Springs	Inyo	603.00	Metals
Amargosa River	Inyo/San Bernardino	609.00	Salinity/TDS/Chlorides

Table 2. Summary of Compliance With Drinking Water Criteria for Nine "Naturally Impaired" Waters (from Use Attainability Analysis report).

Water Body Name	Sources of Drinking Water Policy TDS Threshold (3000 mg/L) Exceeded?	Parameters for Which Other Standards or Criteria are Exceeded	Water Quantity Considerations
Wendel Hot Springs	No	TDS, specific conductance, arsenic, sulfate, fluoride, sodium	Flow in natural springs reduced due to nearby geothermal development.
Amedee Hot Springs	No	TDS, sulfate, fluoride, boron, sodium	Flow in natural springs reduced due to nearby geothermal development.
Fales Hot Springs	No	TDS, specific conductance, sulfate, fluoride, arsenic, copper, molybdenum, lead, aluminum	
Hot Creek	No	Specific conductance, fluoride, boron	
Little Hot Creek	No	Arsenic, beryllium, specific conductance, boron, lead, fluoride, antimony.	Annual flow ca. 1000 afa; evaporation increases salinity
Little Alkali Lake	Yes	TDS, Arsenic	Ephemeral
Keough Hot Springs	No	TDS	Flow 600 gallons per minute
Deep Springs Lake	Yes	TDS, specific conductance, pH	Ephemeral
Amargosa River	Yes (in Death Valley)	TDS, specific conductance, arsenic, sulfate, sodium, chloride, fluoride, boron.	Intermittent, variable annual flows

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine "Naturally Impaired" Waters of the Lahontan Region*, April 2000.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

California State Water Resources Control Board, 1988. Resolution 88-63, Sources of Drinking Water Policy.

U.S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997 from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

Water Body Fact Sheets for 2002
Section 303(d) List Update
Lahontan Region

MONO HYDROLOGIC UNIT

California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

November 2001

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Telephone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

MONO LAKE, SALINITY/TDS/CHLORIDES
2002 Section 303(d) Fact Sheet
Delisting

Evidence to Support Delisting

Mono Lake is proposed for delisting because (1) its high concentrations of salts and trace elements come from natural sources, and thus are not "pollutants" as defined in the Clean Water Act, and (2) the State Water Resources Control Board's 1994 Water Rights Decision 1631 establishes conditions to control the lake level, and thus salt concentrations, to ensure attainment of water quality objectives and protection of beneficial uses.

Mono Lake, a designated Outstanding National Resource Water under the Clean Water Act, is nationally and internationally recognized for its unique ecological and recreational values. Mono Lake was listed based on exceedance of the water quality objective for total dissolved solids (76 grams/liter [g/L]) and the potential harm to beneficial uses as a result of projected future increases in salinity. These problems resulted from diversions from streams tributary to Mono Lake by the City of Los Angeles Department of Water and Power.

Mono Lake has accumulated salts and trace elements such as arsenic and boron over geologic time through evaporative concentration of chemicals from natural sources (erosion from its watershed, and volcanic and geothermal sources). Salt concentrations are directly related to lake volume. At an arbitrary "reference" total dissolved solids (TDS) concentration of 100 g/L cited by the National Academy of Sciences, the boron concentration is 475 milligrams per liter (mg/L), one of the highest concentrations in any saline lake. The fluoride concentration is 65 mg/L and the arsenic concentration is 17 mg/L (arsenic concentrations have ranged from 4 to 28 mg/L). Other trace elements concentrations at this TDS level include bromide 50 mg/L, lithium 10 mg/L, iodine 7 mg/L and tungsten 4 mg/L. At the lower TDS level represented by the water quality objective, concentrations of other constituents would be proportionally lower, but there would still be exceedances of drinking water and freshwater aquatic life criteria. Mono Lake is not designated for the municipal and domestic supply (MUN) use, and violations of drinking water standards are not of concern. Regional Board staff's literature review of scientific literature on saline lakes worldwide shows that, while these lakes may have concentrations of chemicals such as arsenic which exceed freshwater aquatic life criteria, native organisms are adapted to their extreme environmental conditions. Such lakes have their own degree of biological integrity and should not be considered "impaired" in relation to aquatic life and wildlife uses. USEPA (1997) guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Watershed Characteristics

Mono Lake is an internally drained lake in Mono County (latitude 38.017°N, longitude 119.008°W). It receives runoff from a number of perennial streams and small lakes originating near the Sierra Nevada crest. The major tributaries were historically Mill, Lee Vining, and Rush Creeks; diversions from Mill Creek have led to larger inflows from Wilson Creek to the north.

Diversions from tributaries of Mono Lake by the Los Angeles Department of Water and Power between 1941 and 1982 resulted in a decline in lake level of about 45 feet and about a 30 percent reduction in lake volume, and substantial environmental damage. Water Rights Decision 1631 will lead to attainment and maintenance of a higher lake level that scientific evidence indicates will protect nesting habitat, maintain long term productivity of brine shrimp and brine fly populations, enhance the scenic quality of the basin, meet applicable water quality standards and ensure compliance with federal air quality standards related to blowing dust.

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GRANT LAKE, ARSENIC
2002 Section 303(d) Fact Sheet
Delisting

Evidence to Support Delisting

Grant Lake in Mono County (HU No. 601.00) is recommended for delisting because the arsenic present comes from natural sources and thus is not a "pollutant" as defined in the Clean Water Act.

Grant Lake was placed on the Section 303(d) list for arsenic based on data summarized in the State Board's Mono Basin EIR. The historical mean concentration of arsenic from the Grant Lake outlet between 1940 and 1990 was 10.80 micrograms per liter (ug/L); the minimum value was 2.00 ug/L and the maximum 20.00 ug/L. The mean concentration exceeded the then-current California Inland Surface Waters Plan standard of 5 ug/L. (This plan was subsequently rescinded because of a court decision.) The historic mean and maximum values exceed the 10 ug/L drinking water standard standard recently approved by the U.S. Environmental Protection Agency (USEPA). Sacramento perch liver tissue sampled in Grant Lake in 1991 under the State Board's Toxic Substances Monitoring Program had an "elevated" concentration of arsenic when compared with statewide data, but fish livers are not generally consumed, and no fish consumption criterion was exceeded.

The Grant Lake watershed has been affected by past volcanic eruptions from Long Valley Caldera and the Mono and Inyo Craters, which are the probable sources of arsenic. There are no known past or present industrial or agricultural discharges of arsenic in the watershed. Naturally high concentrations of arsenic are present in other waters of the Mono Lake and Owens River watersheds which are not themselves used as drinking water sources but which contribute to the City of Los Angeles municipal supply. The water system "at the tap" meets the current drinking water MCL due to blending. If a lower arsenic standard is adopted, treatment may be needed in the future.

While fishing is an important beneficial use in the June Lakes watershed, the Mono Basin was historically fishless, and current game fish are introduced species. USEPA (1997) guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."* Although delisting is recommended, arsenic should continue to be monitored in Grant Lake and upstream waters. Its effects on beneficial uses such as fish consumption and local domestic water supplies should be assessed further.

Watershed Characteristics

Grant Lake is located in the Mono Basin, at latitude 37.862° N, longitude 119.104°W. It is a reservoir constructed by enlarging a natural lake through an early irrigation dam and then through a larger dam constructed in 1941 by the Los Angeles Department of Water and Power (LADWP). The lake's surface acreage was increased from 150 to 1094 acres. The current maximum potential storage is 45, 575 acre-feet. Grant Lake stores water from the Rush Creek watershed and water exported from Parker, Walker, and Lee Vining Creeks for export to the Owens River Basin through the Mono Craters Tunnel. The export volume was formerly about 83,000 afa. Releases are now

subject to conditions in State Board Water Rights Decision No. 1631 for the protection of Mono Lake and Rush Creek.

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Water Body Fact Sheets for 2002
Section 303(d) List Update
Lahontan Region

OWENS AND DEEP SPRINGS HYDROLOGIC UNITS

California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

November 2001

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Telephone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

Note: This packet contains water body-specific fact sheets for six surface waters of the Owens Hydrologic Unit. Four additional water bodies (Little Hot Creek, Little Alkali Lake, and Keough Hot Springs in the Owens HU, and Deep Springs Lake in the Deep Springs HU), are proposed for delisting. See the summary fact sheet for "Nine Naturally Impaired Waters."

BIG SPRINGS, ARSENIC
2002 Section 303(D) Fact Sheet
Delisting

Rationale for Delisting

Delisting is being proposed for Big Springs because the arsenic comes entirely from natural sources and is, thus, not a "pollutant" under the definition in the Clean Water Act. The springs are located in the volcanic Long Valley Caldera at the headwaters of the Owens River, and elements such as arsenic and fluoride are believed to be indicators of geothermal sources.

The springs were Section 303(d)-listed for arsenic based on data reported in 1991 (mean arsenic concentration 17 micrograms per liter or ug/L; range 12-20 ug/L). These concentrations exceeded the then-current standard of 5 ug/L in the *California Inland Surface Waters Plan.* This plan was subsequently invalidated by a court decision and rescinded. Historic arsenic concentrations in Big Springs exceed the revised drinking water standard (10 ug/L) recently approved by the U.S. Environmental Protection Agency (USEPA).

Arsenic is removed from the Owens Valley water supply before it is delivered for use. The Los Angeles Aqueduct filtration plant is located just north of the terminus in Van Norman Reservoir in the northern San Fernando Valley, and additional arsenic removal occurs within the Los Angeles Aqueduct system. In 2000, the Los Angeles Department of Water and Power reported arsenic concentrations of 2.1-2.3 ug/L in treated water.

There is no current information on aquatic life associated with Big Springs. The USEPA's 1997 guidance for the development of site-specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Watershed Characteristics

The Big Springs are located in Mono County at the headwaters of the Owens River, downstream of the confluence of Deadman and Glass Creeks and upstream of the East Portal of the Mono Craters Tunnel. They provide baseflow for the Owens River; the average annual flow is approximately 50 cubic feet per second (cfs), based on historical Los Angeles Department of Water and Power data.

Information Sources

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CROWLEY LAKE, ARSENIC
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

Crowley Lake is proposed for delisting because the arsenic comes entirely from natural sources and is, thus, not a "pollutant" as defined in the Clean Water Act. Crowley Lake is also currently listed for nutrients, and it is proposed to remain listed with separate entries for nitrogen and phosphorus. A Section 319 grant-funded study of nonpoint source nutrient inputs to Crowley Lake, including some arsenic sampling, is ongoing.

Historical samples collected between 1940 and 1990 for the Crowley Lake outlet had a mean arsenic concentration of 45.47 micrograms per liter (ug/L), with a maximum concentration of 150 ug/L and a minimum of 4 ug/L. The mean value exceeded the then-current *California Inland Surface Waters Plan* standard of 5 ug/L. That plan has since been invalidated a court order and rescinded. The historic mean arsenic concentration in Crowley Lake exceeds the revised drinking water standard (10 ug/L) recently approved by the U.S. Environmental Protection Agency (USEPA).

Arsenic is removed from the Owens Valley water supply before it is delivered for use. The Los Angeles Aqueduct filtration plant is located just north of the terminus in Van Norman Reservoir in the northern San Fernando Valley, and additional arsenic removal occurs within the Los Angeles Aqueduct system. In 2000, the Los Angeles Department of Water and Power (LADWP) reported arsenic concentrations of 2.1-2.3 ug/L in treated water.

The arsenic in Crowley Lake comes from natural (geothermal, volcanic, and perhaps evaporative) sources in the Long Valley Caldera and Mono Basin, including Grant Lake, Big Springs, Hot Creek and Little Hot Creek, the Alkali Lakes, and the Owens River in Long Valley. Most of these waters are currently listed for arsenic, and are proposed for delisting in 2002. See the fact sheet for Hot Creek for more information about Long Valley Caldera.

The native fishes and other aquatic life of the Owens River system are presumed to be adapted to local arsenic concentrations. The USEPA's (1997) guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Watershed Characteristics

Crowley Lake (also known as Long Valley Reservoir) is located in Mono County in the eastern Sierra Nevada. It is the largest reservoir in the Los Angeles Aqueduct system, about 6 miles long and 3 miles wide. Its maximum surface area is 5,272 acres. It was created by the LADWP in 1941 to store water imported from the Mono Basin and the upper Owens River (Long Hydrologic Area) drainage. Tributaries include the Owens River, Leighton Springs, and McGee, Hilton, Whiskey,

and Crooked Creeks. Land ownership in the watershed is mostly public (Inyo National Forest, U.S. Bureau of Land Management, and LADWP). Land use near the reservoir is largely for livestock grazing. Recreational use is important in the upper watershed. The watershed also includes the Town of Mammoth Lakes and several geothermal power plants. The Department of Fish and Game has identified Crowley Lake as the "dominant fishery in the eastern Sierra in terms of angler use and fish production." Total estimated angler hours were 310,061 in 1992, with 47,280 hours of use on the opening week of fishing season.

Information Sources

California Department of Fish and Game, 1997. *A Fisheries Management Plan for Crowley Lake and Tributaries, Mono County, California.*

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TINEMAHA RESERVOIR, ARSENIC
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

Tinemaha Reservoir is proposed for delisting because the arsenic is entirely from natural sources and, thus, is not a "pollutant" as defined in the Clean Water Act. Arsenic enters the Owens River and Los Angeles Aqueduct systems from volcanic and geothermal sources in the Long Valley Caldera and elsewhere (see the fact sheets for Hot Creek and Crowley Lake). The separate listing of Tinemaha Reservoir for metals is proposed to remain unchanged due to concern about the impacts of copper sulfate use for algae control on water quality and beneficial uses.

Available data for the Owens River below Tinemaha Reservoir show a mean arsenic concentration of 22 micrograms per liter (ug/L). The Owens River mean is higher than the *California Inland Surface Waters Plan* standard (5 ug/L) in effect in the early 1990s when a number of waters in the Owens Valley were Section 303(d)-listed for arsenic. (That plan has since been rescinded.) The historic mean concentration also exceeds the revised drinking water standard for arsenic (10 ug/L) recently approved by the U.S. Environmental Protection Agency (USEPA).

Arsenic is removed from the Owens Valley water supply before it is delivered for use. The Los Angeles Aqueduct filtration plant is located just north of the terminus in Van Norman Reservoir in the northern San Fernando Valley, and additional arsenic removal occurs within the Los Angeles Aqueduct system. In 2000, the Los Angeles Department of Water and Power (LADWP) reported arsenic concentrations of 2.1-2.3 ug/L in treated water.

The native fishes and other aquatic life of the Owens River system are presumed to be adapted to local arsenic concentrations. The USEPA's (1997) guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Watershed Characteristics

Tinemaha Reservoir is located in Inyo County southeast of Big Pine (latitude 37.055 ° N, longitude 118.226 °W). It is one of several reservoirs in the LADWP's Owens River/Los Angeles Aqueduct municipal supply system. It receives inflow from the Middle Owens River and Tinemaha Creek. It was constructed to provide short term-regulation of Owens River flows to allow the maximum amount of flow to be diverted into the Los Angeles Aqueduct. It has a surface area of 2098 acres and a drainage area of 1915 square miles. The maximum storage is about 16,000 acre feet, although earthquake safety concerns have limited the useable storage to 10,000 acre feet in recent years. Releases from Tinemaha Reservoir are usually diverted into the Los Angeles Aqueduct intake at Aberdeen, but excess water occasionally flows down the Owens River channel toward Owens Lake.

Information Sources

California Department of Water Resources, 1993. Dams Within the Jurisdiction of the State of California. Bulletin 17. Available on the Internet: http://elib.cs.berkeley.edu/kopec;/b17/html/home.html.

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HOT CREEK, METALS
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

Hot Creek in the Owens River watershed (HU No. 603.10) is recommended for delisting because the toxic trace elements found in ambient water and fish tissue come from natural geothermal and volcanic sources and, thus, are not "pollutants" as defined in the Clean Water Act. (Little Hot Creek, a tributary of this Hot Creek, and a second geothermally-influenced Hot Creek in the Walker River watershed are also recommended for delisting in 2002; see the "Nine Naturally Impaired Waters" fact sheet.)

Hot Creek is located within the volcanic Long Valley Caldera. Evidence of past and resurgent volcanism in the caldera includes fumaroles, hot springs, geysering, and hydrothermally altered rock. Several new springs appeared in Hot Creek in 1973 following an earthquake. The "metals" listing for Hot Creek includes arsenic and other elements such as antimony, beryllium, germanium, barium, strontium, iron, manganese, boron, and fluoride. Statistically "elevated" concentrations of silver and zinc have been observed in fish sampled in Hot Creek under the State Water Resources Control Board's Toxic Substances Monitoring Program. Arsenic has been the element of greatest concern in Hot Creek because the creek contributes a substantial amount of water to the Owens River water supply for the City of Los Angeles. The hot springs tributary to Hot Creek have concentrations of arsenic up to 1100 micrograms per liter (ug/L). In 1991, the mean arsenic concentration in the creek below the hot springs was 220 ug/L . The mean concentration at the County Road station, based on 201 samples collected between 1965 and 1991, was 172 ug/L. Further dilution occurs downstream; in 1976 the concentration in the Owens River upstream of Benton Crossing was less than 100 mg/L. These arsenic concentrations are significantly higher than the revised drinking water standard (10 ug/L) recently approved by the U.S. Environmental Protection Agency (USEPA). Hot Creek is the source of about 60 percent of the arsenic discharged to Crowley Lake.

Arsenic is removed from the Owens Valley water supply before it is delivered for use. The Los Angeles Aqueduct filtration plant is located just north of the terminus in Van Norman Reservoir in the northern San Fernando Valley, and additional arsenic removal occurs within the Los Angeles Aqueduct system. In 2000, the Los Angeles Department of Water and Power reported arsenic concentrations of 2.1-2.3 ug/L in treated water.

Hot Creek is popular for recreation, but the boiling springs have caused a number of deaths and injuries. A group of warm springs near the transition between Hot and Mammoth Creeks provide water for the Hot Creek fish hatchery. The hatchery supplies trout for planting throughout the southeastern Sierra Nevada. Significant diversions are made from Hot Creek for irrigation of pasturelands.

The USEPA's (1997) guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Watershed Characteristics

Hot Creek (latitude 37.71° N, longitude 118.78°W) is located in Mono County in the Long Hydrologic Area of the Owens Hydrologic Unit; it is tributary to the Owens River upstream of Crowley Lake. Hot Creek is the name given to the lower segment of Mammoth Creek, downstream of a group of hot springs. The headwaters of Mammoth Creek are in the John Muir Wilderness near the Sierra Nevada crest; they include the "Mammoth Lakes" and other small lakes. The annual flow of Hot Creek is about 40,630 acre-feet, including about 11,500 acre-feet from the hot springs.

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OWENS RIVER, ARSENIC
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

The Owens River is recommended to be delisted for arsenic because the arsenic comes entirely from natural sources and is, thus, not a "pollutant" under the definition in the Clean Water Act. The Owens River is also Section 303(d)-listed for habitat alterations, and this listing is proposed to remain unchanged during the 2002 listing cycle.

The headwaters of the Owens River are located within the Long Valley Caldera, and their water quality is significantly influenced by volcanic and geothermal sources of trace elements such as arsenic. Although listing was done primarily on the basis of data for the segment of the river within Long Valley, arsenic from geothermal sources in Long Valley is carried to other parts of the watershed. In 83 samples collected by the Los Angeles Department of Water and Power (LADWP) for the Owens River at Benton Crossing, arsenic concentrations ranged from 10 to 170 micrograms per liter (ug/L) with a mean concentration of 60 ug/L. The mean arsenic concentration measured in the lower Owens River below Tinemaha Reservoir is 22 ug/L. Historic arsenic concentrations in both reaches exceed the revised drinking water standard (10 ug/L) recently approved by the U.S. Environmental Protection Agency (USEPA).

Arsenic is removed from the Owens Valley water supply before it is delivered for use. The Los Angeles Aqueduct filtration plant is located just north of the terminus in Van Norman Reservoir in the northern San Fernando Valley, and additional arsenic removal occurs within the Los Angeles Aqueduct system. In 2000, the LADWP reported arsenic concentrations of 2.1-2.3 ug/L in treated water.

The upper and middle reaches of the Owens River support very popular trout fisheries. The Fish Slough wetland provides habitat for threatened/endangered fish species. Regarding native aquatic life, the USEPA's (1997) guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Watershed Characteristics

The Owens River is about 120 miles long, with headwaters at Deadman Creek and Big Springs in Mono County and its terminus in Owens Lake in Inyo County. It has many tributary streams flowing from the Sierra Nevada and the White and Inyo Mountains. Tributaries from the Sierra are mostly perennial and those from the White/Inyo Mountains mostly ephemeral. The headwaters of the Sierra streams, including many small lakes, are within several federal wilderness areas, and the Inyo National Forest receives more recreational use than Yellowstone, Glacier and Grand Canyon National Parks combined. The upper Owens River watershed (within the Long Hydrologic Area) is

a Lahontan Regional Board Watershed Management Initiative (WMI) planning area. Surface water is diverted from the Owens River and several tributary streams and ground water of the Owens Valley supplement this flow to the Los Angeles Aqueduct. Reservoirs in the Owens River/Los Angeles Aqueduct system include Crowley Lake, Pleasant Valley Reservoir, and Tinemaha Reservoir.

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OWENS LAKE, SALINITY/TDS/CHLORIDES
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

Owens Lake is proposed for delisting because the salts and trace elements present in its brine come from natural sources and are, thus, not "pollutants" under the definition in the Clean Water Act. It is the terminal lake for a large internally drained river system, and has accumulated materials from volcanic and geothermal sources and from concentration in a closed basin over geologic time.

Until the early 20th Century, Owens Lake was a permanent inland saline lake and probably supported an aquatic ecosystem similar to that at Mono Lake. Diversions from tributary streams for municipal use in the Los Angeles area led to almost complete drying of the lake. The brine pool at Owens Lake currently supports a simple ecosystem of salt tolerant halobacteria and algae. The total dissolved solids (TDS) concentration of Owens Lake increased from 120,000 parts per million (ppm) prior to 1913 to about 320,000 ppm in 1995. The pH of the brine is about 10.5, and it includes high concentrations of arsenic (110 ppm), boron (278 ppm), fluoride (31 ppm), phosphorus (206 ppm), and other trace elements. The brine is near saturation and a large "ore body" of sodium salts, up to 9 feet thick, has precipitated out. Owens Lake has historically been mined for these salts.

Owens Lake is not used as a drinking water source, and its surface waters are not expected to be in demand for municipal supply. Regional Board staff are currently drafting Basin Plan amendments to remove the potential municipal use designation from the brine pool.

The U.S. Environmental Protection Agency's (USEPA's) 1997 guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

Watershed Characteristics

Owens Lake in Inyo County is the internally drained, terminal lake for the Owens River system. It historically received water from the Owens River and from perennial and ephemeral tributary streams. Before diversions of tributary streams began in the 1870s, Owens Lake had an area of about 72,000 acres. By 1924, the lake had dried to brine pool an area of about 20,000 acres. The surface waters of the lake include both the brine pool and ephemeral waters that collect on the lakebed from precipitation and surface runoff. The Owens River watershed is largely in public ownership (U.S. Forest Service, U.S. Bureau of Land Management, and Los Angeles Department of Water and Power.) Small communities near Owens Lake include Cartago, Olancha, and Keeler. Most of the Owens Lake Bed is owned by the State of California and controlled by the State Lands Commission.

The dry Owens Lake bed has been called the single largest source of particulate air pollutants in the United States. In 1998, the Los Angeles Department of Water and Power agreed with the Great Basin Unified Air Pollution Control District to control windblown dust on at least 22 square miles of dry lakebed by a mixture of three methods: shallow flooding, revegetation, and gravel cover. The flooding will not refill the lake, but 10 square miles may be permanently wetted with a few inches of water.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Draft Functional Equivalent Document and Staff Report for Proposed Amendments to the Water Quality Control Plan for the Lahontan Region: Appendix C. Use Attainability Analysis for Owens Lake, Inyo County, California.* September, 1995.

California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine "Naturally Impaired" Waters of the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

Cone, M. 1998. "L.A. Strikes Deal with Owens Valley to End Dust Woes." *Los Angeles Times*, July 16, 1998.

Great Basin Unified Air Pollution Control District, 1997. *Owens Valley PM_{10} Planning Area, Demonstration of Attainment, State Implementation Plan* (Executive Summary).

Jones & Stokes Associates, Inc., 1993. *Draft Environmental Impact Report for the Review of the Mono Basin Water Rights of the City of Los Angeles. Prepared for California State Water Resources Control Board, May 1993.*

U.S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997, from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

NINE NATURALLY IMPAIRED WATERS, SALINITY, METALS, AND ARSENIC
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

The nine water bodies listed in Tables 1 and 2 are saline or geothermal surface waters listed in the late 1980s or early 1990s for salinity and/or toxic trace metals. Although constituents exceed drinking water standards, all of these water bodies were given potential Municipal and Domestic Supply (MUN) beneficial use designations as a result of Basin Plan amendments that applied the MUN use to almost all waters in the Lahontan Region. The Regional Board amended its Basin Plan in 2000 to remove the MUN use, and the conflict with drinking water standards, for the waters in Table 1. These amendments have been approved by the State Board and are pending final approvals from other agencies. Regional Board staff conducted a scientific literature review and prepared a detailed Use Attainability Analysis to show that:

- These waters meet the "Sources of Drinking Water Policy" (State Water Resources Control Board Resolution 88-63) criteria for exclusion from the MUN use due to their poor quality, and they are unlikely to be in demand as drinking water due to the relatively small amounts of water available;

- The salts and trace elements affecting these water bodies come from natural sources (volcanic, geothermal, and/or evaporative concentration in closed basins over geologic time);

- Saline and geothermal waters support unique biological communities adapted to their extreme environmental conditions and should not be considered "impaired" in relation to freshwater aquatic life criteria. The U.S. Environmental Protection Agency's (USEPA's) 1997 guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

These waters, and other "naturally impaired" waters in the Lahontan Region, are recommended for removal from the Section 303(d) list because the salts and trace elements in question are not "pollutants" under the definition in the Clean Water Act. See the Regional Board staff report on the Section 303(d) List update for further discussion of naturally impaired waters in relation to listing.

Because of the extensive documentation already provided in the Use Attainability Analysis, separate fact sheets have not been prepared for these waters.

Table 1. Naturally Impaired Waters Addressed in Lahontan Region's 2000 Basin Plan Amendments

Water Body Name	County	HU No.	Reason for Listing
Wendel Hot Springs	Lassen	637.20	Metals
Amedee Hot Springs	Lassen	637.20	Metals
Hot Creek	Mono	631.40	Metals
Fales Hot Springs	Mono	631.40	Metals
Little Hot Creek	Mono	603.10	Arsenic
Little Alkali Lake	Mono	603.10	Arsenic
Deep Springs Lake	Inyo	605.00	Salinity/TDS/Chlorides
Keough Hot Springs	Inyo	603.00	Metals
Amargosa River	Inyo/San Bernardino	609.00	Salinity/TDS/Chlorides

Table 2. Summary of Compliance With Drinking Water Criteria for Nine "Naturally Impaired" Waters (from Use Attainability Analysis report).

Water Body Name	Sources of Drinking Water Policy TDS Threshold (3000 mg/L) Exceeded?	Parameters Exceeding Other Standards or Criteria	Water Quantity Considerations
Wendel Hot Springs	No	TDS, specific conductance, arsenic, sulfate, fluoride, sodium	Flow in natural springs reduced due to nearby geothermal development.
Amedee Hot Springs	No	TDS, sulfate, fluoride, boron, sodium	Flow in natural springs reduced due to nearby geothermal development.
Fales Hot Springs	No	TDS, specific conductance, sulfate, fluoride, arsenic, copper, molybdenum, lead, aluminum	
Hot Creek	No	Specific conductance, fluoride, boron	
Little Hot Creek	No	Arsenic, beryllium, specific conductance, boron, lead, fluoride, antimony.	Annual flow ca. 1000 acre-feet; evaporation increases salinity
Little Alkali Lake	Yes	TDS, Arsenic	Ephemeral
Keough Hot Springs	No	TDS	Flow 600 gallons per minute
Deep Springs Lake	Yes	TDS, specific conductance, pH	Ephemeral
Amargosa River	Yes (in Death Valley)	TDS, specific conductance, arsenic, sulfate, sodium, chloride, fluoride, boron.	Intermittent, variable annual flows

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine "Naturally Impaired" Waters of the Lahontan Region*, April 2000.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

California State Water Resources Control Board, 1988. Resolution 88-63, Sources of Drinking Water Policy.

U.S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997 from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

Water Body Fact Sheets for 2002
Section 303(d) List Update
Lahontan Region

MOJAVE, TRONA, AND AMARGOSA HYDROLOGIC UNITS

California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

November 2001

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Telephone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

Note: This packet contains water body-specific fact sheets for certain waters of the Mojave and Trona Hydrologic Units. The Amargosa River, in the Amargosa Hydrologic Unit, is also proposed for delisting. See the information on the Amargosa River in the summary fact sheet for "Nine Naturally Impaired Waters."

MOJAVE RIVER, PRIORITY ORGANICS
2002 Section 303(d) Fact Sheet
Delisting

Evidence to Support Delisting

A ten-mile segment of the Mojave River in San Bernardino County (HU No.628.00) is currently Section 303(d)-listed for "priority organics" due to the impacts of the "Barstow Slug" of subsurface pollutants. The Mojave River is an intermittent stream and normally flows on the surface for only part of its length; however, the entire river was considered a surface water for purposes of the initial assessment. Delisting of the segment affected by the "Barstow Slug" (latitude 34.899 °N, longitude 117.022 °W) is proposed for two reasons: (1) a scientific study has shown that priority pollutants are no longer present in concentrations of concern in the area affected by the groundwater plume; and (2) Regional Board staff's current approach is to recommend listing only for impairment of surface flows in ephemeral and intermittent streams.

The "Barstow Slug" was attributed to industrial discharges, largely from railroad activities, and municipal discharges from the local wastewater treatment plant. Beginning about 1910, waste fuel oil and solvents from the railroad were discharged to the dry riverbed. Beginning in 1938, municipal wastewater was also discharged to the riverbed, and the treatment plant was enlarged in 1953 and 1968. By 1972, the groundwater plume from the 1910 disposal area was over 1800 feet wide and extended about 4.5 miles downgradient. Its upper surface was about 60 feet below ground. A study completed in 1990 showed that the plume of subsurface pollutants had attenuated, apparently naturally, to levels that no longer posed threats to beneficial uses. Subsequent USGS studies indicate that ongoing municipal wastewater discharges to groundwater, and nonpoint source discharges from a golf course, are violating the numerical water quality objectives for total dissolved solids (TDS) and nitrate in the subsurface portion of the Mojave River near Barstow. However, because there are no applicable numerical objectives for surface water in this segment of the river, it is not recommended to be listed for TDS and nitrate. Surface water objectives may be developed in the future as part of the Regional Board's ongoing Watershed Management Initiative process.

Watershed Characteristics

The Mojave River watershed, in San Bernardino County, has an area of about 1600 square miles. Its headwaters are in the San Bernardino Mountains with an elevation of about 8500 feet. The river has two large perennial tributaries, the West Fork of the Mojave River and Deep Creek. These streams converge immediately upstream of the Mojave Forks dam, a flood control facility, to form the main Mojave River. The river channel is about 120 miles long and ends at Soda and Silver Dry Lakes near the town of Baker. The U.S. Geological Survey has divided the watershed into five sub-basins based on hydrologic characteristics: Headwaters, or tributaries above Mojave Forks dam; Upper Basin, from Mojave Forks dam to Lower Narrows at Victorville: Middle Basin, from Lower Narrows to Waterman Fault at Barstow; Lower Basin, from Waterman Fault to Afton Canyon, and Tailwater, from Afton Canyon to Silver Dry Lake. Most of the baseflow in the main Mojave River channel is underground. Impermeable bedrock forces ground water to the surface

of the channel at the Upper and Lower Narrows near Victorville and at Afton Canyon, below Barstow.

Information Sources

CEPIS, no date. Ground-Water Pollution, In: Seminar Publication: Protection of public water supplies from ground-water contamination, Environmental Protection Agency. Available on the Internet: <http://www.cepis.ops-oms.org/muwww/fulltext/repind46/ground/ground.html>

Maxwell, C.R. 2000. A Watershed Management Approach to Assessment of Water Quality and Development of Revised Water Quality Standards for the Ground Waters of the Mojave River Floodplain. Paper presented at National Water Quality Monitoring Council Conference, April 25-27, 2000, Austin TX.

MOJAVE RIVER BETWEEN UPPER AND LOWER NARROWS, TOTAL DISSOLVED SOLIDS
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The surface water segment of the Mojave River between the Upper and Lower Narrows near Victorville is recommended for addition to the 2002 Section 303(d) list for violations of the drinking water Maximum Contaminant Level for total dissolved solids. (A different segment of the Mojave River near Barstow was previously listed for priority organics and is currently recommended for delisting.)

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Mojave River	**Pollutant(s)**	Total Dissolved Solids
Hydrologic Unit	628.00	**Sources**	Natural (geothermal), imported water, wastewater
Total Length	120 miles	**TMDL Priority**	High
Size Affected	2 miles	**TMDL Start Date**	After 2015
Upstream Extent Latitude	34.573° N, 117.318° W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The Mojave River watershed, in San Bernardino County, has an area of about 1,600 square miles. Its headwaters are in the San Bernardino Mountains at an elevation of about 8,500 feet above sea level. The river has two large perennial tributaries, the West Fork of the Mojave River and Deep Creek. These streams converge immediately upstream of the Mojave Forks dam, a flood control facility, to form the main Mojave River. The river channel is about 120 miles long and ends at Soda and Silver Dry Lakes near the town of Baker. The USGS has divided the watershed into five sub-basins based on hydrologic characteristics: Headwaters, or tributaries above Mojave Forks Dam; Upper Basin, from Mojave Forks dam to Lower Narrows at Victorville; Middle Basin, from Lower Narrows to Waterman Fault at Barstow; Lower Basin, from Waterman Fault to Afton Canyon; and Tailwater, from Afton Canyon to Silver Dry Lake. Most of the baseflow in the main Mojave River channel is underground. Impermeable bedrock forces ground water to the surface of the channel at the Upper and Lower Narrows near Victorville and at Afton Canyon, below Barstow. The Mojave River is one of the Lahontan Regional Board's priority watersheds for the Watershed Management Initiative.

Water Quality Standards Not Attained

There is no site-specific numerical water quality objective for total dissolved solids in this segment of the Mojave River. However, the state drinking water Maximum

Contaminant Level (MCL), 500 milligrams per liter (mg/L), applies under the narrative objective for "Chemical Constituents."

Evidence of Impairment

Concentrations of total dissolved solids in 5 samples collected at the Upper Narrows between March 2000 and June 2001 ranged from 840 to 1100 mg/L, with a mean concentration of 962 mg/L. All of these values exceeded the drinking water MCL.

Extent of Impairment

The segment proposed for listing is between the Upper and Lower Narrows, about two miles in length.

Potential Sources

Potential upstream sources of total dissolved solids loading to the groundwater that surfaces at the Upper Narrows include geothermal springs tributary to Deep Creek, wastewater discharges from communities in the upper watershed, and imported (California Water Project) water stored in Silverwood Lake.

TMDL Priority

This TMDL is recommended for high priority, with completion projected to occur after 2015.

Information Sources

California Regional Water Quality Control Board, Central Valley Region, 2000. *A Compilation of Water Quality Goals.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region. Mojave River and D Street data.

MOJAVE RIVER BETWEEN UPPER AND LOWER NARROWS, CHLORIDE
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The surface water segment of the Mojave River between the Upper and Lower Narrows near Victorville is recommended for addition to the 2002 Section 303(d) list for violations of water quality objectives for chloride. (A different segment of the Mojave River near Barstow was previously listed for priority organics and is currently recommended for delisting.)

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Mojave River	**Pollutant(s)**	Chloride
Hydrologic Unit	628.00	**Sources**	Natural (geothermal), imported water, wastewater
Total Length	120 miles	**TMDL Priority**	High
Size Affected	2 miles	**TMDL Start Date**	After 2015
Upstream Extent Latitude	34.573° N, 117.318° W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The Mojave River watershed, in San Bernardino County, has an area of about 1,600 square miles. Its headwaters are in the San Bernardino Mountains with an elevation of about 8,500 feet above sea level. The river has two large perennial tributaries, the West Fork of the Mojave River and Deep Creek. These streams converge immediately upstream of the Mojave Forks Dam, a flood control facility, to form the main Mojave River. The river channel is about 120 miles long and ends at Soda and Silver Dry Lakes near the town of Baker. The USGS has divided the watershed into five sub-basins based on hydrologic characteristics: Headwaters, or tributaries above Mojave Forks dam; Upper Basin, from Mojave Forks dam to Lower Narrows at Victorville; Middle Basin, from Lower Narrows to Waterman Fault at Barstow; Lower Basin, from Waterman Fault to Afton Canyon; and Tailwater, from Afton Canyon to Silver Dry Lake. Most of the baseflow in the main Mojave River channel is underground. Impermeable bedrock forces ground water to the surface of the channel at the Upper and Lower Narrows near Victorville and at Afton Canyon, below Barstow. The Mojave River is one of the Lahontan Regional Board's priority watersheds for the Watershed Management Initiative.

Water Quality Standards Not Attained

The numerical water quality objectives for chloride applicable to this segment of the river are 75 milligrams per liter (mg/L) as an annual mean and 100 mg/L as a 90th percentile value. (Under a 90th percentile objective, no more than 10 percent of all samples during a

given year are allowed to exceed the stated concentration.) These water quality objectives date from 1975 and were probably based on limited historical sampling data.

Evidence of Impairment

Chloride concentrations in five samples collected at the Upper Narrows between March 2000 and June 2001 ranged from 190 to 290 mg/L, with a mean concentration of 238 mg/L. The mean value, and three of five sample values, exceed the federal 4-day average continuous concentration criterion for freshwater aquatic life (230 mg/L). (This station is in a transition zone between mountain and desert ecoregions, and freshwater criteria may not necessarily be applicable to local native aquatic species.)

Extent of Impairment

The segment proposed for listing is between the Upper and Lower Narrows, about two miles in length.

Potential Sources

Potential upstream sources of chloride loading to the groundwater that surfaces at the Upper Narrows include geothermal springs tributary to Deep Creek, wastewater discharges from communities in the upper watershed, and imported (California Water Project) water stored in Silverwood Lake.

TMDL Priority

This TMDL is recommended for high priority with completion projected to occur after 2015.

Information Sources

California Regional Water Quality Control Board, Central Valley Region, 2000. *A Compilation of Water Quality Goals.*

California Regional Water Quality Control Board, Lahontan Region, 1975. *Water Quality Control Plan for the South Lahontan Basin.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region. Mojave River and D Street data.

MOJAVE RIVER BETWEEN UPPER AND LOWER NARROWS, SULFATE
2002 Section 303(d) Fact Sheet
Listing

Summary of Proposed Action

The surface water segment of the Mojave River between the Upper and Lower Narrows near Victorville is recommended for addition to the 2002 Section 303(d) list for violations of water quality objectives for sulfate. (A different segment of the Mojave River near Barstow was previously listed for priority organics and is currently recommended for delisting.)

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Mojave River	**Pollutant(s)**	Sulfate
Hydrologic Unit	628.00	**Sources**	Natural (geothermal), imported water, wastewater
Total Length	120 miles	**TMDL Priority**	High
Size Affected	2 miles	**TMDL Start Date**	After 2015
Upstream Extent Latitude	34.573° N, 117.318° W	**Original 303(d) Listing Year**	2002

Watershed Characteristics

The Mojave River watershed, in San Bernardino County, has an area of about 1,600 square miles. Its headwaters are in the San Bernardino Mountains with an elevation of about 8,500 feet above sea level. The river has two large perennial tributaries, the West Fork of the Mojave River and Deep Creek. These streams converge immediately upstream of the Mojave Forks dam, a flood control facility, to form the main Mojave River. The river channel is about 120 miles long and ends at Soda and Silver Dry Lakes near the town of Baker. The USGS has divided the watershed into five sub-basins based on hydrologic characteristics: Headwaters, or tributaries above Mojave Forks Dam; Upper Basin, from Mojave Forks dam to Lower Narrows at Victorville; Middle Basin, from Lower Narrows to Waterman Fault at Barstow; Lower Basin, from Waterman Fault to Afton Canyon; and Tailwater, from Afton Canyon to Silver Dry Lake. Most of the baseflow in the main Mojave River channel is underground. Impermeable bedrock forces ground water to the surface of the channel at the Upper and Lower Narrows near Victorville and at Afton Canyon, below Barstow. The Mojave River is one of the Lahontan Regional Board's priority watersheds for the Watershed Management Initiative.

Water Quality Standards Not Attained

The numerical water quality objectives for sulfate applicable to this segment of the river are 40 milligrams per liter (mg/L) as an annual mean and 100 mg/L as a 90th percentile value. (Under a 90th percentile objective, no more than 10 percent of all samples during a

given year are allowed to exceed the stated concentration.) These water quality objectives date from 1975 and were probably based on limited historical sampling data.

Evidence of Impairment

Sulfate concentrations in five samples collected at the Upper Narrows between March 2000 and June 2001 ranged from 47 to 260 mg/L, with a mean concentration of 191 mg/L. Four out of five samples exceeded the 90th percentile value. Sulfate concentrations in samples collected at the Lower Narrows during the same period ranged from 22 to 62 mg/L, with a mean concentration of 40.4; this value slightly exceeds the annual mean objective.

Extent of Impairment

The segment proposed for listing is between the Upper and Lower Narrows, about two miles in length.

Potential Sources

Potential upstream sources of sulfate loading to the groundwater that surfaces at the Upper Narrows include geothermal springs tributary to Deep Creek, wastewater discharges from communities in the upper watershed, and imported (California Water Project) water stored in Silverwood Lake.

TMDL Priority

This TMDL is recommended for high priority with completion projected to occur after 2015.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1975. *Water Quality Control Plan for the South Lahontan Basin.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region. Mojave River and D Street data.

SEARLES LAKE, SALINITY/TDS/CHLORIDES
2002 Section 303(d) Fact Sheet
Delisting

Rationale for Delisting

The ephemeral waters of Searles Lake, including the ponds containing waste brine from mineral extraction operations by IMC Chemical, Inc. (IMCC), are proposed to be delisted for "Salinity/TDS/Chlorides" because the "impairment" is natural and the lake is supporting aquatic life uses to the extent possible under its extreme environmental conditions. The high concentrations of salts in surface waters, and brine deposited in surface waters, come ultimately from natural sources including evaporative concentration in a closed hydrologic basin over geologic time.

Concentrations of total dissolved solids (about 250,000 to 400,000 milligrams per liter or mg/L) and trace elements such as arsenic (60 to 170 mg/L) in Searles Lake brine greatly exceed state and federal criteria for protection of drinking water and freshwater aquatic life uses. However, the surface waters of Searles Lake are not designated for the Municipal and Domestic Supply beneficial use, and the designated aquatic habitat use is Inland Saline Water Habitat, not freshwater habitat. Naturally occurring salts and trace elements are not "pollutants" under the definition in the Clean Water Act. A staff literature review indicates that the desert playa lakes of California support aquatic life and wildlife uses by organisms adapted to their extreme environmental conditions and should not be considered "impaired" for these uses in spite of their high salt and trace element concentrations. The U.S. Environmental Protection Agency's (USEPA's) 1997 guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."* See the Lahontan Regional Board's 2001 staff report for further discussion of natural impairment in relation to listing and TMDLs.

Regional Board staff analyzed the beneficial uses of Searles Lake and its watershed in connection with Basin Plan Amendments in 2000. Further amendments, under development, could define beneficial uses for the IMCC brine ponds separately from those of the remainder of the lakebed.

Watershed Characteristics

Searles Lake is a Mojave Desert playa lake whose internally drained watershed is located in the Trona Hydrologic Unit (No. 621.00) in portions of Kern, Inyo, and San Bernardino Counties. The entire Searles Lake bed (about 40 square miles in area) is listed although the actual amount and area of surface water vary over time. The lake is a remnant of a much larger Pleistocene drainage system. The lake has a current surface elevation of about 1620 feet and a current drainage area of about 751 square miles. There are numerous ephemeral tributary streams and some perennial springs and streams in the Argus Mountains north of the lakebed. The lakebed is a "moist playa" with saturated brine near the surface in some areas; ephemeral water may collect on the surface following periods of high precipitation and runoff. Most of the surface water currently on the lakebed is brine extracted from beneath the lakebed by IMCC and returned to the lakebed following

the extraction of minerals. IMCC owns or leases about half of the lakebed, and the remainder of the watershed is mostly under the jurisdiction of the U.S. Bureau of Land Management and China Lake Naval Weapons Center. Wells, pipelines, roads, power lines, and other facilities are located on the lakebed; industrial facilities are located on the west side of the lakebed at Westend, Trona and Argus.

Information Sources:

California Regional Water Quality Control Board, Central Valley Region, 2000. *A Compilation of Water Quality Goals.*

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2000. *Staff Report/Draft Environmental Document for Proposed Amendments to the Water Quality Control Plan for the Lahontan Region (Basin Plan), State Clearinghouse Number 98092052.* April, 2000.

California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine "Naturally Impaired" Waters of the Lahontan Region,* April 2000.

California Regional Water Quality Control Board, Lahontan Region, 2000. *Analysis of the Beneficial Uses REC-1, REC-2, SAL, and WILD with respect to Searles Dry Lake, IMC Chemicals Inc., Trona, San Bernardino County, and Response to IMCC Comments made during the July 2000 Regional Board Meeting.*

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

U.S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997 from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

SEARLES LAKE, PETROLEUM HYDROCARBONS
2002 303(d) Fact Sheet
Listing

Summary of Proposed Action

The ephemeral surface waters of Searles Dry Lake, including ponds containing waste brine from IMC Chemical's mineral extraction operations, are proposed for Section 303(d) listing due to adverse impacts on beneficial uses, and violations of narrative objectives, from petroleum products in industrial waste discharges. (The surface waters of Searles Lake are currently listed for salinity, total dissolved solids, and chlorides, but are being proposed for delisting for those parameters since the naturally occurring salts and trace elements are not "pollutants" within the definition in the Clean Water Act. See the separate fact sheet for delisting.)

Table 1. 303(d) Listing/TMDL Information

Waterbody Name	Searles (Dry) Lake	**Pollutants/Stressors**	Petroleum hydrocarbons
Hydrologic Unit	621.00	**Sources**	Industrial waste
Total Area	40 square miles	**TMDL priority**	Low
Size Affected	Surface waters of lake; area is variable	**TMDL End Date**	After 2015
Latitude/Longitude	35.733° W, 117.333°N	**Original 303(d) Listing Year**	2002

Watershed Characteristics

Searles Lake is a Mojave Desert playa lake whose internally drained watershed is located in the Trona Hydrologic Unit (No. 621.00) in portions of Kern, Inyo, and San Bernardino Counties. The entire Searles Lake bed (about 40 square miles in area) is listed although the actual amount and area of surface water vary over time. The lake is a remnant of a much larger Pleistocene drainage system. The lake has a current surface elevation of about 1620 feet and a current drainage area of about 751 square miles. There are numerous ephemeral tributary streams and some perennial springs and streams in the Argus Mountains north of the lakebed. The lakebed is a "moist playa" with saturated brine near the surface in some areas; ephemeral water may collect on the surface following periods of high precipitation and runoff. Most of the surface water currently on the lakebed is brine extracted from beneath the lakebed by IMCC and returned to the lakebed following the extraction of minerals. IMCC owns or leases about half of the lakebed, and the remainder of the watershed is mostly under the jurisdiction of the U.S. Bureau of Land Management and China Lake Naval Weapons Center. Wells, pipelines, roads, power lines, and other facilities are located on the lakebed; industrial facilities are located on the west side of the lakebed at Westend, Trona and Argus. The brine ponds on the lakebed are not lined and there are no fixed boundaries between them and other surface and subsurface waters of Searles Lake.

Water Quality Standards Not Attained

Searles Lake is located on the Pacific Flyway and serves as resting habitat for several species of migratory birds including Brown Pelican, Common Snipe, Whitefaced Ibis, Mallard, and American Coot. Documented bird kills are considered impairment of the Wildlife Habitat (WILD) beneficial use for surface waters of the lake. Lahontan Regional Board Cleanup and Abatement Order No. 6-00-64 also cites impairments of the Non-Contact Water Recreation (REC-2), Water Contact Recreation (REC-1), and Saline Water Habitat (SAL) uses, and violations of narrative water quality objectives for chemical constituents, floating material, oil and grease and toxicity.

Evidence of Impairment

Lahontan Regional Board Cleanup and Abatement Order No. 6-00-64 describes the problem as follows:

> *"There have been numerous spills of kerosene and non-kerosene hydrocarbon[s] from the facilities to Searles Lake, which is a hydrologically closed basin. Any discharge of petroleum hydrocarbons and other non-native constituents accumulates in the lake. Specifically, petroleum hydrocarbon constituents have concentrated to a point that a visible oily sheen is periodically present in the Searles Lake waters. At times, oily globules coat the bank of the lake. Observations by both Regional Board staff and California Department of Fish and Game (DFG) staff during site inspections have confirmed numerous dead waterfowl that were encrusted with brine and oil. These conditions indicate that discharges from the IMCC facilities have created a condition of pollution in Searles Lake waters and impaired its beneficial uses. ... During numerous site inspections since February 17, 2000 (total of 13 inspections up to June 23, 200), Board staff observed visible black floating oil on the discharge channels, dredge pond, and percolation ponds of Searles Lake. Board staff collected samples of the floating oil, and analysis reveled the material had 156,000 ppm of TPH [Total Petroleum Hydrocarbons]. ...Board staff has observed numerous dead waterfowl encrusted with brine and oil, which the DFG has collected. The DFG testified during the June 2000 Regional Board meeting that oil was found in the internal organs of the waterfowl. To date, the DFG has collected over 150 dead waterfowl. "*

The Regional Board order also states that the Department of Fish and Game issued its own Cleanup and Abatement Order on February 18, 2000.

Extent of Impairment

All surface waters of the entire lakebed are recommended for listing, since the locations and areas of naturally ponded surface runoff and waste brine ponds are variable over time. The Searles Lake Bed has an area of 40 square miles.

Potential Sources

Petroleum hydrocarbons (including kerosene) in surface waters of Searles Lake have been linked to waste discharges from the IMCC industrial facilities at Trona, Argus, and Westend. IMCC uses a petroleum hydrocarbon-based solvent similar to kerosene in its mineral extraction process; the solvent can be present in effluent from the Trona Plant. The Argus Plant effluent also contains non-kerosene hydrocarbons from machine oil drippings. Other chemicals used by IMCC, such as monoethanolamine (MEA), formaldehyde, and phenols, are present in Searles Lake brine.

TMDL Priority

The problem is being addressed through permits and cleanup orders. Identification of sources of contaminants is ongoing. Regional Board staff are proposing Basin Plan amendments to define beneficial uses for the brine ponds separate from the uses of the natural ephemeral surface waters of the lake as a whole. Because the end date for abatement of petroleum product discharges is unknown and full cleanup may not be achieved by the next (2004) 303(d) listing cycle, listing is being proposed in 2002. The problem will need to be addressed through the Regional Board's permitting and enforcement programs whether or not a TMDL is developed. Searles Lake may be recommended for delisting in the future if ongoing cleanup activities and/or Basin Plan amendments lead to attainment of the wildlife use.

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2000. *Staff Report/Draft Environmental Document for Proposed Amendments to the Water Quality Control Plan for the Lahontan Region (Basin Plan), State Clearinghouse Number 98092052,* April, 2000.

California Regional Water Quality Control Board, Lahontan Region, 2000. *Analysis of the Beneficial Uses REC-1, REC-2, SAL, and WILD with Respect to Searles Dry Lake, IMC Chemicals, Inc., Trona, San Bernardino County, and Response to IMCC Comments made during the July 2000 Regional Board meeting.*

California Regional Water Quality Control Board, Lahontan Region, 2000. Amended Cleanup and Abatement Order No. 6-00-64A1, WDID Nos.: 6B368020001, 6B368905004, and 6B368905005, Requiring IMC Chemicals and the U.S. Department of the Interior, Bureau of Land Management, To Clean Up and Abate the Effects of Waste Discharges to Searles Lake From the Trona, Argus, and Westend Facilities, San Bernardino County.

California Regional Water Quality Control Board, Lahontan Region, 2000. Amended Cease and Desist Order No. 6-00-61A1, WDID: 6B368020001/6B368905004-Consideration of an Amended Cease and Desist Order-IMC Chemicals, Inc. and the U.S. Department of Interior, Bureau of Land Management, Trona and Argus Operations, Searles Lake.

NINE NATURALLY IMPAIRED WATERS, SALINITY, METALS, AND ARSENIC
2002 303(d) Fact Sheet
Delisting

Rationale for Delisting

The nine water bodies listed in Tables 1 and 2 are saline or geothermal surface waters listed in the late 1980s or early 1990s for salinity and/or toxic trace metals. Although constituents exceed drinking water standards, all of these water bodies were given potential Municipal and Domestic Supply (MUN) beneficial use designations as a result of Basin Plan amendments which applied the MUN use to almost all waters in the Lahontan Region. The Regional Board amended its Basin Plan in 2000 to remove the MUN use, and the conflict with drinking water standards, for the waters in Table 1. These amendments have been approved by the State Board and are pending final approvals from other agencies. Regional Board staff conducted a scientific literature review and prepared a detailed Use Attainability Analysis to show that:

- These waters meet the "Sources of Drinking Water Policy" (State Water Resources Control Board Resolution 88-63) criteria for exclusion from the MUN use due to their poor quality, and are unlikely to be in demand as drinking water due to the relatively small amounts of water available;

- The salts and trace elements affecting these water bodies come from natural sources (volcanic, geothermal, and/or evaporative concentration in closed basins over geologic time);

- Saline and geothermal waters support unique biological communities adapted to their extreme environmental conditions, and should not be considered "impaired" in relation to freshwater aquatic life criteria. The U.S. Environmental Protection Agency's 1997 guidance for the development of site specific aquatic life criteria states: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."*

These waters, and other "naturally impaired" waters in the Lahontan Region, are recommended for removal from the Section 303(d) list because the salts and trace elements in question are not "pollutants" under the definition in the Clean Water Act. See the Regional Board staff report on the Section 303(d) List update for further discussion of naturally impaired waters in relation to listing.

Because of the extensive documentation already provided in the Use Attainability Analysis, separate fact sheets have not been prepared for these waters.

Table 1. Naturally Impaired Waters Addressed in Lahontan Region's 2000 Basin Plan Amendments

Water Body Name	County	HU No.	Reason for Listing
Wendel Hot Springs	Lassen	637.20	Metals
Amedee Hot Springs	Lassen	637.20	Metals
Hot Creek	Mono	631.40	Metals
Fales Hot Springs	Mono	631.40	Metals
Little Hot Creek	Mono	603.10	Arsenic
Little Alkali Lake	Mono	603.10	Arsenic
Deep Springs Lake	Inyo	605.00	Salinity/TDS/Chlorides
Keough Hot Springs	Inyo	603.00	Metals
Amargosa River	Inyo/San Bernardino	609.00	Salinity/TDS/Chlorides

Table 2. Summary of Compliance With Drinking Water Criteria for Nine "Naturally Impaired" Waters (from Use Attainability Analysis report)

Water Body Name	Sources of Drinking Water Policy TDS Threshold (3000 mg/L) Exceeded?	Parameters Exceeding Other Standards or Criteria	Water Quantity Considerations
Wendel Hot Springs	No	TDS, specific conductance, arsenic, sulfate, fluoride, sodium	Flow in natural springs reduced due to nearby geothermal development.
Amedee Hot Springs	No	TDS, sulfate, fluoride, boron, sodium	Flow in natural springs reduced due to nearby geothermal development.
Fales Hot Springs	No	TDS, specific conductance, sulfate, fluoride, arsenic, copper, molybdenum, lead, aluminum	
Hot Creek	No	Specific conductance, fluoride, boron	
Little Hot Creek	No	Arsenic, beryllium, specific conductance, boron, lead, fluoride, antimony.	Annual flow ca. 1000 acre-feet; evaporation increases salinity
Little Alkali Lake	Yes	TDS, Arsenic	Ephemeral
Keough Hot Springs	No	TDS	Flow 600 gallons per minute
Deep Springs Lake	Yes	TDS, specific conductance, pH	Ephemeral
Amargosa River	Yes (in Death Valley)	TDS, specific conductance, arsenic, sulfate, sodium, chloride, fluoride, boron.	Intermittent, variable annual flows

Information Sources

California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region.*

California Regional Water Quality Control Board, Lahontan Region, 2000. *Use Attainability Analysis for Nine "Naturally Impaired" Waters of the Lahontan Region*, April 2000.

California Regional Water Quality Control Board, Lahontan Region, 2001. *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.*

California State Water Resources Control Board, 1988. Resolution 88-63, Sources of Drinking Water Policy.

U.S. Environmental Protection Agency, 1997. Establishing Site Specific Aquatic Life Criteria Equal to Natural Background. Memorandum dated November 5, 1997 from Tudor T. Davies, Director, Office of Science and Technology, USEPA Office of Water.

Enclosure 4

Written Public Comments

From: <Stanley_Wiemeyer@r1.fws.gov>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/5/01 1:56PM
Subject: Water body fact sheets - Walker River

I have reviewed the fact sheets for this basin because of our recent interest in possible mercury source areas in the basin related to past mining. This came about as the result of finding (by others) elevated concentrations of mercury in blood of common loons that use Walker Lake as a migratory stop over during both spring and fall. We have collected samples of macroinvertebrates and some fish from various sites throughout the Walker River basin, including sites in California, and have had the samples analyzed for total mercury. The field work was conducted primarily in the Fall of 2000. We will provide you with a copy of the report upon its completion. In the interim I have a few questions in relation to the fact sheets and other information you may be aware of for this basin.

1. In reviewing USGS topographic maps of the basin, I noted the presence of tailings along Dog Creek which flows into Virginia Creek, south of Bridgeport, CA. Do you have any information as to their source, including type of mining that may have been involved as well as when the mining may have occurred? We found slightly elevated (above background) mercury concentrations in stonefly larvae and juvenile crayfish from Virginia Creek. We also found an even higher mercury concentration in a sample of stonefly larvae from Green Creek, south of Bridgeport. However, I saw little evidence of mining activity in Green Creek's watershed from examination of topographic maps. Are you aware of any mining inputs into this watershed?

2. Do you have additional information on the Superfund site on Aurora Canyon Creek where you indicated that a mercury ore mill was present. Is active cleanup ongoing at this site or is it just on the CERCLA list and not an active Superfund site? Who in EPA is the project manager for this site if it is active?

3. I was aware of the mining activity in the Bodie area, the Aurora area to the east of Bodie in Nevada, mining on the east side of the Sweetwater Range, and also the Masonic Gulch area (to the east or NW of Bridgeport). Do you have information on mining in any other areas of the basin, especially where mercury may have been involved, either involving its use in precious metal recovery (as was the case in the Carson River basin in Nevada during the 1860s to 1900) or in mercury mining?

USGS has also collected water and sediment samples in relation to the concern regarding mercury source areas in the Walker River basin. Many of their sampling sites correspond with those where we collected biota. Their field work was conducted in both 2000 and 2001. EPA REMAP also collected water and sediment throughout the basin in the fall of 2000 for various metal and trace element analyses.

Is Toxic Substance Monitoring Program data available on the web? How recent have samples been collected in the Walker River Basin? I noted the mercury results for fish from the Bridgeport area for samples collected in the 1980s in the fact sheet. Have there been more recent collections? If so, how can I obtain access to the data?

Thanks for your help. I look forward to hearing from you.

Stan Wiemeyer
Resource Contaminants Specialist
U.S. Fish and Wildlife Service
Nevada Fish and Wildlife Office
1340 Financial Blvd., Ste. 234
Reno, NV 89502-7147
Phone: (775) 861-6326
stanley_wiemeyer@fws.gov

From: Judith Unsicker
To: "Stanley_Wiemeyer@r1.fws.gov".mime.Internet
Date: 12/6/01 8:59AM
Subject: Re: Water body fact sheets - Walker River

Thanks for your email. I have responded to some of your questions below in bold type, and I am copying this response to Alan Miller, the chief of our Carson/Walker Watersheds Unit, with the hope that he and his staff can answer the others or amplify on my responses. We would appreciate a copy of your report when it is available.

On mercury in general, the Toxic Substances Monitoring Program has found high mercury levels in fish from several areas in the Lahontan Region with volcanic geology/soils but without significant known mining activity (e.g.,June Lake, Susan River). The California Department of Water Resources is monitoring mercury in water, sediment and tissue from Eagle Lake in Lassen County, and has found fairly high levels. The Eagle Lake watershed is relatively undisturbed, and I'm not aware of any significant mining history. The U.C. Davis Tahoe Research Group has documented increased mercury in sediment cores from Lake Tahoe since the mid 19th Century, probably from atmospheric deposition. Also possibly relevant is a recent news item on a study of mercury volatilization in wildfires:

http://www.enn.com/direct/display-release.asp?id=5159

I have also come across an anecdotal report that early ornithologists in the Mono Basin shot birds with 22 shells filled with mercury so that the resulting "mist" would kill them without damaging their skins. See http://www.monobasinresearch.org/historical/interviews/mcphersonint.htm

and use your browser's "Edit >Find" feature to search for "mercury". I don't know how widespread this practice was, but it might account for some mercury loading to streams and riparian areas away from mines.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
Phone: (530) 542-5462
FAX: (530) 542-5470
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> <Stanley_Wiemeyer@r1.fws.gov> 12/04/01 05:00PM >>>
I have reviewed the fact sheets for this basin because of our recent interest in possible mercury source areas in the basin related to past mining. This came about as the result of finding (by others) elevated concentrations of mercury in blood of common loons that use Walker Lake as a migratory stop over during both spring and fall. We have collected samples of macroinvertebrates and some fish from various sites throughout the Walker River basin, including sites in California, and have had the samples analyzed for total mercury. The field work was conducted primarily in the Fall of 2000. We will provide you with a copy of the report upon its completion. In the interim I have a few questions in relation to the fact sheets and other information you may be aware of for this basin.

1. In reviewing USGS topographic maps of the basin, I noted the presence of tailings along Dog Creek which flows into Virginia Creek, south of Bridgeport, CA. Do you have any information as to their source, including type of mining that may have been involved as well as when the mining may have occurred?

Placer gold was discovered at Dog Creek in 1857, and there was a settlement called Dogtown that lasted only a few years. The tailings are probably from a dredge mining operation in the 1930s. A Google Internet search for the keywords "Dogtown" and "Mono" will take you to several sites with additional historical information.

We found slightly elevated (above background) mercury concentrations in stonefly larvae and juvenile crayfish from Virginia Creek. We also found an even higher mercury concentration in a sample of stonefly larvae from Green Creek, south of Bridgeport. However, I saw little evidence of mining activity in Green Creek's watershed from examination of topographic maps. Are you aware of any mining inputs into this watershed?

I'm not aware of anything specific- there may have been small scale prospecting that didn't result in mines large enough to show on a topo map.

2. Do you have additional information on the Superfund site on Aurora Canyon Creek where you indicated that a mercury ore mill was present. Is active cleanup ongoing at this site or is it just on the CERCLA list and not an active Superfund site? Who in EPA is the project manager for this site if it is active? **As far as I know it is an inactive site; the report I cited was the latest detailed information in our files. The Regional Board's watershed unit may have more information. I can send you a copy of the report if you wish.**

3. I was aware of the mining activity in the Bodie area, the Aurora area to the east of Bodie in Nevada, mining on the east side of the Sweetwater Range, and also the Masonic Gulch area (to the east or NW of Bridgeport). Do you have information on mining in any other areas of the basin, especially where mercury may have been involved, either involving its use in precious metal recovery (as was the case in the Carson River basin in Nevada during the 1860s to 1900) or in mercury mining?

Around 1998 Toiyabe National Forest conducted a survey of inactive mines in the upper Carson and Walker River watersheds in California to identify potential acid mine drainage problems. Maureen Joplin of the USFS was the contact person. I believe that she is now with their Reno headquarters office. There may be additional information in some of the mineral resources publications of the California Division of Mines and Geology; see:

http://www.consrv.ca.gov/dmg/pubs/pub_idx/mno.htm

USGS has also collected water and sediment samples in relation to the concern regarding mercury source areas in the Walker River basin. Many of their sampling sites correspond with those where we collected biota. Their field work was conducted in both 2000 and 2001. EPA REMAP also collected water and sediment throughout the basin in the fall of 2000 for various metal and trace element analyses.

Is Toxic Substance Monitoring Program data available on the web? How recent have samples been collected in the Walker River Basin? I noted the mercury results for fish from the Bridgeport area for samples collected in the 1980s in the fact sheet. Have there been more recent collections? If so, how can I obtain access to the data?

There have been a few more recent TSMP samples in this area.
In addition to the East Walker River, we have had sampling done at Twin Lakes, Virginia Creek, Dog Creek, Robinson Creek, and Bodie Creek. All had "elevated" levels of one or more metals; I don't remember whether mercury was analyzed in all of them. There were also elevated metals in trout from Slinkard Creek in the West Walker River watershed; there is a large inactive mine on the

saddle between the Slinkard Creek and Mill Creek watersheds.

Here is the address for TSMP results through 1996. They are in Lotus or dBase format but can be opened in Excel.

http://www.swrcb.ca.gov/programs/smw/index.html

These are statewide files; they are very large and it's time consuming to find the Lahontan Region data. (Identification numbers for our sites start with "6"). You might want to call the database administrator, Del Rasmussen of the California State Water Resources Control Board, at (916) 341-5545 to see whether he can provide you with a file or printout of data (through 2000) for the Walker River watershed only.

Thanks for your help. I look forward to hearing from you.

Stan Wiemeyer
Resource Contaminants Specialist
U.S. Fish and Wildlife Service
Nevada Fish and Wildlife Office
1340 Financial Blvd., Ste. 234
Reno, NV 89502-7147
Phone: (775) 861-6326
stanley_wiemeyer@fws.gov

CC: Curtis, Chuck; Miller, Alan; Suk, Thomas

From: <Sean_Penders@dot.ca.gov>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/11/01 11:04AM
Subject: TMDL's

Ms. Unsicker,

I received the Notice of Availability of and Request for Comments on Draft Recommendations for Changes in Lahontan Region's Section 303-D list. In regards to the Lake Tahoe HU 634.00, many of the tributary streams are listed for Iron. The Comments line mentions the standard needs revision. I hope this means that Iron will be removed from the list of impairments because most of the iron is generated from background sources and the levels do not cause impairment to any beneficial uses. In fact many of the possible stormwater treatment BMP's use Iron media to remove phosphorous. It would be very helpful to the regulated community if Iron was removed from the list 303-D pollutant list, because it would allow the use of Iron media as one possible stormwater treatment device.

I am also curious on the listing of pathogens in some of the streams in the Lake Tahoe Unit and I am wondering if the sources have been indentified and if so are they naturally occuring pathogens?

In some of the Northern Units (Surprise Valley, Susanville), why are water bodies with naturally occuring pollutants listed at all? and some of these have TMDL end dates, which does not seem logical?

Thanks, Sean Penders
Caltrans Dist 3, NPDES

CC: <Jeff_Pizzi@dot.ca.gov>

From: Judith Unsicker
To: "Sean_Penders@dot.ca.gov".mime.Internet
Date: 12/12/01 2:05PM
Subject: Re: TMDL's

Thank you for your comments. I have responded to specific questions and comments in bold type within the text of your comments below. Copies of your comments and this response will be placed in the administrative record of the Section 303(d) list update process.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> <Sean_Penders@dot.ca.gov> 12/11/01 11:03AM >>>

Ms. Unsicker,

I received the Notice of Availability of and Request for Comments on Draft Recommendations for Changes in Lahontan Region's Section 303-D list. In regards to the Lake Tahoe HU 634.00, many of the tributary streams are listed for Iron. The Comments line mentions the standard needs revision. I hope this means that Iron will be removed from the list of impairments because most of the iron is generated from background sources and the levels do not cause impairment to any beneficial uses. In fact many of the possible stormwater treatment BMP's use Iron media to remove phosphorous. It would be very helpful to the regulated community if Iron was removed from the list 303-D pollutant list, because it would allow the use of Iron media as one possible stormwater treatment device.

A number of water bodies in the Lake Tahoe watershed are proposed to be listed for iron because the current water quality objectives are consistently being violated. The iron is believed to come largely from natural sources, since violations occur even in General Creek, with a relatively undisturbed watershed. Once the iron standards are revised, it should be possible to remove these waters from the Section 303(d) list.

I am also curious on the listing of pathogens in some of the streams in the Lake Tahoe Unit and I am wondering if the sources have been identified and if so are they naturally occurring pathogens?

As indicated in the water body fact sheets for these waters, monitoring by Regional Board and U. S. Forest Service staff shows the highest bacteria numbers at times when livestock grazing occurs. (Most sites involve cattle grazing; Tallac Creek is affected by horses and mules.) Human backcountry users or transients, dogs, pack animals, and wildlife are possible sources of the bacteria observed in much lower numbers when intensive grazing is not a factor.

In some of the Northern Units (Surprise Valley, Susanville), why are water bodies with naturally occurring pollutants listed at all? and some of these have TMDL end dates, which does not seem logical?

State and federal guidance for listing has varied over time since the Regional Boards first became involved in the listing process in the 1980s. At one time, listing was mandated for all water

bodies where violations of standards occurred, even if the sources were entirely natural. During this list update cycle, Regional Board staff's position is that, because the Clean Water Act defines "pollutants" in terms of human sources, previously listed "naturally impaired" waters can be delisted. (See the staff report on the Regional Board's webpage at <http://www.swrcb.ca.gov/rwqcb6> for additional discussion.)

Honey Lake and several associated water bodies in Lassen County are impaired largely by natural sources of salts and trace elements. However, the situation is complicated because these waters are also affected by discharges from geothermal power plants. We are recommending that they continue to be listed with tentative TMDL end dates, pending further study.

Thanks, Sean Penders
Caltrans Dist 3, NPDES

From: "Elizabeth Tenney" <tenney@qnet.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/12/01 6:36PM
Subject: 1) query re: impaired waters / 2) PLEASE FORWARD - mailing list update

Dear Ms. Unsicker:
1) We have received the Draft Recommendations for Changes in Lahontan Region's Section 303(D) List. Could you please tell us what TMDL refers to? Not knowing that makes the list of recommendations difficult to interpret.

2) Would you also please forward this message to your mailing list person? Our Board of Directors voted in November to change our name from P.E.S.T.E.R. (Preserving the Eastern Sierra Tradition of Environmental Responsibility) to ESAN (Eastern Sierra Advocates Network). Please update your records as follows:

ESAN
PO Box 3511
Mammoth Lakes, CA 93546-3511
Ph/FAX: 760-924-8475
Web: www.easternsierraadvocates.org
Email: et@easternsierraadvocates.org
or tenney@qnet.com

The Website is under construction. The new email address will be activated shortly.

Thank you.

Elizabeth Tenney

From: Judith Unsicker
To: "tenney@qnet.com".mime.Internet
Date: 12/14/01 12:21PM
Subject: 1) query re: impaired waters / 2) PLEASE FORWARD - mailing list update

Thank you for your email. Our mailing list will be updated as you requested.

Total Maximum Daily Loads (TMDLs) are a complex subject. Basically, they are strategies required by the Clean Water Act to ensure the attainment of water quality standards in significantly impaired surface waters. The most important components of a TMDL involve: (1) calculating the amount of existing pollutant loading from all point and nonpoint sources; (2) determining the maximum amount of pollutant loading which can be permitted if standards are to be attained; (3) dividing the allowable maximum load among all sources, with a margin of safety to account for uncertainty in the analysis; and (4) providing "reasonable assurance" that existing pollutant loads will be reduced over time to ensure attainment of standards. Federal regulations do not currently require TMDL implementation plans, but California law requires that they be included in Regional Board TMDLs. These plans summarize control actions and schedules, and include monitoring programs.

More detailed background information on TMDLs is available on the California State Water Resources Control Board's webpage at:

http://www.swrcb.ca.gov/tmdl/tmdl.html

In particular, see the "Background" and "Total Maximum Daily Loads Questions and Answers" links.

The links to Lahontan Region TMDL documents on the State Water Board's "TMDL Documents" page are currently not functioning. You can view the November 2000 drafts of two of our "in progress" TMDLs on the Regional Board's webpage at:

http://www.swrcb.ca.gov/rwqcb6/files/BPA2000.pdf

The Heavenly Valley Creek TMDL has been approved by the Lahontan Regional Board and State Water Resources Control Board (with several changes from the November 2000 draft) and is awaiting final approvals from other agencies. Regional Board consideration of the Indian Creek Reservoir TMDL was postponed due to lack of a quorum. This TMDL may come before the Board in 2002.

Please contact me if you have further questions.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
FAX: (530) 542-5470
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> "Elizabeth Tenney" <tenney@qnet.com> 12/12/01 06:33PM >>>
Dear Ms. Unsicker:

1) We have received the Draft Recommendations for Changes in Lahontan Region's Section 303(D) List. Could you please tell us what TMDL refers to? Not knowing that makes the list of recommendations difficult to interpret.

2) Would you also please forward this message to your mailing list person? Our Board of Directors voted in November to change our name from P.E.S.T.E.R. (Preserving the Eastern Sierra Tradition of Environmental Responsibility) to ESAN (Eastern Sierra Advocates Network). Please update your records as follows:

ESAN
PO Box 3511
Mammoth Lakes, CA 93546-3511
Ph/FAX: 760-924-8475
Web: www.easternsierraadvocates.org
Email: et@easternsierraadvocates.org
or tenney@qnet.com

The Website is under construction. The new email address will be activated shortly.

Thank you.

Elizabeth Tenney

CC: Chuck Curtis

From: David Senesac <dsenesac@cisco.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/12/01 2:38PM
Subject: public comments for Clean Water Act

Lahontan Regional Water Quality Control Board
Judith Unsicker,

Hello,

I have a few comments per the public comments for the federal Clean Water Act under Section 303(d) as shown on your web site. After looking at the current list I noticed an area I am concerned about which is not so included. My concern is with some of the headwater areas of Silver Creek which probably have water that has been measured as clean but which has grazing which is degrading the area and which will eventually end up effecting water quality. Currently cattle are allowed to graze the headwaters of Silver Creek. This includes Raymond Meadows Creek, Eagle Creek, Pennsylvania Creek, and Silver Creek itself. Each summer cattle are allowed to range freely in this Mokelumne Wilderness zone which does not have fences and they trample wet riparian zones next to streams and in meadows, particularly Raymond Meadow. And of course they being the animals they are, pollute the streams where ever they stand. Now my reason for bringing up this particularly area versus the many other lower national forest areas where they also graze is that it is an absolutely spectacular scenic treasure though little known. For example the volcanic formations of Eagle Ridge. Additionally there are areas of considerable wildflower displays and the trampling hooves of cattle make an absolute ruined mess of some of them. Some of the streams contain trout.

I would like to see grazing eliminated from both sides of the Sierra Crest in that area and realize it is a Toyabe National Forest Issue and not one involving your agency. However I am bringing this up as impacts to water quality in these streams is in fact impacted by grazing. If cattle people wish to graze their live stock in lower areas that is fine with me but they ought to prevent cattle from entering these higher areas whether that might require fencing or whatever.
-David Senesac davesenesac@msn.com (408) 8666094

CC: <davesenesac@msn.com>

From: Judith Unsicker
To: "dsenesac@cisco.com".mime.Internet
Date: 12/17/01 11:35AM
Subject: Re: public comments for Clean Water Act

Thank you for your comments, recommending Section 303(d) listing for the headwaters of Silver Creek in the Carson River watershed, due to the impacts of cattle grazing on water quality and riparian habitat. I have forwarded your message to Alan Miller, the head of the Lahontan Regional Board's Carson/Walker Watersheds Unit, and to Thomas Suk, the coordinator of the Regional Board's monitoring programs. Your message will also be sent to California State Water Resources Control Board staff for consideration in the statewide Section 303(d) list update.

Whether or not TMDLs are developed, the Lahontan Regional Board has the authority and responsibility to ensure that Best Management Practices to control the impacts of livestock grazing in the Carson River watershed are implemented under the statewide California Nonpoint Source Management Plan. Regional Board staff are also working with U.S. Forest Service staff and other stakeholders in a Carson River watershed planning effort, the "Watershed Management Initiative".

During this Section 303(d) list update cycle, we are recommending listing only on the basis of quantitative data showing violations of water quality standards, such as chemical/physical monitoring, fecal coliform bacteria monitoring, invertebrate biomonitoring, or scientific indices of riparian/wetland impairment (e.g., the "Properly Functioning Condition" method). Listing is recommended for a number of waters affected by livestock grazing (in the Lake Tahoe, Carson River, and Walker River watersheds) on the basis of such data. Unfortunately, we do not currently have equivalent data for the upper Silver Creek watershed. If additional data become available before the next Section 303(d) list update cycle in 2004, Regional Board staff will consider recommending listing at that time. Meanwhile, our watershed staff will continue to investigate and deal with the water quality impacts of livestock grazing under the nonpoint source plan and Carson River Watershed Management Initiative.

Please contact me if you have any questions about the Regional Board's water quality assessment program.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> David Senesac <dsenesac@cisco.com> 12/12/01 02:41PM >>>
Lahontan Regional Water Quality Control Board
Judith Unsicker,

Hello,

I have a few comments per the public comments for the federal Clean Water Act under Section 303(d) as shown on your web site. After looking at the current list I noticed an area I am concerned about which is not so
included. My concern is with some of the headwater areas of Silver Creek
which probably have water that has been measured as clean but which has grazing which is degrading the

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area and which will eventually end up effecting water quality. Currently cattle are allowed to graze the headwaters of Silver Creek. This includes Raymond Meadows Creek, Eagle Creek, Pennsylvania Creek, and Silver Creek itself. Each summer cattle are allowed to range freely in this Mokelumne Wilderness zone which does not have fences and they trample wet riparian zones next to streams and in meadows, particularly Raymond Meadow. And of course they being the animals they are, pollute the streams where ever they stand. Now my reason for bringing up this particularly area versus the many other lower national forest areas where they also graze is that it is an absolutely spectacular scenic treasure though little known. For example the volcanic formations of Eagle Ridge. Additionally there are areas of considerable wildflower displays and the trampling hooves of cattle make an absolute ruined mess of some of them. Some of the streams contain trout.

I would like to see grazing eliminated from both sides of the Sierra Crest in that area and realize it is a Toyabe National Forest Issue and not one involving your agency. However I am bringing this up as impacts to water quality in these streams is in fact impacted by grazing. If cattle people wish to graze their live stock in lower areas that is fine with me but they ought to prevent cattle from entering these higher areas whether that might require fencing or whatever.
-David Senesac davesenesac@msn.com (408) 8666094

CC: Alan Miller; Chuck Curtis; Thomas Suk

From: "Sue Burak" <sburak@qnet.com>
To: <Unsij@rb6s.swrcb.ca.gov>
Date: 12/15/01 12:35PM
Subject: TMDL for Mammoth Creek

Hello Judith;
I am in charge of the citizen's water quality monitoring group in Mammoth Lakes. I am thinking of applying for some grant money to do an in depth study of turbidity in Mammoth Creek. Our WQ monitoring shows turbidity levels spike to 10-24 times background levels whenever there is a summer rainstorm event, or as happened over Thanksgiving, a rain on snow event. I am very interested in learning about what is required to get Mammoth Creek into the TMDL program.
Thank you very much,
Sue burak

Sue Burak
Snow Survey Associates
P.O. Box 8544
Mammoth Lakes, CA 93546
760.934.1707

From: Judith Unsicker
To: "sburak@qnet.com".mime.Internet
Date: 12/19/01 9:38AM
Subject: Re: TMDL for Mammoth Creek

Thank you for your email. You requested information on how Mammoth Creek can be made part of the Total Maximum Daily Loads (TMDL) program.

To be made part of the TMDL program, a water body must first be placed on the Clean Water Act Section 303(d) list of impaired water bodies. Mammoth Creek is already on the Section 303(d) list for metals, with TMDL development tentatively scheduled between 2005 and 2008. If there is evidence to show that the turbidity standard for Mammoth Creek is being violated, the Creek could also be listed for turbidity, with TMDL development scheduled at a later date. (Because of resource constraints and a backlog of waters needing TMDLs, TMDL development for water body-pollutant combinations added to the Lahontan Region's Section 303(d) list in 2002 will probably not begin until after 2011.) Because turbidity units are not concentration units, it would be difficult to calculate loads for turbidity per se. The TMDL would probably need to be developed for suspended sediment concentration or some other sediment- related parameter.

The applicable water quality objective for turbidity in Mammoth Creek is the regionwide narrative objective, as follows:

"Waters shall be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity shall not exceed natural levels by more than 10 percent".

To assess compliance with this objective, it would be necessary to collect enough monitoring data at a reference station to define natural turbidity levels (including seasonal and annual variations) and/or reference aquatic life conditions (e.g., benthic invertebrate, periphyton and fish communities) for Mammoth Creek. The Regional Board is sponsoring a study of eastern Sierra benthic invertebrate communities by Dr. David Herbst of the University of California to define reference conditions and aid the development of "biocriteria" water quality standards that define desirable aquatic life conditions, but it will be several years until we can consider adopting such standards. Very high turbidity could affect other beneficial uses, including the drinking water use and the "aesthetic enjoyment" component of the Non-Contact Water Recreation use.

Your email references large increases in turbidity over background levels during storm events. Such variation can occur naturally. In order to separate the impacts of natural stormwater runoff from those of stormwater from disturbed areas, it would be desirable to collect samples above and below disturbed areas during the same storm event.

As part of the Lahontan Regional Board's Surface Water Ambient Monitoring Program (SWAMP), the U.S. Geological Survey is sampling suspended sediment and turbidity quarterly at two stations above and below the town of Mammoth Lakes (Twin Lakes and Highway 395). You may want to coordinate your proposed in-depth turbidity study with the SWAMP program. The Regional Board's regionwide monitoring/SWAMP coordinator is Tom Suk; his telephone number is (530) 542-5419, and his email address is Sukt@rb6s.swrcb.ca.gov .

Please contact me if you have further questions about the Regional Board's Section 303(d) list update process. I will be on vacation from December 20-January 1, and will be back at work on January 2.

Judith Unsicker
Staff Environmental Scientist
Lahontan RWQCB
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96158
Phone: (530) 542-5462

Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> "Sue Burak" <sburak@qnet.com> 12/15/01 12:34PM >>>
Hello Judith;
I am in charge of the citizen's water quality monitoring group in Mammoth Lakes. I am thinking of applying for some grant money to do an in depth study of turbidity in Mammoth Creek. Our WQ monitoring shows turbidity levels spike to 10-24 times background levels whenever there is a summer rainstorm event, or as happened over Thanksgiving, a rain on snow event. I am very interested in learning about what is required to get Mammoth Creek into the TMDL program.

Thank you very much,
Sue burak

Sue Burak
Snow Survey Associates
P.O. Box 8544
Mammoth Lakes, CA 93546
760.934.1707

CC: Chuck Curtis; Cindi Mitton; Thomas Suk

From: "Surprise Valley Resource Conservation District" <svrcd@hdo.net>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/18/01 10:47AM
Subject: Comments on Recommendations for Update of Section 303(d) list for the Lahontan Region

Dear Ms. Unsiker,

As facilitator for the Surprise Valley Watershed Group, and as Watershed Coordinator for the Surprise Valley Resource Conservation District, I would like to express the support of both groups for the proposed changes for the Upper, Middle and Lower Alkali Lakes and for Mill Creek in Surprise Valley HU 641.00.

Salinity/TDS/Chlorides are factors that are naturally high in these lakes. To the best of our knowledge, the condition of water quality in the lakes remains substantially the same as it has for many hundreds and probably thousands of years. Thus, their de-listing seems appropriate.

As for Mill Creek, the Surprise Valley Watershed Group, in cooperation with the Surprise Valle RCD, is seeking funding to support further study of the Creek and to identify, fund and implement projects that will address any shortcomings in water quality for the creek.

Thank you for your time,

Matt Brown - Watershed Coordinator
Surprise Valley Resource Conservation District
PO Box B
Cedarville, CA 96104

Phone: (530) 279-8324
Fax: (530) 279-8309
email: svrcd@hdo.net

"Serving Surprise Valley since 1956"

California Regional Water Quality Control Board
Lahontan Region

Winston H. Hickox
Secretary for
Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

December 20, 2001

Logan Olds, General Manager
Susanville Consolidated Sanitary District
P.O. Box 152
Susanville, CA 96130

RESPONSE TO COMMENTS ON DRAFT RECOMMENDATIONS FOR LAHONTAN SECTION 303(D) LIST

Thank you for your letter of December 6, 2001, mentioning the availability of bioassay data for Jensen Slough for possible use in a Total Maximum Daily Load (TMDL) for the Susan River. The Susan River is one of many water bodies recommended for high priority ranking. However, the Regional Board's schedule for development of TMDLs depends on the availability of staff and contract resources. Work on the Susan River TMDL is tentatively planned to begin in 2004. Your letter will be placed in our files for future reference, and Regional Board staff will contact your office to obtain the latest bioassay data once TMDL development begins.

Please contact me at (530) 542-5462 or unsij@rb6s.swrcb.ca.gov, if you have any questions on the Lahontan Regional Board's Section 303(d) list recommendations or the list update process.

Sincerely,

Judith Unsicker
Staff Environmental Scientist

JEU/cgT: 303d/scsdresp

SUSANVILLE CONSOLIDATED SANITARY DISTRICT

45 South Roop Street
P.O. Box 152
Susanville, California 96130
(530) 257-5665

6 December 2001

Lahontan Region Water Quality Control Board
Attn: Judith Unsicker
2501 Lake Tahoe Blvd
South Lake Tahoe, CA 96150

Re: Draft Recommendations for Lahontan Section 303 (D) List

Dear Mrs. Unsicker,

Susanville Consolidated Sanitary District is currently undergoing a revisal of its NPDES permit to account for changes which will be made during its WWTP expansion. Currently the outfall exits our facility and flows through an agricultural ditch then through a portion of the Jensen Slough prior to entering the Susan River. The Susan River is listed as a high priority ranking. If it would assist you we have over ten years of bioassay results on the outfall prior to the agricultural ditch. Thank you for your time.

Sincerely,

Logan Olds
General Manager

Enclosure 5

Draft Resolution

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD,
LAHONTAN REGION

RESOLUTION NO. R6S-2002-PROPOSED

APPROVING RECOMMENDATIONS TO THE STATE WATER RESOURCES CONTROL BOARD FOR UPDATE OF THE SECTION 303(D) LIST AND TOTAL MAXIMUM DAILY LOADS PRIORITY LIST FOR THE LAHONTAN REGION

WHEREAS, THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, LAHONTAN REGION, FINDS:

1. Section 303(d) of the federal Clean Water Act requires states to identify surface waters that are not meeting standards and are not expected to meet standards, even with the application of technology based effluent limitations or other pollution controls such as Best Management Practices, and

2. Section 303(d) also requires states to develop Total Maximum Daily Loads (TMDLs) to ensure attainment of standards, and

3. California's list of impaired waters and its priorities for developing TMDLs are generally updated every two years, and

4. The California State Water Resources Control Board (State Board) has requested that Regional Boards develop recommendations for update of the Section 303(d) list and TMDL priorities in 2002, and

5. The State Board will conduct its own public participation process before adopting a statewide Section 303(d) list and TMDL priorities for submission to the U.S. Environmental Protection Agency, and

6. Lahontan Regional Board staff developed draft recommendations and made them available for public review between November 27 and December 28, 2001. The rationale for proposed changes was discussed in a staff report and water body fact sheets, and

7. The Regional Board heard and considered all public comments made during its January 9 and 10, 2002 meeting in South Lake Tahoe.

NOW THEREFORE BE IT RESOLVED:

1. The Regional Board approves staff's recommendations for changes in the Section 303(d) list and TMDL priorities, summarized in Table 1.

2. Copies of this resolution, and of the administrative record for the Section 303(d) list/TMDL priority update process, shall be transmitted to the State Board.

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Lahontan Region, on January 9, 2002.

Table 1. Recommendations for Update of the Section 303(d) List for the Lahontan Region

Waterbody Name	Proposed Action	Pollutant(s)/Stressor(s)	TMDL Priority Ranking[1]	TMDL End Date [2]	Comments
Surprise Valley HU 638.00					
Upper Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Middle Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Lower Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Mill Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2011	Needs study to verify need for TMDL
Susanville HU 634.00					
Eagle Lake	Retain on 303(d) List[4]	Nitrogen	High	2008	
Eagle Lake	Retain on 303(d) List[4]	Phosphorus	High	2008	
Pine Creek	Retain on 303(d) List	Sedimentation/Siltation [actual problem: Fish Habitat Alterations]	High	2011[5]	TMDL probably not needed[5]
Lassen Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Susan River	Retain on 303(d) List	Unknown Toxicity	High	2007	Listed for toxic bioassay results
Top Spring	Remove from 303(d) List	Radiation	NA	NA	Impairment is natural; no "pollutants"
Amedee Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Wendel Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Honey Lake	Retain on 303(d) List	Arsenic	Medium	2005	Natural sources plus geothermal discharges
Honey Lake	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2005	Natural sources plus geothermal discharges
Honey Lake Area Wetlands	Retain on 303(d) List	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Flow Alterations	Low	2007[5]	TMDL probably not needed[5]
Honey Lake Wildfowl Mgmt Ponds	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Trace Elements	Medium	2007	Natural sources plus geothermal discharges
Skedaddle Creek	Retain on 303(d) List	High Coliform Count	Low	2006	Further study may lead to delisting
Little Truckee River HU 636.00					
Stampede Reservoir	Remove from 303(d) List	Pesticides [Lindane][6]	NA	NA	TSMP- insufficient data for listing[8]
Truckee River HU 633.00					
Donner Lake	Remove from 303(d) List	Priority Organics [PCBs, Chlordane][6]	NA	NA	TSMP- insufficient data for listing[8]
Truckee River	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Bear Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Bronco Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Gray Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Squaw Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2003	TMDL development in progress
Cinder Cone Springs	Retain on 303(d) List	Nutrients	Medium	2007	Further study may lead to delisting
Cinder Cone Springs	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2007	Further study may lead to delisting
Lake Tahoe HU 634.00					
Snow Creek	Remove from 303(d) List	Habitat Alterations	NA	NA	Restoration program implemented
Lake Tahoe	Retain on 303(d) List[4]	Phosphorus	High	2007	TMDL development in progress
Lake Tahoe	Retain on 303(d) List[4]	Nitrogen	High	2007	TMDL development in progress
Lake Tahoe	Retain on 303(d) List	Sedimentation/Siltation	High	2007	TMDL development in progress

Upper Truckee River	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Upper Truckee River	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL

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Table 1. Lahontan Region 303(d) List Update, continued

Waterbody Name	Proposed Action	Pollutant(s)/Stressor(s)	TMDL Priority Ranking[1]	TMDL End Date[2]	Comments
Lake Tahoe HU 634.00 continued:					
Upper Truckee River above Christmas Valley	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Big Meadow Creek	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Heavenly Valley Creek above USFS property line	Retain on 303(d) List	Sediment	High	2001	TMDL completed 2001, awaiting final approvals
Heavenly Valley Creek below USFS property line	Add to 303(d) List	Sediment	Medium	After 2015	Restoration progam may eliminate need for TMDL
Heavenly Valley Creek	Add to 303(d) list	Chloride	Low	After 2015	Standard needs revision
Heavenly Valley Creek above USFS property line	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Add to 303(d) List	Chloride	Low	After 2015	Standard needs revision
Trout Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Trout Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek below Hwy 50 in S. Lake Tahoe	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Tallac Creek below Hwy 89	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Ward Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2007	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
General Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
General Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Blackwood Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2007	TMDL development in progress
Blackwood Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
West Fork Carson River HU 633.00					
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Phosphorus	High	After 2015	
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to Paynesville	Add to 303(d) List	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., Woodfords to Paynesville	Add to 303(d) List	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to State Line	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Fork Carson River HU 638.00					
East Fork Carson River	Remove from 303(d) List	Nutrients	NA	NA	Incorrect assumption led to listing
Indian Creek Reservoir	Retain on 303(d) List	Nutrients	High	2002[7]	
Indian Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Indian Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Monitor Creek	Retain on 303(d) List[4]	Iron	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Silver	High	2011	TMDL to be coordinated with CERCLA remediation

Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant(s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
East Fork Carson River HU 632.00 continued					
Monitor Creek	Retain on 303(d) List[4]	Aluminum	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Manganese	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Add to 303(d) List	Sulfate	High	After 2015	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Add to 303(d) List	Total Dissolved Solids	High	After 2015	TMDL to be coordinated with CERCLA remediation
Wolf Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2011	
Aspen Creek	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Bryant Creek	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Leviathan Creek, at and below Leviathan Mine	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
West Walker River HU 635.00					
Topaz Lake	Retain on 303(d) list	Sedimentation/Siltation	High	2007	
West Walker River	Retain on 303(d) List	Sedimentation/Siltation	High	2009	
Fales Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Hot Creek	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
East Walker River HU 630.00					
Bridgeport Reservoir	Retain on 303(d) List[4]	Nitrogen	High	2005	TMDL development in progress
Bridgeport Reservoir	Retain on 303(d) List[4]	Phosphorus	High	2005	TMDL development in progress
Bridgeport Reservoir	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
East Walker River above Bridgeport Reservoir	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Walker River below Bridgeport Reservoir	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
East Walker River below Bridgeport Reservoir	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
East Walker River below Bridgeport Reservoir	Remove from 303(d) List	Metals	NA	NA	TSMP- insufficient data for listing[8]
East Walker River below Bridgeport Reservoir	Retain on 303(d) List	Sedimentation/Siltation	High	2009	
Robinson Creek, Hwy 395 to Bridgeport Res.	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Robinson Creek, Twin Lakes to Bridgeport Res.	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Buckeye Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Buckeye Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Virginia Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Green Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Rough Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Aurora Canyon Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Hot Springs Canyon Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Clark Canyon Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Clearwater Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Bodie Creek	Retain on 303(d) List	Metals	High	2004	Impairment probably related to past mining activity

Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant (s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
Mono HU 603.00					
Lee Vining Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Mill Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Grant Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Mono Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Owens HU 603.00					
Haiwee Reservoir	Retain on 303(d) List	Copper	Low	2003	TMDL development in progress
Mammoth Creek	Retain on 303(d) List	Metals	High	2008	Needs study to verify need for TMDL
Hot Creek	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Little Hot Creek	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Twin Lakes (Mammoth)	Retain on 303(d) List[4]	Nitrogen	Low	2008	Needs study to verify need for TMDL
Twin Lakes (Mammoth)	Retain on 303(d) List[4]	Phosphorus	Low	2008	Needs study to verify need for TMDL
Little Alkali Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Big Springs	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Owens River	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Owens River (Long HA)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens River (Upper)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens River (Lower)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Crowley Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Crowley Lake	Retain on 303(d) List[4]	Nitrogen	High	2005	Nutrient loading currently under study
Crowley Lake	Retain on 303(d) List[4]	Phosphorus	High	2005	Nutrient loading currently under study
Keough Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Tinemaha Reservoir	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Tinemaha Reservoir	Retain on 303(d) List	Metals [Copper]	Low	2004	Copper from algicide application
Pleasant Valley Reservoir	Retain on 303(d) List	Nitrogen	High	2006	
Pleasant Valley Reservoir	Retain on 303(d) List[4]	Phosphorus	High	2006	
Tuttle Creek	Retain on 303(d) List[4]	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Goodale Creek	Retain on 303(d) List	Sedimentation/Siltation	Low	2009	Further study may lead to delisting
Owens Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Cottonwood Creek below LADWP diversion	Retain on 303(d) List	Water/Flow Variability	Low	2011[5]	TMDL probably not needed[5]
Deep Springs HU 605.00					
Deep Springs Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Deep Springs Lake	Remove from 303(d) List	Trace Elements	NA	NA	Impairment is natural; no "pollutants"

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Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant (s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
Amargosa HU 609.00					
Amargosa River	Remove from 303(d) List	Salinity/TDS/chlorides	NA	NA	Impairment is natural; no "pollutants"
Trona HU 621.00					
Searles Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Searles Lake	Add to 303(d) List	Petroleum Hydrocarbons	Low	After 2015	Documented bird kills from industrial pollutants
Mojave HU 628.00					
Mojave River near Barstow	Remove from 303(d) List	Priority Organics	NA	NA	Ground water, not surface water impairment
Mojave River between Upper and Lower Narrows	Add to 303(d) List	Total Dissolved Solids	High	After 2015	Exceeds drinking water standard
Mojave River between Upper and Lower Narrows	Add to 303(d) List	Chloride	High	After 2015	Exceeds water quality objectives
Mojave River between Upper and Lower Narrows	Add to 303(d) List	Sulfate	High	After 2015	Exceeds water quality objectives
Horseshoe Lake	Retain on 303(d) List	Sedimentation/Siltation	Low	2007	Further study may lead to delisting
Green Valley Lake Creek	Retain on 303(d) List	Priority Organics	Low	2006	Further study may lead to delisting

[1]TMDL priority rankings and end dates are shown only for water bodies recommended for inclusion in the 2002 list. The entry "NA" means "not applicable."

[2] TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments. Plan amendments incorporating TMDLs will not take effect unless and until they receive further approvals from the California State Water Resources Control Board, the California Office of Administrative Law, and the U.S. Environmental Protection Agency.

[3] Water bodies are grouped by watersheds in north-to-south order. Watershed (Hydrologic Unit or HU) numbers are Department of Water Resources numbers used in the maps in the Lahontan Basin Plan, and do not run in north-to-south order.

[4] The entry "Retain on 303(d) List" in the "Proposed Action" column means that this water body/pollutant combination is on the 1998 Section 303(d) list and is proposed to remain on the 2002 list. In some cases the nature of the pollutants or the extent of the impaired segment has been clarified. For example, earlier listings for "nutrients" or "organic enrichment/Low D.O." may now be changed to separate listings for individual pollutants (nitrogen and phosphorus), and an earlier single entry for habitat alterations in the Owens River has been changed to three separate entries to reflect different segments of the river. Changes are recommended in priority rankings and TMDL end dates for many of the water body/pollutant combinations from the 1998 list.

[5] Pending revisions to federal regulations for the implementation of Section 303(d) of the Clean Water Act would clarify that TMDLs are not required for waters impaired by flow alterations, water/flow variability and habitat alterations, unless specific "pollutants" are also involved. (Load calculations are not feasible in cases where there are no pollutants.) Under the proposed new regulations, waters impaired by habitat or flow alterations, or by flow variability, would be placed on a separate list of impaired waters to highlight the need for control strategies other than TMDLs.

[6]Clarification of the nature of the pollutants has been added in brackets for some water bodies recommended for removal from the Section 303(d) list. See the fact sheets for these water bodies for further information.

[7]Regional Board staff completed draft Basin Plan amendments incorporating a phosphorus TMDL for Indian Creek Reservoir in November 2000. The Regional Board has been unable to act on these amendments due to lack of a quorum for a vote.

[8]Some waters were listed based on Toxic Substances Monitoring Program (TSMP) fish tissue data. Because sample numbers were small, TSMP data alone are not considered sufficient grounds for listing.

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From: <Stanley_Wiemeyer@r1.fws.gov>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/5/01 1:56PM
Subject: Water body fact sheets - Walker River

I have reviewed the fact sheets for this basin because of our recent interest in possible mercury source areas in the basin related to past mining. This came about as the result of finding (by others) elevated concentrations of mercury in blood of common loons that use Walker Lake as a migratory stop over during both spring and fall. We have collected samples of macroinvertebrates and some fish from various sites throughout the Walker River basin, including sites in California, and have had the samples analyzed for total mercury. The field work was conducted primarily in the Fall of 2000. We will provide you with a copy of the report upon its completion. In the interim I have a few questions in relation to the fact sheets and other information you may be aware of for this basin.

1. In reviewing USGS topographic maps of the basin, I noted the presence of tailings along Dog Creek which flows into Virginia Creek, south of Bridgeport, CA. Do you have any information as to their source, including type of mining that may have been involved as well as when the mining may have occurred? We found slightly elevated (above background) mercury concentrations in stonefly larvae and juvenile crayfish from Virginia Creek. We also found an even higher mercury concentration in a sample of stonefly larvae from Green Creek, south of Bridgeport. However, I saw little evidence of mining activity in Green Creek's watershed from examination of topographic maps. Are you aware of any mining inputs into this watershed?

2. Do you have additional information on the Superfund site on Aurora Canyon Creek where you indicated that a mercury ore mill was present. Is active cleanup ongoing at this site or is it just on the CERCLA list and not an active Superfund site? Who in EPA is the project manager for this site if it is active?

3. I was aware of the mining activity in the Bodie area, the Aurora area to the east of Bodie in Nevada, mining on the east side of the Sweetwater Range, and also the Masonic Gulch area (to the east or NW of Bridgeport). Do you have information on mining in any other areas of the basin, especially where mercury may have been involved, either involving its use in precious metal recovery (as was the case in the Carson River basin in Nevada during the 1860s to 1900) or in mercury mining?

USGS has also collected water and sediment samples in relation to the concern regarding mercury source areas in the Walker River basin. Many of their sampling sites correspond with those where we collected biota. Their field work was conducted in both 2000 and 2001. EPA REMAP also collected water and sediment throughout the basin in the fall of 2000 for various metal and trace element analyses.

Is Toxic Substance Monitoring Program data available on the web? How recent have samples been collected in the Walker River Basin? I noted the mercury results for fish from the Bridgeport area for samples collected in the 1980s in the fact sheet. Have there been more recent collections? If so, how can I obtain access to the data?

Thanks for your help. I look forward to hearing from you.

Stan Wiemeyer
Resource Contaminants Specialist
U.S. Fish and Wildlife Service
Nevada Fish and Wildlife Office
1340 Financial Blvd., Ste. 234
Reno, NV 89502-7147
Phone: (775) 861-6326
stanley_wiemeyer@fws.gov

From: Judith Unsicker
To: "Stanley_Wiemeyer@r1.fws.gov".mime.Internet
Date: 12/6/01 8:59AM
Subject: Re: Water body fact sheets - Walker River

Thanks for your email. I have responded to some of your questions below in bold type, and I am copying this response to Alan Miller, the chief of our Carson/Walker Watersheds Unit, with the hope that he and his staff can answer the others or amplify on my responses. We would appreciate a copy of your report when it is available.

On mercury in general, the Toxic Substances Monitoring Program has found high mercury levels in fish from several areas in the Lahontan Region with volcanic geology/soils but without significant known mining activity (e.g.,June Lake, Susan River). The California Department of Water Resources is monitoring mercury in water, sediment and tissue from Eagle Lake in Lassen County, and has found fairly high levels. The Eagle Lake watershed is relatively undisturbed, and I'm not aware of any significant mining history. The U.C. Davis Tahoe Research Group has documented increased mercury in sediment cores from Lake Tahoe since the mid 19th Century, probably from atmospheric deposition. Also possibly relevant is a recent news item on a study of mercury volatilization in wildfires:

http://www.enn.com/direct/display-release.asp?id=5159

I have also come across an anecdotal report that early ornithologists in the Mono Basin shot birds with 22 shells filled with mercury so that the resulting "mist" would kill them without damaging their skins. See http://www.monobasinresearch.org/historical/interviews/mcphersonint.htm

and use your browser's "Edit >Find" feature to search for "mercury". I don't know how widespread this practice was, but it might account for some mercury loading to streams and riparian areas away from mines.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
Phone: (530) 542-5462
FAX: (530) 542-5470
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> <Stanley_Wiemeyer@r1.fws.gov> 12/04/01 05:00PM >>>
I have reviewed the fact sheets for this basin because of our recent interest in possible mercury source areas in the basin related to past mining. This came about as the result of finding (by others) elevated concentrations of mercury in blood of common loons that use Walker Lake as a migratory stop over during both spring and fall. We have collected samples of macroinvertebrates and some fish from various sites throughout the Walker River basin, including sites in California, and have had the samples analyzed for total mercury. The field work was conducted primarily in the Fall of 2000. We will provide you with a copy of the report upon its completion. In the interim I have a few questions in relation to the fact sheets and other information you may be aware of for this basin.

1. In reviewing USGS topographic maps of the basin, I noted the presence of tailings along Dog Creek which flows into Virginia Creek, south of Bridgeport, CA. Do you have any information as to their source, including type of mining that may have been involved as well as when the mining may have occurred?

Placer gold was discovered at Dog Creek in 1857, and there was a settlement called Dogtown that lasted only a few years. The tailings are probably from a dredge mining operation in the 1930s. A Google Internet search for the keywords "Dogtown" and "Mono" will take you to several sites with additional historical information.

We found slightly elevated (above background) mercury concentrations in stonefly larvae and juvenile crayfish from Virginia Creek. We also found an even higher mercury concentration in a sample of stonefly larvae from Green Creek, south of Bridgeport. However, I saw little evidence of mining activity in Green Creek's watershed from examination of topographic maps. Are you aware of any mining inputs into this watershed?

I'm not aware of anything specific- there may have been small scale prospecting that didn't result in mines large enough to show on a topo map.

2. Do you have additional information on the Superfund site on Aurora Canyon Creek where you indicated that a mercury ore mill was present. Is active cleanup ongoing at this site or is it just on the CERCLA list and not an active Superfund site? Who in EPA is the project manager for this site if it is active? **As far as I know it is an inactive site; the report I cited was the latest detailed information in our files. The Regional Board's watershed unit may have more information. I can send you a copy of the report if you wish.**

3. I was aware of the mining activity in the Bodie area, the Aurora area to the east of Bodie in Nevada, mining on the east side of the Sweetwater Range, and also the Masonic Gulch area (to the east or NW of Bridgeport). Do you have information on mining in any other areas of the basin, especially where mercury may have been involved, either involving its use in precious metal recovery (as was the case in the Carson River basin in Nevada during the 1860s to 1900) or in mercury mining?

Around 1998 Toiyabe National Forest conducted a survey of inactive mines in the upper Carson and Walker River watersheds in California to identify potential acid mine drainage problems. Maureen Joplin of the USFS was the contact person. I believe that she is now with their Reno headquarters office. There may be additional information in some of the mineral resources publications of the California Division of Mines and Geology; see:

http://www.consrv.ca.gov/dmg/pubs/pub_idx/mno.htm

USGS has also collected water and sediment samples in relation to the concern regarding mercury source areas in the Walker River basin. Many of their sampling sites correspond with those where we collected biota. Their field work was conducted in both 2000 and 2001. EPA REMAP also collected water and sediment throughout the basin in the fall of 2000 for various metal and trace element analyses.

Is Toxic Substance Monitoring Program data available on the web? How recent have samples been collected in the Walker River Basin? I noted the mercury results for fish from the Bridgeport area for samples collected in the 1980s in the fact sheet. Have there been more recent collections? If so, how can I obtain access to the data?

There have been a few more recent TSMP samples in this area. In addition to the East Walker River, we have had sampling done at Twin Lakes, Virginia Creek, Dog Creek, Robinson Creek, and Bodie Creek. All had "elevated" levels of one or more metals; I don't remember whether mercury was analyzed in all of them. There were also elevated metals in trout from Slinkard Creek in the West Walker River watershed; there is a large inactive mine on the

saddle between the Slinkard Creek and Mill Creek watersheds.

Here is the address for TSMP results through 1996. They are in Lotus or dBase format but can be opened in Excel.

http://www.swrcb.ca.gov/programs/smw/index.html

These are statewide files; they are very large and it's time consuming to find the Lahontan Region data. (Identification numbers for our sites start with "6"). You might want to call the database administrator, Del Rasmussen of the California State Water Resources Control Board, at (916) 341-5545 to see whether he can provide you with a file or printout of data (through 2000) for the Walker River watershed only.

Thanks for your help. I look forward to hearing from you.

Stan Wiemeyer
Resource Contaminants Specialist
U.S. Fish and Wildlife Service
Nevada Fish and Wildlife Office
1340 Financial Blvd., Ste. 234
Reno, NV 89502-7147
Phone: (775) 861-6326
stanley_wiemeyer@fws.gov

CC: Curtis, Chuck; Miller, Alan; Suk, Thomas

From: <Sean_Penders@dot.ca.gov>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/11/01 11:04AM
Subject: TMDL's

Ms. Unsicker,

I received the Notice of Availability of and Request for Comments on Draft Recommendations for Changes in Lahontan Region's Section 303-D list. In regards to the Lake Tahoe HU 634.00, many of the tributary streams are listed for Iron. The Comments line mentions the standard needs revision. I hope this means that Iron will be removed from the list of impairments because most of the iron is generated from background sources and the levels do not cause impairment to any beneficial uses. In fact many of the possible stormwater treatment BMP's use Iron media to remove phosphorous. It would be very helpful to the regulated community if Iron was removed from the list 303-D pollutant list, because it would allow the use of Iron media as one possible stormwater treatment device.

I am also curious on the listing of pathogens in some of the streams in the Lake Tahoe Unit and I am wondering if the sources have been indentified and if so are they naturally occuring pathogens?

In some of the Northern Units (Surprise Valley, Susanville), why are water bodies with naturally occuring pollutants listed at all? and some of these have TMDL end dates, which does not seem logical?

Thanks, Sean Penders
Caltrans Dist 3, NPDES

CC: <Jeff_Pizzi@dot.ca.gov>

From: Judith Unsicker
To: "Sean_Penders@dot.ca.gov".mime.Internet
Date: 12/12/01 2:05PM
Subject: Re: TMDL's

Thank you for your comments. I have responded to specific questions and comments in bold type within the text of your comments below. Copies of your comments and this response will be placed in the administrative record of the Section 303(d) list update process.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> <Sean_Penders@dot.ca.gov> 12/11/01 11:03AM >>>

Ms. Unsicker,

I received the Notice of Availability of and Request for Comments on Draft Recommendations for Changes in Lahontan Region's Section 303-D list. In regards to the Lake Tahoe HU 634.00, many of the tributary streams are listed for Iron. The Comments line mentions the standard needs revision. I hope this means that Iron will be removed from the list of impairments because most of the iron is generated from background sources and the levels do not cause impairment to any beneficial uses. In fact many of the possible stormwater treatment BMP's use Iron media to remove phosphorous. It would be very helpful to the regulated community if Iron was removed from the list 303-D pollutant list, because it would allow the use of Iron media as one possible stormwater treatment device.

A number of water bodies in the Lake Tahoe watershed are proposed to be listed for iron because the current water quality objectives are consistently being violated. The iron is believed to come largely from natural sources, since violations occur even in General Creek, with a relatively undisturbed watershed. Once the iron standards are revised, it should be possible to remove these waters from the Section 303(d) list.

I am also curious on the listing of pathogens in some of the streams in the Lake Tahoe Unit and I am wondering if the sources have been identified and if so are they naturally occurring pathogens?

As indicated in the water body fact sheets for these waters, monitoring by Regional Board and U. S. Forest Service staff shows the highest bacteria numbers at times when livestock grazing occurs. (Most sites involve cattle grazing; Tallac Creek is affected by horses and mules.) Human backcountry users or transients, dogs, pack animals, and wildlife are possible sources of the bacteria observed in much lower numbers when intensive grazing is not a factor.

In some of the Northern Units (Surprise Valley, Susanville), why are water bodies with naturally occurring pollutants listed at all? and some of these have TMDL end dates, which does not seem logical?

State and federal guidance for listing has varied over time since the Regional Boards first became involved in the listing process in the 1980s. At one time, listing was mandated for all water

bodies where violations of standards occurred, even if the sources were entirely natural. During this list update cycle, Regional Board staff's position is that, because the Clean Water Act defines "pollutants" in terms of human sources, previously listed "naturally impaired" waters can be delisted. (See the staff report on the Regional Board's webpage at <http://www.swrcb.ca.gov/rwqcb6> for additional discussion.)

Honey Lake and several associated water bodies in Lassen County are impaired largely by natural sources of salts and trace elements. However, the situation is complicated because these waters are also affected by discharges from geothermal power plants. We are recommending that they continue to be listed with tentative TMDL end dates, pending further study.

Thanks, Sean Penders
Caltrans Dist 3, NPDES

From: "Elizabeth Tenney" <tenney@qnet.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/12/01 6:36PM
Subject: 1) query re: impaired waters / 2) PLEASE FORWARD - mailing list update

Dear Ms. Unsicker:
1) We have received the Draft Recommendations for Changes in Lahontan Region's Section 303(D) List. Could you please tell us what TMDL refers to? Not knowing that makes the list of recommendations difficult to interpret.

2) Would you also please forward this message to your mailing list person? Our Board of Directors voted in November to change our name from P.E.S.T.E.R. (Preserving the Eastern Sierra Tradition of Environmental Responsibility) to ESAN (Eastern Sierra Advocates Network). Please update your records as follows:

ESAN
PO Box 3511
Mammoth Lakes, CA 93546-3511
Ph/FAX: 760-924-8475
Web: www.easternsierraadvocates.org
Email: et@easternsierraadvocates.org
or tenney@qnet.com

The Website is under construction. The new email address will be activated shortly.

Thank you.

Elizabeth Tenney

From: Judith Unsicker
To: "tenney@qnet.com".mime.Internet
Date: 12/14/01 12:21PM
Subject: 1) query re: impaired waters / 2) PLEASE FORWARD - mailing list update

Thank you for your email. Our mailing list will be updated as you requested.

Total Maximum Daily Loads (TMDLs) are a complex subject. Basically, they are strategies required by the Clean Water Act to ensure the attainment of water quality standards in significantly impaired surface waters. The most important components of a TMDL involve: (1) calculating the amount of existing pollutant loading from all point and nonpoint sources; (2) determining the maximum amount of pollutant loading which can be permitted if standards are to be attained; (3) dividing the allowable maximum load among all sources, with a margin of safety to account for uncertainty in the analysis; and (4) providing "reasonable assurance" that existing pollutant loads will be reduced over time to ensure attainment of standards. Federal regulations do not currently require TMDL implementation plans, but California law requires that they be included in Regional Board TMDLs. These plans summarize control actions and schedules, and include monitoring programs.

More detailed background information on TMDLs is available on the California State Water Resources Control Board's webpage at:

http://www.swrcb.ca.gov/tmdl/tmdl.html

In particular, see the "Background" and "Total Maximum Daily Loads Questions and Answers" links.

The links to Lahontan Region TMDL documents on the State Water Board's "TMDL Documents" page are currently not functioning. You can view the November 2000 drafts of two of our "in progress" TMDLs on the Regional Board's webpage at:

http://www.swrcb.ca.gov/rwqcb6/files/BPA2000.pdf

The Heavenly Valley Creek TMDL has been approved by the Lahontan Regional Board and State Water Resources Control Board (with several changes from the November 2000 draft) and is awaiting final approvals from other agencies. Regional Board consideration of the Indian Creek Reservoir TMDL was postponed due to lack of a quorum. This TMDL may come before the Board in 2002.

Please contact me if you have further questions.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
FAX: (530) 542-5470
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> "Elizabeth Tenney" <tenney@qnet.com> 12/12/01 06:33PM >>>
Dear Ms. Unsicker:

1) We have received the Draft Recommendations for Changes in Lahontan Region's Section 303(D) List. Could you please tell us what TMDL refers to? Not knowing that makes the list of recommendations difficult to interpret.

2) Would you also please forward this message to your mailing list person? Our Board of Directors voted in November to change our name from P.E.S.T.E.R. (Preserving the Eastern Sierra Tradition of Environmental Responsibility) to ESAN (Eastern Sierra Advocates Network). Please update your records as follows:

ESAN
PO Box 3511
Mammoth Lakes, CA 93546-3511
Ph/FAX: 760-924-8475
Web: www.easternsierraadvocates.org
Email: et@easternsierraadvocates.org
or tenney@qnet.com

The Website is under construction. The new email address will be activated shortly.

Thank you.

Elizabeth Tenney

CC: Chuck Curtis

From: David Senesac <dsenesac@cisco.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/12/01 2:38PM
Subject: public comments for Clean Water Act

Lahontan Regional Water Quality Control Board
Judith Unsicker,

Hello,

I have a few comments per the public comments for the federal Clean Water Act under Section 303(d) as shown on your web site. After looking at the current list I noticed an area I am concerned about which is not so included. My concern is with some of the headwater areas of Silver Creek which probably have water that has been measured as clean but which has grazing which is degrading the area and which will eventually end up effecting water quality. Currently cattle are allowed to graze the headwaters of Silver Creek. This includes Raymond Meadows Creek, Eagle Creek, Pennsylvania Creek, and Silver Creek itself. Each summer cattle are allowed to range freely in this Mokelumne Wilderness zone which does not have fences and they trample wet riparian zones next to streams and in meadows, particularly Raymond Meadow. And of course they being the animals they are, pollute the streams where ever they stand. Now my reason for bringing up this particularly area versus the many other lower national forest areas where they also graze is that it is an absolutely spectacular scenic treasure though little known. For example the volcanic formations of Eagle Ridge. Additionally there are areas of considerable wildflower displays and the trampling hooves of cattle make an absolute ruined mess of some of them. Some of the streams contain trout.

I would like to see grazing eliminated from both sides of the Sierra Crest in that area and realize it is a Toyabe National Forest Issue and not one involving your agency. However I am bringing this up as impacts to water quality in these streams is in fact impacted by grazing. If cattle people wish to graze their live stock in lower areas that is fine with me but they ought to prevent cattle from entering these higher areas whether that might require fencing or whatever.
-David Senesac davesenesac@msn.com (408) 8666094

CC: <davesenesac@msn.com>

From: Judith Unsicker
To: "dsenesac@cisco.com".mime.Internet
Date: 12/17/01 11:35AM
Subject: Re: public comments for Clean Water Act

Thank you for your comments, recommending Section 303(d) listing for the headwaters of Silver Creek in the Carson River watershed, due to the impacts of cattle grazing on water quality and riparian habitat. I have forwarded your message to Alan Miller, the head of the Lahontan Regional Board's Carson/Walker Watersheds Unit, and to Thomas Suk, the coordinator of the Regional Board's monitoring programs. Your message will also be sent to California State Water Resources Control Board staff for consideration in the statewide Section 303(d) list update.

Whether or not TMDLs are developed, the Lahontan Regional Board has the authority and responsibility to ensure that Best Management Practices to control the impacts of livestock grazing in the Carson River watershed are implemented under the statewide California Nonpoint Source Management Plan. Regional Board staff are also working with U.S. Forest Service staff and other stakeholders in a Carson River watershed planning effort, the "Watershed Management Initiative".

During this Section 303(d) list update cycle, we are recommending listing only on the basis of quantitative data showing violations of water quality standards, such as chemical/physical monitoring, fecal coliform bacteria monitoring, invertebrate biomonitoring, or scientific indices of riparian/wetland impairment (e.g., the "Properly Functioning Condition" method). Listing is recommended for a number of waters affected by livestock grazing (in the Lake Tahoe, Carson River, and Walker River watersheds) on the basis of such data. Unfortunately, we do not currently have equivalent data for the upper Silver Creek watershed. If additional data become available before the next Section 303(d) list update cycle in 2004, Regional Board staff will consider recommending listing at that time. Meanwhile, our watershed staff will continue to investigate and deal with the water quality impacts of livestock grazing under the nonpoint source plan and Carson River Watershed Management Initiative.

Please contact me if you have any questions about the Regional Board's water quality assessment program.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> David Senesac <dsenesac@cisco.com> 12/12/01 02:41PM >>>
Lahontan Regional Water Quality Control Board
Judith Unsicker,

Hello,

I have a few comments per the public comments for the federal Clean Water Act under Section 303(d) as shown on your web site. After looking at the current list I noticed an area I am concerned about which is not so
included. My concern is with some of the headwater areas of Silver Creek
which probably have water that has been measured as clean but which has grazing which is degrading the

area and which will eventually end up effecting water quality. Currently cattle are allowed to graze the headwaters of Silver Creek. This includes Raymond Meadows Creek, Eagle Creek, Pennsylvania Creek, and Silver Creek itself. Each summer cattle are allowed to range freely in this Mokelumne Wilderness zone which does not have fences and they trample wet riparian zones next to streams and in meadows, particularly Raymond Meadow. And of course they being the animals they are, pollute the streams where ever they stand. Now my reason for bringing up this particularly area versus the many other lower national forest areas where they also graze is that it is an absolutely spectacular scenic treasure though little known. For example the volcanic formations of Eagle Ridge. Additionally there are areas of considerable wildflower displays and the trampling hooves of cattle make an absolute ruined mess of some of them. Some of the streams contain trout.

I would like to see grazing eliminated from both sides of the Sierra Crest in that area and realize it is a Toyabe National Forest Issue and not one involving your agency. However I am bringing this up as impacts to water quality in these streams is in fact impacted by grazing. If cattle people wish to graze their live stock in lower areas that is fine with me but they ought to prevent cattle from entering these higher areas whether that might require fencing or whatever.
-David Senesac davesenesac@msn.com (408) 8666094

CC: Alan Miller; Chuck Curtis; Thomas Suk

From: "Sue Burak" <sburak@qnet.com>
To: <Unsij@rb6s.swrcb.ca.gov>
Date: 12/15/01 12:35PM
Subject: TMDL for Mammoth Creek

Hello Judith;
I am in charge of the citizen's water quality monitoring group in Mammoth Lakes. I am thinking of applying for some grant money to do an in depth study of turbidity in Mammoth Creek. Our WQ monitoring shows turbidity levels spike to 10-24 times background levels whenever there is a summer rainstorm event, or as happened over Thanksgiving, a rain on snow event. I am very interested in learning about what is required to get Mammoth Creek into the TMDL program.
Thank you very much,
Sue burak

Sue Burak
Snow Survey Associates
P.O. Box 8544
Mammoth Lakes, CA 93546
760.934.1707

From: Judith Unsicker
To: "sburak@qnet.com".mime.Internet
Date: 12/19/01 9:38AM
Subject: Re: TMDL for Mammoth Creek

Thank you for your email. You requested information on how Mammoth Creek can be made part of the Total Maximum Daily Loads (TMDL) program.

To be made part of the TMDL program, a water body must first be placed on the Clean Water Act Section 303(d) list of impaired water bodies. Mammoth Creek is already on the Section 303(d) list for metals, with TMDL development tentatively scheduled between 2005 and 2008. If there is evidence to show that the turbidity standard for Mammoth Creek is being violated, the Creek could also be listed for turbidity, with TMDL development scheduled at a later date. (Because of resource constraints and a backlog of waters needing TMDLs, TMDL development for water body-pollutant combinations added to the Lahontan Region's Section 303(d) list in 2002 will probably not begin until after 2011.) Because turbidity units are not concentration units, it would be difficult to calculate loads for turbidity per se. The TMDL would probably need to be developed for suspended sediment concentration or some other sediment- related parameter.

The applicable water quality objective for turbidity in Mammoth Creek is the regionwide narrative objective, as follows:

"Waters shall be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity shall not exceed natural levels by more than 10 percent".

To assess compliance with this objective, it would be necessary to collect enough monitoring data at a reference station to define natural turbidity levels (including seasonal and annual variations) and/or reference aquatic life conditions (e.g., benthic invertebrate, periphyton and fish communities) for Mammoth Creek. The Regional Board is sponsoring a study of eastern Sierra benthic invertebrate communities by Dr. David Herbst of the University of California to define reference conditions and aid the development of "biocriteria" water quality standards that define desirable aquatic life conditions, but it will be several years until we can consider adopting such standards. Very high turbidity could affect other beneficial uses, including the drinking water use and the "aesthetic enjoyment" component of the Non-Contact Water Recreation use.

Your email references large increases in turbidity over background levels during storm events. Such variation can occur naturally. In order to separate the impacts of natural stormwater runoff from those of stormwater from disturbed areas, it would be desirable to collect samples above and below disturbed areas during the same storm event.

As part of the Lahontan Regional Board's Surface Water Ambient Monitoring Program (SWAMP), the U.S. Geological Survey is sampling suspended sediment and turbidity quarterly at two stations above and below the town of Mammoth Lakes (Twin Lakes and Highway 395). You may want to coordinate your proposed in-depth turbidity study with the SWAMP program. The Regional Board's regionwide monitoring/SWAMP coordinator is Tom Suk; his telephone number is (530) 542-5419, and his email address is Sukt@rb6s.swrcb.ca.gov .

Please contact me if you have further questions about the Regional Board's Section 303(d) list update process. I will be on vacation from December 20-January 1, and will be back at work on January 2.

Judith Unsicker
Staff Environmental Scientist
Lahontan RWQCB
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96158
Phone: (530) 542-5462

Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> "Sue Burak" <sburak@qnet.com> 12/15/01 12:34PM >>>
Hello Judith;
I am in charge of the citizen's water quality monitoring group in Mammoth Lakes. I am thinking of applying for some grant money to do an in depth study of turbidity in Mammoth Creek. Our WQ monitoring shows turbidity levels spike to 10-24 times background levels whenever there is a summer rainstorm event, or as happened over Thanksgiving, a rain on snow event. I am very interested in learning about what is required to get Mammoth Creek into the TMDL program.

Thank you very much,
Sue burak

Sue Burak
Snow Survey Associates
P.O. Box 8544
Mammoth Lakes, CA 93546
760.934.1707

CC: Chuck Curtis; Cindi Mitton; Thomas Suk

From: "Surprise Valley Resource Conservation District" <svrcd@hdo.net>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/18/01 10:47AM
Subject: Comments on Recommendations for Update of Section 303(d) list for the Lahontan Region

Dear Ms. Unsiker,

As facilitator for the Surprise Valley Watershed Group, and as Watershed Coordinator for the Surprise Valley Resource Conservation District, I would like to express the support of both groups for the proposed changes for the Upper, Middle and Lower Alkali Lakes and for Mill Creek in Surprise Valley HU 641.00.

Salinity/TDS/Chlorides are factors that are naturally high in these lakes. To the best of our knowledge, the condition of water quality in the lakes remains substantially the same as it has for many hundreds and probably thousands of years. Thus, their de-listing seems appropriate.

As for Mill Creek, the Surprise Valley Watershed Group, in cooperation with the Surprise Valle RCD, is seeking funding to support further study of the Creek and to identify, fund and implement projects that will address any shortcomings in water quality for the creek.

Thank you for your time,

Matt Brown - Watershed Coordinator
Surprise Valley Resource Conservation District
PO Box B
Cedarville, CA 96104

Phone: (530) 279-8324
Fax: (530) 279-8309
email: svrcd@hdo.net

"Serving Surprise Valley since 1956"

California Regional Water Quality Control Board
Lahontan Region

Vinston H. Hickox
Secretary for
[illegible]mental
[illegible]ion

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

December 20, 2001

Logan Olds, General Manager
Susanville Consolidated Sanitary District
P.O. Box 152
Susanville, CA 96130

RESPONSE TO COMMENTS ON DRAFT RECOMMENDATIONS FOR LAHONTAN SECTION 303(D) LIST

Thank you for your letter of December 6, 2001, mentioning the availability of bioassay data for Jensen Slough for possible use in a Total Maximum Daily Load (TMDL) for the Susan River. The Susan River is one of many water bodies recommended for high priority ranking. However, the Regional Board's schedule for development of TMDLs depends on the availability of staff and contract resources. Work on the Susan River TMDL is tentatively planned to begin in 2004. Your letter will be placed in our files for future reference, and Regional Board staff will contact your office to obtain the latest bioassay data once TMDL development begins.

Please contact me at (530) 542-5462 or unsij@rb6s.swrcb.ca.gov, if you have any questions on the Lahontan Regional Board's Section 303(d) list recommendations or the list update process.

Sincerely,

Judith Unsicker
Staff Environmental Scientist

JEU/cgT: 303d/scsdresp

SUSANVILLE CONSOLIDATED SANITARY DISTRICT

45 South Roop Street
P.O. Box 152
Susanville, California 96130
(530) 257-5665

6 December 2001

Lahontan Region Water Quality Control Board
Attn: Judith Unsicker
2501 Lake Tahoe Blvd
South Lake Tahoe, CA 96150

Re: Draft Recommendations for Lahontan Section 303 (D) List

Dear Mrs. Unsicker,

Susanville Consolidated Sanitary District is currently undergoing a revisal of its NPDES permit to account for changes which will be made during its WWTP expansion. Currently the outfall exits our facility and flows through an agricultural ditch then through a portion of the Jensen Slough prior to entering the Susan River. The Susan River is listed as a high priority ranking. If it would assist you we have over ten years of bioassay results on the outfall prior to the agricultural ditch. Thank you for your time.

Sincerely,

Logan Olds
General Manager

From: deirdreflynn <deirdreflynn@innercite.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 1/9/02 3:38PM
Subject: Polluted River Status

Judith Unsikcer - I am deeply distressed at the article I just read in the December 14th Capitol Press regarding Polluted River Status in the Lake Tahoe Basin. Once again our cattle are blamed solely for the alleged contamination of waters in Big Meadow Creek. It is disturbing that in the article no mention was given to data showing that fecal coliform levels were as high if not higher on the Big Meadow range without cattle, and that no mention is given to the other potential users of the area (recreation, etc.) are we being targeted again and discriminated against again? Why were the permitees not invited to comment on the proposed listing when you yourself say the "It's more likely to impact ranchers..." ? I would appreciate your comments and sincerely hope that the decision made today and tomorrow will not eliminate the grazing of livestock on the Meiss Meadow Allotment (considering that in 2001 there were again zero cattle on the Big Meadow Creek). As a 4th generation producer I dread having to explain to my nephews why we no longer take cattle to the Sierra Nevada Mountains.

Respectfully,
Deirdre E. Flynn
916-425-3815

To: Judith Unsicker

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

JAMES F. STAHL
Chief Engineer and General Manager

December 27, 2001
File No.: 31-370.10

Mr. Harold Singer, Executive Officer
California Regional Water Quality Control Board
Lahontan Region - Victorville Branch Office
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359

Dear Mr. Singer:

Comments on Proposed 2002 Update of Clean Water Act
Section 303(d) List of Impaired Waters of the Lahontan Region

The County Sanitation Districts of Los Angeles County (Districts) are providing you with comments regarding the proposed 2002 Update of the Clean Water Act Section 303(d) List of Impaired Water of the Lahontan Region. The Districts commend the Lahontan Regional Water Quality Control Board (Regional Board) on efforts to provide a documented procedural basis for inclusion and exclusion of impaired water bodies and target constituents from the 303(d) List. The Districts also commend the Regional Board for the use of a "Watch List". This list helps raise awareness of potential impairment problems in water bodies, which may be further investigated, corrected or removed from the Watch List after resolution of questioned status, and without having to prematurely include these water bodies in the 303(d) list due to lack of sufficient data or other uncertainties that limit adequate assessment of impairment.

Table 2 ("Watch List") includes three references to Littlerock Reservoir in the Antelope Hydrologic Unit. Page 3, paragraph one of the 303(d) List Staff Report states, "Section 303(d) applies only to surface waters of the United States...." With these two points in mind, the Districts are unclear as to why a surface water body in an hydrologically isolated region would be included on this list. The Antelope Valley is an enclosed basin with no discharge to navigable waters. The Districts question whether Littlerock Reservoir has been designated as a water of the United States and should be included on the 303(d) "Watch List". Can the listing be solely based on a water of the State determination? The Districts request that the reason for including Littlerock Reservoir be clarified.

The Districts would also like to encourage the Regional Board to use the procedures described in the 303(d) List Update Document. Despite staff resource limitations and time constraints, the Districts believe that the best course of action in response to questions concerning the appropriateness of water quality

standards is for the Regional Board to pursue solutions using documented regulatory and legislative review and assessment procedures that take into account site-specific conditions. Specifically, the Districts have previously commented concerning the appropriate application of Beneficial Uses and water quality objectives to water bodies of the State. For example, we continue to be concerned about the use of blanket beneficial use designations for minor surface waters, and ask the Regional Board to pursue refinements of beneficial uses and water quality objectives based on the presence of effluent-dominated waters (EDW), site specific objectives or other site-specific conditions. These refinements have a direct connection to the 303(d) listing process in the region, and will prevent listings and TMDLs based on inappropriate listings. Hence, this effort should be a priority for future Basin Plan amendments.

Thank you for the opportunity to comment on the proposed Update to the 303(d) List for the Lahontan Region. If you have any questions concerning this letter, please contact Jose Saez at (562) 699-7411, extension 2803.

Very truly yours,

James F. Stahl

Victoria O. Conway
Head, Monitoring Section
Technical Services Department

VOC:JRC:drm

cc: Ted Saari, RWQCB - Lahontan Region
Tim Post, RWQCB - Lahontan Region
Hisam Baqai, RWQCB - Lahontan Region

L:\Caudle\Miscellaneous\Lahontan 303d List Comment Letter.wpd:01.12.27

AGENDA ITEM 5 ENCLOSED

From: Judith Unsicker
To: "sburak@qnet.com".mime.Internet
Date: 12/19/01 9:38AM
Subject: Re: TMDL for Mammoth Creek

Thank you for your email. You requested information on how Mammoth Creek can be made part of the Total Maximum Daily Loads (TMDL) program.

To be made part of the TMDL program, a water body must first be placed on the Clean Water Act Section 303(d) list of impaired water bodies. Mammoth Creek is already on the Section 303(d) list for metals, with TMDL development tentatively scheduled between 2005 and 2008. If there is evidence to show that the turbidity standard for Mammoth Creek is being violated, the Creek could also be listed for turbidity, with TMDL development scheduled at a later date. (Because of resource constraints and a backlog of waters needing TMDLs, TMDL development for water body-pollutant combinations added to the Lahontan Region's Section 303(d) list in 2002 will probably not begin until after 2011.) Because turbidity units are not concentration units, it would be difficult to calculate loads for turbidity per se. The TMDL would probably need to be developed for suspended sediment concentration or some other sediment- related parameter.

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As part of the Lahontan Regional Board's Surface Water Ambient Monitoring Program (SWAMP), the U.S. Geological Survey is sampling suspended sediment and turbidity quarterly at two stations above and below the town of Mammoth Lakes (Twin Lakes and Highway 395). You may want to coordinate your proposed in-depth turbidity study with the SWAMP program. The Regional Board's regionwide monitoring/SWAMP coordinator is Tom Suk; his telephone number is (530) 542-5419, and his email address is Sukt@rb6s.swrcb.ca.gov .

Please contact me if you have further questions about the Regional Board's Section 303(d) list update process. I will be on vacation from December 20-January 1, and will be back at work on January 2.

Judith Unsicker
Staff Environmental Scientist
Lahontan RWQCB
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96158
Phone: (530) 542-5462

Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> "Sue Burak" <sburak@qnet.com> 12/15/01 12:34PM >>>
Hello Judith;
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Thank you very much,
Sue burak

Sue Burak
Snow Survey Associates
P.O. Box 8544
Mammoth Lakes, CA 93546
760.934.1707

CC: Chuck Curtis; Cindi Mitton; Thomas Suk

From: Kimberly Cox - Water Resource Specialist <KCox@ci.hesperia.ca.us>
To: "'hbaqai@rb6v.swrcb.ca.gov'" <hbaqai@rb6v.swrcb.ca.gov>
Date: 12/21/01 1:47PM
Subject: 303(d) list comment

Hisam, please find the comment from the City of Hesperia attached. A hard copy will follow via U.S. Mail. Please include our response in the agenda packet.
Thank you. Have a wonderful holiday.

<<SWRCB 303D response 12-20-01.doc>>
Kimberly Cox
760-947-1488
Water Resource Specialist
City of Hesperia
Every Day is a new opportunity!

CC: Mike Podegracz - City Engineer <mpodegracz@ci.hesperia.ca.us>

CITY OF HESPERIA

Incorporated 1988

December 21, 2001

Hisam Baqai, Division Manager
California Regional Water Quality Control Board, Lahontan Region
15428 Civic Drive, Ste 100
Victorville, CA 92392

RE: SWRCB consideration of 303(d) listing for the Mojave River between Upper and Lower Narrows

Dear Mr. Baqai:

It has come to our attention that a portion of the Mojave River between the Lower Narrows and the Upper Narrows is being recommended for inclusion on the 303(d) list of impaired water bodies with projected implementation of mitigation measures by 2015. We would like to enter the following comments in response to this proposed classification.

- We do not feel that we have had adequate time to fully determine the impacts such a classification would have on the City of Hesperia and the Hesperia Water District.

- The development of an implementation plan to mitigate the water quality issues identified between the Upper and Lower Narrows could serve to stymie groundwater recharge efforts in the river channel using State Water Project water that is higher in Total Dissolved Solids than native water in some parts of the river basin. The quality of state water project water is within drinking water standards and will support beneficial use within the watershed.

- Imported State Water Project water for groundwater recharge is the only available resolution to reverse the trend of overdraft in the High Desert. Additionally, imported sources of water must be explored to service the future needs of municipal growth. To limit SWP recharge efforts in the Upper Mojave River could potentially serve to stifle growth in the Victor Valley. In addition, consideration needs to be given to the terms of the stipulated judgment overseen by the Mojave Water Agency which relies heavily on the ability to import SWP water for recharge purposes to cure the existing overdraft

- The development of TMDL's for the Mojave River Narrows would have a disparate impact on the City of Hesperia and cause undue economic hardship relevant to mitigation measures.

15776 Main Street
Hesperia, California 92345
(760) 947-1477 Fax (760) 244-2515
www.ci.hesperia.ca.us

595

CITY OF HESPERIA
Incorporated 1988

Based upon the disparate economic impact of mitigation measures and potential restrictions on groundwater recharge efforts we do not feel that the requested designation is appropriate. We respectfully request that the Board not support the inclusion of the Mojave River between the Upper and Lower Narrows on the 303(d) list of polluted water bodies and that it remain on the "watch list" until further analysis can be performed and stakeholder comments assessed.

If you have any questions regarding this request, please contact me at (760) 947-1438.

Sincerely,

Mike Podegracz
Development Services Director/City Engineer

CC: Jack Clark, Member, SWRCB
Bill Betterly, Member, SWRCB

From: Jehiel Cass
To: "norm.tc@gte.net".nonmime.Internet
Date: 12/30/01 4:20PM
Subject: Re: Mojave River 303(d) Possible Listing

Norm - I have been on vacation and will return to the office on January 2, 2002. Very good questions. I will give a brief answer in bold, below. Jay

****

Jehiel (Jay) Cass
CA Regional Water Quality Control Board
15428 Civic Dr. Ste 100
Victorville CA 92392
phone (760) 241-2434
fax (760) 241-7308
email jcass@rb6v.swrcb.ca.gov
****

>>> norm.tc@gte.net 12/26/01 11:06AM >>>
From: Norm Caouette <norm.tc@gte.net>
Subject: 303(d) Listing Questions
Cc: unsij@rb6s.swrcb.ca.gov;, kirbyb@mojavewater.org
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Hello Jay and Hisam:

I attempted to contact Judith Unsicker as recommended on the Board's web page regarding the recommended 303(d) listings, but according to her voice mail she is out of the office until January 2, which is after the December 28 deadline to respond. I have a couple of questions and a request regarding the proposed listing of the Mojave River from the Upper to Lower Narrows.

1. What are the practical implications to the Mojave Water Agency of listing the Upper to Lower Narrows for TDS, Chlorides and Sulfates, particularly since the recommendations identify imported State Water Project water as a source for each of these constituents. Will this prohibit or place limits upon recharge with State Project Water upstream of or within the Narrows?

Listing a water body on the Clean Water Act's Section 303(d) list is required if State Water Quality Standards are being violated. Listing alone will have no immediate impact but will begin a series of actions to determine what the probable causes are and development of a Total Maximum Daily Load or TMDL. One component of the TMDL is an Implementation Plant to assess a load reduction plan between Point sources, Non-Point sources, Natural sources, and a Safety Factor to restore the Water Quality Standards. It may also trigger a review of the standards in question. Staff here have appreciated the stakeholder support during the Mojave Watershed data collection program. So - the long term results range between the two extremes of 1) the water body is delisted and 2) a very stringent implementation plant to restore the water body. PS - the recent Daily Press article illustrates that the reduced flow between the narrows may be reflected in the data we have.

2. The staff report indicates that the "Update of the Section 303(d) list is not a regulatory or policy action, but an administrative procedure to prioritize water bodies for action." The staff report identifies the "TMDL

End Date" as "After 2015" which is footnoted to explain that TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments incorporating TMDLs. Should I interpret this to mean that whatever the practical implications of the listing, they will not be in effect until sometime after 2015, or are there interim implications by virtue of being listed?

We need to verify this with Judith, but the answer is there would be no real implications for some time. I believe the listing is appropriate if 1) the data support it and 2) the listing criteria are met. This will drive the debate on issues because as you know the Mojave River system is under a great deal of stress. Staff would not be working on this for some time and have a long list of TMDLs to go through first.

3. One of the data references identified as supporting the listing includes "Maxwell, C.R., A Watershed Management Approach to Assessment of Water Quality and Development of Revised Water Quality Standards for the Ground Waters of the Mojave River Floodplain. Paper presented at the National Water Quality Monitoring Council Conferences, April 25-27, 2000, Austin TX." We do not have that document available to us and would appreciate a copy sent to the MWA.

I have not seen this paper either so I would have to defer to Judith if she has a copy.

Please note that this inquiry is not in-lieu of an Agency comment letter to the Regional Board, which will be transmitted by 12/28.

Thank you for your assistance.

Norm Caouette

CC: Baqai, Hisam; Unsicker, Judith

From: "Randy Pahl" <rpahl@govmail.state.nv.us>
To: <waterquality@trpa.org>
Date: 12/31/01 8:43AM
Subject: Attn: Larry Benoit

Larry:

I received your letter of December 27, 2001 to Judith Unsicker regarding 303(d) listing of Tahoe streams. I wanted to clarify that Nevada does have iron standards for Tahoe and its tributaries. We have a standard of 1,000 ug/l for aquatic life protection for all waterbodies in Nevada. This standard is based upon EPA recommendations for aquatic life and doesn't address antidegradation issues. Contact me if you have any questions.

Randy Pahl
Standards Branch Supervisor
Nevada Division of Environmental Protection
333 W. Nye Lane
Carson City, NV 89706
(775) 687-4670, x. 3161
rpahl@govmail.state.nv.us

CC: "Judith Unsicker (E-mail)" <unsij@rb6s.swrcb.ca.gov>

From: Jehiel Cass
To: "dcron@applevalley.org".mime.Internet
Date: 12/19/01 12:37PM
Subject: RE: Proposed Revisions to Imparied Water Bodies List (303d)

Dennis - I'm sorry for the time crunch. I can not grant an extension but by this reply I am forwarding your request to Dr. Judith Unsicker in our South Lake Tahoe office. You may want to call her directly at (530) 542-5462 and ask if such an extension can be granted.

****

Jehiel (Jay) Cass
CA Regional Water Quality Control Board
15428 Civic Dr. Ste 100
Victorville CA 92392
phone (760) 241-2434
fax (760) 241-7308
email jcass@rb6v.swrcb.ca.gov
****

>>> "Dennis Cron, Public Services Manager" <dcron@applevalley.org> 12/19/01 12:22PM >>>
Jay, given that it is the holiday season and many of our staff are out on vacation, and the city of victorville is closed completely, the time that you have allowed for study and comment on the possible impacts that this proposal might have on our operations is inappropriately short. My request would be that the comment period should be extended to the next regional board meeting.

-----Original Message-----
From: Jehiel Cass [mailto:jcass@rb6v.swrcb.ca.gov]
Sent: Monday, December 17, 2001 2:59 PM
To: Anvrz@aol.com; dcron@applevalley.org; jack@avrwater.com; Kcox@ci.hesperia.ca.us; Mmiller@ci.victorville.ca.us; Normc@mojavewater.org; Avpw@netzero.net; tsutton@sdd.co.san-bernardino.ca.us; Clstamos@usgs.gov; reggiel@vvwater.org; cnalian@vvwra.com
Cc: Judith Unsicker; Hisam Baqai
Subject: Proposed Revisions to Imparied Water Bodies List (303d)

Interested Parties:

Below is the URL address for the Regional Board's listing of proposed changes to the federal Clean Water Act's List of Impaired Water Bodies (known as the 303(d) List). Among other changes, Regional Board staff is proposing to add the Mojave River (between the Upper and Lower Narrows) for total dissolved solids, chloride and sulfate. Written comments are requested by December 28, 2001 and the changes will be considered at the Regional Board's January 9-10 meeting in Truckee. I am sending this message to you as stakeholders so that you have the opportunity to comment if desired. Please cc comments to the Regional Board's Victorville office as well as sending your original comments to the South Lake Tahoe office. Please give me a call if you have questions. Thank You - Jay Cass

http://www.swrcb.ca.gov/rwqcb6/303d/303dindex.htm

****

600

Jehiel (Jay) Cass
CA Regional Water Quality Control Board
15428 Civic Dr. Ste 100
Victorville CA 92392
phone (760) 241-2434
fax (760) 241-7308
email jcass@rb6v.swrcb.ca.gov
****

CC: Baqai, Hisam; Unsicker, Judith

601

From: Judith Unsicker
To: dcron@applevalley.org
Date: 12/19/01 12:57PM
Subject: Your Request for Time Extension on Section 303(d) Comments

Jay Cass of the Regional Board's Victorville office has forwarded your request to me. We cannot postpone consideration of Regional Board action on the recommendations for update of the Section 303(d) list to our February meeting because of the schedule set by California State Water Resources Control Board staff. The Regional Board's action is only advisory, and State Water Board action on a statewide Section 303(d) list is currently planned for early 2002. There will be a separate public participation process for the State Water Board's action, and you will have the opportunity to submit written comments then. The contact person for the list update process at the State Board is Diane Beaulaurier, at (916) 341-5549.

I will be attending a meeting this afternoon and will be on vacation from December 20 until January 1. Please contact me on or after January 2 if you have further questions about our list update recommendations or the listing process.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

CC: Chuck Curtis; Diane Beaulaurier; Jehiel Cass

From: norm.tc@gte.net
To: <jcass@rb6v.swrcb.ca.gov>
Date: 12/26/01 11:07AM

From: Norm Caouette <norm.tc@gte.net>
Subject: 303(d) Listing Questions
Cc: unsij@rb6s.swrcb.ca.gov;, kirbyb@mojavewater.org
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Hello Jay and Hisam:

I attempted to contact Judith Unsicker as recommended on the Board's web page regarding the recommended 303(d) listings, but according to her voice mail she is out of the office until January 2, which is after the December 28 deadline to respond. I have a couple of questions and a request regarding the proposed listing of the Mojave River from the Upper to Lower Narrows.

1. What are the practical implications to the Mojave Water Agency of listing the Upper to Lower Narrows for TDS, Chlorides and Sulfates, particularly since the recommendations identify imported State Water Project water as a source for each of these constituents. Will this prohibit or place limits upon recharge with State Project Water upstream of or within the Narrows?

2. The staff report indicates that the "Update of the Section 303(d) list is not a regulatory or policy action, but an administrative procedure to prioritize water bodies for action." The staff report identifies the "TMDL End Date" as "After 2015" which is footnoted to explain that TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments incorporating TMDLs. Should I interpret this to mean that whatever the practical implications of the listing, they will not be in effect until sometime after 2015, or are there interim implications by virtue of being listed?

3. One of the data references identified as supporting the listing includes "Maxwell, C.R., A Watershed Management Approach to Assessment of Water Quality and Development of Revised Water Quality Standards for the Ground Waters of the Mojave River Floodplain. Paper presented at the National Water Quality Monitoring Council Conferences, April 25-27, 2000, Austin TX." We do not have that document available to us and would appreciate a copy sent to the MWA.

Please note that this inquiry is not in-lieu of an Agency comment letter to the Regional Board, which will be transmitted by 12/28.

Thank you for your assistance.

Norm Caouette

From: Hisam Baqai
To: Rofer-Wise, Cindy
Date: 12/28/01 8:23AM
Subject: Fwd: 303(d) list comment

Hi Cindy,

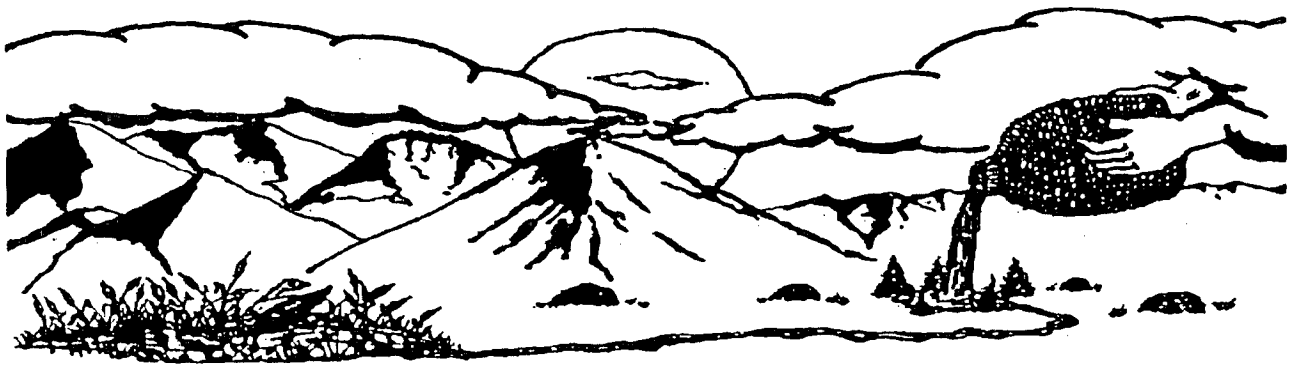
Here is a letter commenting on Mojave River 303-D list proposed designation. I have spoken about it briefly with Judith Unsicker and recommended that this item should not be put on the 303-D list because it is a salinity issue which is not correctable by controlling conventional remedies such as treatment or BMP implementation. I also feel that there may be insufficient data to conclude that water quality objectives for salinity constituents are being violated. I also have reservations about water quality objectives contained in the Basin Plan for the Mojave River. These objectives were probably established on limited and short term data.

Happy Holidays, Thanks,

Hisam

Hisam A. Baqai
Division Manager
Lahontan RWQCB 6B
(760) 241-7325 Fax (760) 241-7308
hbaqai@rb6v.swrcb.ca.gov

CC: Cass, Jehiel; Curtis, Chuck



Owens Valley Indian Water Commission

169 Short Street, Suite A, Bishop, CA 93514 760-873-3300 873-3320 FAX

January 28, 2001

Ms. Judith Unsiker
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

RE: Public comment on recommended changes to California's list of impaired surface water bodies

Dear Ms. Unsiker,

The Owens Valley Indian Water Commission is a consortium of three of the Owens Valley Tribes (Bishop Paiute Tribe, Big Pine Paiute Tribe and the Lone Pine Paiute-Shoshone Reservation) and is involved in water management issues for these Owens Valley Tribes. The Owens Valley Indian Water Commission understands that the California Regional Water Quality Control Board, Lahontan Region, is soliciting comments from the public on recommended changes to California's list of impaired surface water bodies. Late yesterday afternoon we were faxed the Notice of Availability of and Request for Comments on Draft Recommendations for Changes in Lahontan Region's Section 303(D) List dated November 27, 2001 by the Environmental Management Office of Bishop Tribe. Since these comments are due in your office today by 5 PM, our comments will of necessity be brief.

In Table 1, we noticed that you propose removing Keough Hot Springs from the 303(d) list for metals saying that the impairment is natural; no pollutants. Recently it has been brought to our attention that the Keough Hot Springs resort is chlorinating the water in their swimming pool that then flows out of the pool and down into Keough Hot Springs creek. We want to point out that the source of the chlorine in that stream is not natural, and we do not agree that Keough Hot Springs should be removed from the 303(d) list. Please consider this when making changes to the list. Thank you for allowing us this brief comment.

I hope that you will make sure that the Owens Valley Indian Water Commission is added to your mailing list so that we can receive future correspondence and notices from Lahontan Region.

Sincerely,

Teri Cawelti
Executive Director

605

Cc: file

From: "Darla Heil" <djheil@inreach.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/28/01 3:16PM
Subject: RE: Comments on recommended changes to California's list of impaired surfacewater bodies

Ms. Unsiker,

Please find attached an MS Word file containing the Comments of the Owens Valley Indian Water Commission on recommended changes to California's 303(d) list. I will mail the original letter, but since the comments were due today, I e-mailed the commentsto meet the deadline.

Sincerely,
Darla J. Heil
Environmental Specialist
Owens Valley Indian Water Commission
169 Short Street, Suite A
Bishop, CA 93514
760-873-3300

From: "Judy Molnar" <jmolnar@gbis.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/28/01 9:41AM
Subject: Letter to Harold Singer re:Lahontan

Judith,

Attached is the above referenced letter that Mark DeMaio asked that I e-mail to you. A hard copy will be sent in the mail.

Beth Nunes
Assistant to Judy Molnar

December 20, 2001

Harold Singer, Executive Officer
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

RE: Alpine County Comments regarding *Draft Recommendations for Changes in Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies*

Dear Mr. Singer:

At its meeting December 18, 2001, the Alpine County Board of Supervisors voted to submit the following written comments in response to the summary list of recommended changes provided in the November 2001 *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.* The limited review time available to County staff did not allow time to evaluate/review data quality for outliers, confidence intervals, rigorous statistical review or evaluation. With this in mind, Alpine County respectfully reserves its right to submit further oral and/or written comment before the District takes action to transmit the "final" administrative record to the State Board.

Alpine County objects to the listing of two primary water bodies in the County: Indian Creek Reservoir and the West Fork of the Carson River. Comments with respect to Indian Creek Reservoir have repeatedly been submitted to the District, but after cursory review of the Staff Report dated November 2001, are not addressed. Although these technical comments were submitted prior to the March 2001 (formal) solicitation, Alpine County requests that its letter dated May 2000 be added to the administrative record.

With respect to the West Fork of the Carson River, Alpine County would like to call attention to a number of quotes in the report and review comments addressing concerns, as follows:

Page 4: "Staff resources and time available for the update were limited. Monitoring data for surface waters within the Lahontan Region are limited due to past and present resource constraints on baseline/trend monitoring and the fact that the Lahontan Region has few discharges to surface water and thus few sets of discharger monitoring data." Alpine County contends that no data was provided or reference material cited providing Regional Board staff evaluation of waters for inclusion in the proposed Watch List. **Alpine County requests that the decision to add water bodies to the list be performed only when compelling reasons to place a well defined water body reach thresholds based on current data.**

Page 5: "There is currently no formal statewide listing/delisting guidance, although the State Board plans to develop and adopt formal guidance before the next (2004) listing cycle." Placing water bodies on the Watch List suspected of being potentially impaired would not be inappropriate while formal guidance is being adopted.

Page 6: "Impairment will be determined by 'qualitative assessment,' physical/chemical monitoring, bioassay tests, and other biological monitoring.... A qualitative assessment includes an assessment based on factors other than ambient monitoring data (for example, predictive monitoring, professional judgment, or public comments)."

Clearly the future socioeconomic implications and repercussions of placing the West Fork of the Carson River on the Section 303(d) list of impaired water bodies are not fully known at this time. The negative stigma and publicity associated with a recreational resource being placed on the Impaired Water Bodies List could negatively impact the limited economy of the County, which is heavily reliant upon tourism and associated recreational value of its watersheds. Alpine County recommends placement of the reaches being proposed on the Watch List to allow rigorous verification of the impairment hypothesis prior to placement on the Impaired Water Body List. Alpine County also recommends that Lahontan Staff work with the Alpine County Watershed group in terms of identifying data gaps and impairment hypothesis, as part of the upcoming condition assessment project/ State Water Resources Control Board Grant.

Page 8: "The Lahontan Basin Plan recognizes that not all factors affecting water quality may be controllable.....No Lahontan Region waters impaired only by natural sources are recommended for addition to the section 303(d) list."

Page 8: In the discussion under the section "Need for Changes in Water Quality Standards," the County concurs that standards and objectives need to be reviewed. However, the County's position is that these standards, objectives and beneficial uses should be reviewed prior to adding waters to the 303(d), rather than after the fact. Although the report indicates that Lahontan Regional Board staff has developed more specific listing and delisting considerations, the process has not been clearly articulated. Please provide a schedule for this standard review process, or provide information to the County Board of Supervisors outlining how this process may be pursued. Of particular interest to Alpine County would be a review of the Indian Creek Reservoir designated beneficial uses.

Page 9: "Listing based on only one or a few samples, or on qualitative analysis was not ruled out." **It has not been feasible to develop data quantity/quality thresholds for the Lahontan Region given the limited time and resources available.** Data quality should be reviewed and confidence intervals should be provided that clearly demonstrate impairment/ objective violation.

Alleged violation of water quality objectives on the West Carson River had characteristics which dispute including the water body/pollutant listing in the 303(d) update, as follows:

- Some violations noted were barely over the objective (sodium, phosphorus, nitrogen);
- Water quality is potentially affected by natural perturbations (phosphorus-fire, flood, and erosive bank impacts, nitrogen-flood impacts);
- Insignificant frequency of data gathering(pathogens-West Carson River and Indian Creek);
- Data was not reviewed for data quality (all);
- The Fact Sheet indicates that admittedly inappropriate standards over protecting the beneficial use (sodium) have been applied, and standard revisions are being recommended.

Water quality objectives utilized by Lahontan are similar to those applied in the Tahoe watershed rather than other eastern Sierra standards (i.e., California West Fork Carson River Nitrogen Objectives as compared to Carson River Downstream Nevada standards, Walker River standards). As well, much of the data used for listing of the West Fork of the Carson River was from the South Tahoe Public Utility District's (STPUD) monthly monitoring report, a monitoring plan with different objectives from those of the TMDL.

One very significant issue with Lahontan's proposed additions to the State Board's Section 303(d) list is the inclusion of long sections of streams as one unit. An example is the West Fork of the Carson River from the headwaters to Woodfords. This section includes approximately 21 miles of stream traveling through very different environments. The headwaters, and the headwater tributaries, are sure to behave differently under the stress of snowmelt (for example) than is the reach through Hope Valley. Similarly, one could argue that the reach near Woodfords is geomorphically dissimilar to the headwaters.

It is understandable that the lack of detailed spatial data led to the listing of long stretches of river. However, the lack of current data could equally lead to a call for more data acquisitions through monitoring.

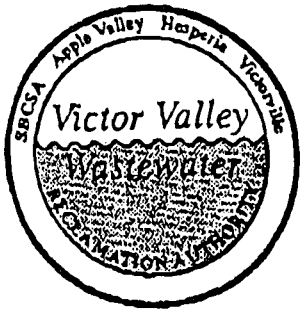
In the interest of making scientifically-sound decisions while still maintaining the quality of public resources, Alpine County proposes that an additional two years of monitoring and study occur on the streams in Alpine County. The Alpine County Watershed Group recently received a grant in excess of $200,000 to perform monitoring and study of the watersheds in Alpine County. As well, the Alpine County Board of Supervisors and the Alpine County Water Agency is committed to furthering studies of the watershed that provide scientific basis for future decision-making, rather than relying on outdated or inappropriate data collection. For these reasons, the Alpine County Board of Supervisors request that the streams and tributaries of West Fork of the Carson River be placed on the Watch List until completion of the study.

Your attention to Alpine County's comments is appreciated.

Very truly yours,

DONALD M. JARDINE
Chair, Board of Supervisors

Cc: Rep. J. Doolittle, U. S. Congress
Rep. D. Ose, U.S. Congress
D. Feinstein, U.S. Senate
B. Boxer, U.S. Senate
California EPA



FAX TRANSMITTAL

FROM: **Daniel P. Gallagher**
Victor Valley Wastewater Reclamation Authority
20111 Shay Road, Victorville, CA 92394
PHONE: (760) 246-8638
FAX: (760) 246-5440

TO: **Ms. Judith Unsicker**
Lahontan Regional Water Quality Control Board
FAX NO: 530 542-5470

DATE FAXED: **12/26/01** **Time:** **4:01 PM**

Total number of pages transmitted including this cover sheet: 3

Proposed 303(d) Listing for the Mojave River Upper and Lower Narrows letter

MAILING LIST FOR AGENDA ITEM ____

DIANE BEAULAURIER
DIVISION OF WATER QUALITY
STATE WATER RESOURCES CONTROL BOARD
1001 I STREET
SACRAMENTO CA 95814

DAVID SMITH
USEPA REGION IX
75 HAWTHORNE ST.
SAN FRANCISCO CA 94105

DEBRA DENTON
USEPA REGION IX
75 HAWTHORNE ST
SAN FRANCISCO CA 94105

STEPHANIE WILSON
USEPA REGION IX
333 WEST NYE LN, P.O. BOX 11
CARSON CITY NV 89702

TOM PORTA
NDEP/BU OF WATER QUAL PLNG
333 W NYE LN STE 138
CARSON CITY NV 89706

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION
2501 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA 96150
(530) 542-5400

FAXED 12/4/01

fax transmittal

to: Tahoe World

fax #: 583-7109

from: Carrie

date: 12/4/01

re: News Release / To be published

pages: 2 , including this cover sheet

NOTES:

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION
2501 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA 96150
(530) 542-5400

FAXED 12/4/01

fax transmittal

to: TAHOE DAILY TRIBUNE

fax #: 541-0373

from: CARRIE

date: 12/4/01

re: NEWS RELEASE / TO BE PUBLISHED

pages: 2, including this cover sheet

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION
2501 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA 96150
(530) 542-5400

FAXED 12/4/01

fax transmittal

to: Sierra Sun

fax #: 587-3763

from: Carrie

date: 12/4/01

re: NEWSRELEASE to be published.

pages: 2 , including this cover sheet

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Lahontan Regional Water Quality Control Board

FOR IMMEDIATE RELEASE

Contact: Judith Unsicker
(530) 542-5462

RWB 01-005

Lahontan Water Board Seeks Public Input On List of Polluted Waters

SOUTH LAKE TAHOE – The Lahontan Regional Water Quality Control Board is seeking public comments on proposed changes to a list of polluted water bodies. This list is comprised of waters that require Total Maximum Daily Loads (TMDLs), which are strategies used to meet water quality standards.

The federal Clean Water Act requires a TMDL for each surface water body that is so polluted that attainment of standards cannot be ensured through conventional water pollution control measures. If a water body is impaired by more than one pollutant, separate TMDLs are required for each pollutant. The changes proposed by the Lahontan Board are to the federal Clean Water Act's Section 303(d) list.

Most of the proposed changes to the list are additions of streams in the Lake Tahoe, Carson River, and Walker River watersheds. The most common problems are nutrients and bacteria; the latter problem has been documented in streams near livestock grazing. Other proposed additions affect Monitor Creek, a Carson River tributary affected by acid mine drainage, and Searles Lake, where industrial petroleum discharges have been linked to bird kills.

Proposed deletions from the current list include waters such as Mono Lake and Hot Creek near Mammoth. These waters have high concentrations of salts or toxic elements, such as arsenic, that come entirely from natural volcanic or geothermal sources, and are not "pollutants" as defined in the Clean Water Act. Waters can also be removed from the list if restoration programs are in place and are expected to be successful in the near future. An example is Snow Creek near the north shore of Lake Tahoe, where the California Tahoe Conservancy has recently completed a $4.2 million project to remove contaminated fill and restore the creek channel and adjacent wetlands.

Recommended changes to the Clean Water Act Section 303(d) List of polluted waters, and to priorities for developing TMDLs, are available on the Lahontan Regional Board's website, at www.swrcb.ca.gov/rwqcb6. Written public comments will be accepted through Dec. 28, 2001, and the Regional Board will take action on the recommendations at its January 9-10, 2002 meeting in South Lake Tahoe, California.

For further information, please contact Judith Unsicker at (530) 542-5462. Ms. Unsicker can also be reached via e-mail at unsij@rb6s.swrcb.ca.gov.

The Lahontan Regional Water Quality Control Board is part of the California Environmental Protection Agency.

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION
2501 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA 96150
(530) 542-5400

fax transmittal

FAXED

to: Modoc Co. Record

fax #: 233-5113

from: Carrie

date: 12/5/01

re: PRESS RELEASE / to be published

pages: 2 , including this cover sheet

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618

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION
2501 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA 96150
(530) 542-5400

FAXED

fax transmittal

to: RENO GAZETTE JOURNAL

fax #: (775) 895-5565

from: CARRIE

date: 12/5/01

re: PRESS RELEASE to be published

pages: 2 , including this cover sheet

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619

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION
2501 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA 96150
(530) 542-5400

FAXED

fax transmittal

to: Record Courier

fax #: (775) 782-6152

from: Carrie

date: 12/5/01

re: Press Release to be published

pages: 2 , including this cover sheet

NOTES:

620

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION
2501 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA 96150
(530) 542-5400

FAXED

fax transmittal

to: SACRAMENTO BEE

fax #: (530) 582-5433

from: Carrie

date: 12/5/01

re: PRESS RELEASE TO BE PUBLISHED

pages: 2 , including this cover sheet

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION
2501 LAKE TAHOE BOULEVARD
SOUTH LAKE TAHOE, CALIFORNIA 96150
(530) 542-5400

FAXED

fax transmittal

to: LASSEN Co. TIMES

fax #: 257-0408

from: CARRIE

date: 12/5/01

re: PRESS RELEASE to be published

pages: 2 , including this cover sheet

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CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Lahontan Regional Water Quality Control Board

California Water News

FOR IMMEDIATE RELEASE

Contact: Judith Unsicker
(530) 542-5462

RWB 01-

Lahontan Water Board Requests Public Input for Water Quality Assessment

SOUTH LAKE TAHOE- The Lahontan Regional Water Quality Control Board is the state agency responsible for protecting water quality in the eastern Sierra and the northern Mojave desert. On behalf of the State Water Resources Control Board, the Regional Board is asking the public to contribute information and data collected since 1997 about the quality of specific lakes, streams, and wetlands in the Lahontan Region for use in statewide water quality assessment and reporting activities. The federal Clean Water Act requires states to report to Congress every two years on the quality of their surface waters. The state assessment process is also used to identify surface waters which require special cleanup strategies under Section 303(d) of the Clean Water Act.

The Lahontan Regional Board is requesting input on water quality and support of human, wildlife, and aquatic life uses of water from other agencies, university researchers, citizen monitoring and watershed groups, and the public. Information and data should be submitted by May 15, 2001 to be considered in development of Regional Board recommendations to the State Water Board for update of the statewide water quality assessment. Draft recommendations will be released for public review during the summer of 2001. For further information on how to contribute to the assessment process, see the Regional Board's Internet webpage at <http://www.swrcb.ca.gov/rwqcb6>, or call Judith Unsicker at (530) 542-5462.

The Lahontan Regional Water Quality Control Board is part of the California Environmental Protection Agency.

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Cattle owners would be the most affected if the federal polluted waterways list adds the Upper Truckee River and Trout Creek.

Tahoe Tribune file

Two Tahoe waterways may get polluted status

Tahoe Tribune 12/10/2

By Hema Easley
Tribune staff writer

The Upper Truckee River and Trout Creek are among nine Tahoe Basin waterways set to be added to a federal list of polluted waterways.

The Lahontan Regional Water Quality Control Board is seeking public input on the proposals, which are designed to set cleanup priorities under the federal Clean Water Act. No change is proposed for Lake Tahoe itself; it is already listed for pollution caused by nitrogen, phosphorus and sediments.

"We are proposing to put the Upper Truckee River and Trout Creek on the list for nitrogen, phosphorus and iron. Our monitoring data show that standards have been violated," said Judith Unsicker, staff environmental scientist for Lahontan.

The listing is unlikely to affect many private property owners, Unsicker said, since most of the land around the streams is owned by the U.S. Forest Service.

The move is more likely to impact ranchers who run cattle on Forest Service land. Elevated levels of fecal coliform bacteria have been found in Big Meadow Creek, a tributary of the Upper Truckee River, and Tallac Creek near Baldwin Beach, Unsicker said. Most of the contamination is attributed to grazing horses or livestock.

"It could affect grazing permittees," Unsicker said. "It could affect the way herding is handled and permit holders may be required to keep them away from the streams."

In Alpine County, Lahontan wants to list the West Fork of the Carson River for bacteria and several other pollutants.

The proposed listings don't mean water quality has suddenly deteriorated, Unsicker said. The findings come after years of monitoring and analysis.

Once a waterway is placed on the so-called Section 303(d) list, states are required to develop pollution-control strategies known as Total Maximum Daily Loads (TDMLs). It's not a fast process: Lake Tahoe's TDMLs aren't scheduled to be established until 2007, and most of the basin's other waterways won't have plans in place until after 2015.

One bright spot is Snow Creek on Tahoe's north shore, which Lahontan wants to remove from the list. A $4.2 million soil removal and revegetation program funded by the

See ***Waterways****, Page 4A*

Waterways

From Page 1A

California Tahoe Conservancy is credited with improving the water quality of the creek.

Written public comments on Lahontan's plan will be accepted through Dec. 28. Comments may be sent to 2501 Lake Tahoe Blvd., South Lake Tahoe, CA 96150. The plan is available for viewing on the Internet at www.swrcb.ca.gov/rwqcb6 or at the main Lahontan office from 8 a.m. to 5 p.m. weekdays.

Lahontan will hold a public workshop Jan. 9-10 in South Lake Tahoe and then forward its recommendations to the California Water Resources Control Board. The state board will hold more hearings before the final list is sent to the U.S. Environmental Protection Agency.

Pollution guidelines changing

The Lahontan Regional Water Quality Control Board is seeking public comment on proprosed changes to Clean Water Act listings in the Lake Tahoe Basin. "Pathogens" refers to fecal coliform bacteria attributed to livestock grazing.

Additions:

Upper Truckee River — Iron, phosphorus; pathogens above Christmas Valley.
Big Meadow Creek — Pathogens.
Heavenly Valley Creek — Chloride; sediment below Forest Service property line; phosphorus above property line.
Hidden Valley Creek — Phosphorus, chloride.
Trout Creek — Phosphorus, nitrogen, iron; pathogens below Highway 50 in South Lake Tahoe.
Tallac Creek — Pathogens below Highway 89.
Ward Creek — Phosphorus, nitrogen, iron.
General Creek — Phosphorus, iron.
Blackwood Creek — Phosphorus, nitrogen, iron.

No change:

Lake Tahoe — Phosphorus, nitrogen, sediment.
Heavenly Valley Creek — Sediment above Forest Service property line.
Ward Creek — Sediment.
Blackwood Creek — Sediment.

Deletion:

Snow Creek — Restoration project complete.

Source: Lahontan Regional Water Quality Control Board

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Nine Tahoe Basin rivers proposed for polluted status

SOUTH LAKE TAHOE (AP) — Regional water regulators in California want to add nine rivers and streams in the Tahoe Basin to a federal list of polluted waterways.

The targeted rivers in the Lake Tahoe area include Trout Creek and the Upper Truckee River.

The Lahontan Regional Water Quality Control Board is seeking public input through Dec. 28 on the proposed listings, designed to set cleanup priorities under the federal Clean Water Act.

The board proposes the Upper Truckee River and Trout Creek be listed for nitrogen, phosphorus and iron, said Judith Unsicker, a staff environmental scientist for the board.

"Our monitoring data show that standards have been violated," she told the Tahoe Daily Tribune.

The listing is unlikely to affect many private property owners because most of the land around the streams is owned by the U.S. Forest Service, she said.

It's more likely to impact ranchers who run cattle on Forest Service land. Elevated levels of fecal coliform bacteria have been found in Big Meadow Creek, a tributary of the Upper Truckee River, and Fallac Creek near Baldwin Beach, Unsicker said. Most of the contamination is attributed to grazing horses or other livestock.

"It could affect the way herding is handled and permit holders may be required to keep them away from the streams," she said.

In Alpine County, Lahontan wants to list the West Fork of the Carson River for bacteria and several other pollutants.

One bright spot is Snow Creek on Tahoe's north shore, which the board wants to remove from the list. A $4.2 million soil removal and revegetation program funded by the California Tahoe Conservancy is credited with improving the water quality of the creek.

The board will hold a public workshop Jan. 9 and 10 in South Lake Tahoe and then forward its recommendations to the California Water Resources Control Board. The state board will hold

General Creek — phosphorus, iron.

Blackwood Creek — phosphorus, nitrogen, iron.

Written public comments may be sent to 2501 Lake Tahoe Blvd., South Lake Tahoe, CA 96150.

The plan is available for viewing on the Internet at www.swrcb.ca.gov/rwqcb6.

23

Lahontan Water Board requests public input for water quality assessment

The Lahontan Regional Water Quality control Board is the state agency responsible for protecting water quality in the eastern Sierra and the northern Mojave desert. On behalf of the State Water Resources Control Board, the Regional Board is asking the public to contribute information and data collected since 1997 about the quality of specific lakes, streams, and wetlands in the Lahontan Region for use in statewide water quality assessment and reporting activities.

The federal Clean Water Act requires states to report to Congress every two years on the quality of their surface waters. The state assessment process is also used to identify surface waters which require special cleanup strategies under Section 303(d) of the Clean Water Act.

Lahontan is requesting input on water quality and support of human, wildlife and aquatic life uses of water from other agencies, university researchers, citizen monitoring and watershed groups and the public. Information and data should be submitted by May 15, 2002 to be considered in development of regional board recommendations to the State Water Board for update of the statewide water quality assessment. Draft recommendations will be released for public review during the summer of 2002.

For further information on how to contribute to the assessment process, visit the Regional Board's Internet Web page at

is part of the California Environmental Protect Agency.

Two Tahoe waterways may get 'polluted' status

By Hema Easley
Sun News Service

The Upper Truckee River and Trout Creek are among nine Tahoe Basin waterways set to be added to a federal list of polluted waterways.

The Lahontan Regional Water Quality Control Board is seeking public input on the proposals which are designed to set cleanup priorities under the federal Clean Water Act. No change is proposed for Lake Tahoe itself; it's already listed for pollution caused by nitrogen, phosphorus and sediments.

"We are proposing to put the Upper Truckee River and Trout Creek on the list for nitrogen, phosphorus and iron. Our monitoring data show that standards have been violated," said Judith Unsicker, staff environmental scientist for Lahontan.

The listing is unlikely to affect many private property owners, Unsicker said, since most of the land around the streams is owned by the U.S. Forest Service.

The move is more likely to impact ranchers who run cattle on Forest Service land. Elevated levels of fecal coliform bacteria have been found in Big Meadow Creek, a tributary of the Upper Truckee River, and Tallac Creek near Baldwin Beach, Unsicker said. Most of the contamination is attributed to grazing horses or livestock.

"It could affect grazing permittees," Unsicker said. "It could affect the way herding is handled and permit holders may be required to keep them away from the streams."

In Alpine County, Lahontan wants to list the West Fork of the Carson River for bacteria and several other pollutants.

The proposed listings don't mean water quality has suddenly deteriorated, Unsicker said. The findings come after years of monitoring and analysis.

Once a waterway is placed on the so-called Section 303(d) list states are required to develop pollution control strategies known as Total Maximum Daily Loads (TDMLs). It's not a fast process: Lake Tahoe's TDMLs aren't scheduled to be established until 2007, and most of the basin's other waterways won't have plans in place until after 2015.

One bright spot is Snow Creek on Tahoe's north shore, which Lahontan wants to remove from the list. A $4.2 million soil removal and revegetation program funded by the California Tahoe Conservancy is credited with improving the water quality of the creek.

Written public comments on Lahontan's plan will be accepted through Dec. 28. Comments may be sent to 2501 Lake Tahoe Blvd., South Lake Tahoe, CA 96150. The plan is available for viewing on the Internet at www.swrcb.ca.gov/rwqcb6/ or at the main Lahontan office from 8 a.m. to 5 p.m. weekdays.

Lahontan will hold a public workshop Jan. 9-10 in South Lake Tahoe and then forward its recommendations to the California Water Resources Control Board. The state board will hold more hearings before the final list is sent to the U.S. Environmental Protection Agency.

The Lahontan Regional Water Quality Control Board is recommending the following changes to Clean Water Act listings in the Lake Tahoe Basin. "Pathogens" refers to fecal coliform bacteria attributed to livestock grazing.

Tahoe Tribune

Glenbrook pier matter will be decided by TRPA on Dec. 19

KINGS BEACH (AP) — Changes to plans for a controversial pier in Lake Tahoe's Glenbrook Bay prompted the Tahoe Regional Planning Agency to delay a scheduled Wednesday vote on the project.

Whittemore

TRPA spokeswoman Pam Drum said the project sought by liquor merchant Larry Ruvo and casino lobbyist Harvey Whittemore was moved to the panel's Dec. 19 agenda.

Drum added the planning agency's staff didn't have all the information needed to make a recommendation on the new plan before Wednesday's meeting.

The TRPA staff had recommended against the original plan for a fixed pier nearly 300 feet long, with two boat lifts. The amended plan is for a floating pier about the same length but with only one boat lift. It would be in front of lakefront homes owned by Ruvo and Whittemore.

The $500,000 pier would be built near an existing pier that's owned by the Glenbrook Homeowners Association — the only one that now exists in Glenbrook Bay. It's open to any of the 273 property owners in the upscale community on Tahoe's east shore.

A federal court fight, before U.S. Magistrate Robert McQuaid in Reno, is also on hold pending action by the California-Nevada TRPA, which oversees development at Lake Tahoe.

Reno casino owner and Napa Valley winery owner Don Carano also owns a nearby Glenbrook mansion and is involved with the pier project. But he is not included in the litigation.

The homeowners group and the Glenbrook Preservation Association have been fighting the pier project, saying the private structure would likely be used to dock boats for people attending large events and parties hosted by the influential pier advocates — and residents don't want all the added activity.

The pier foes also have accused the planning agency of giving preferential treatment to influential and powerful applicants throughout the Tahoe Basin — including the Glenbrook pier proponents.

TRPA lawyers have said the planning agency could call for an environmental impact statement, which would resolve one of the biggest complaints from the pier foes.

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Box 431
Cedarville, CA 96104
December 17, 2001

Ms. Judith Unsicker
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, California 96150

Dear. Ms. Unsicker:

RE: SURPRISE VALLEY: MILL CREEK.

I am responding to your NOTICE OF AVAILABLITY OF AND REQUEST FOR COMMENTS ON DRAFT RECOMMENDATIONS FOR CHANGES IN LAHONTAN REGION'S SECTION 303(D) LIST. Your recommendation is to retain Mill Creek in Surprise Valley on the 303(d) list due to sedimentation/siltation.

I am a resident of Surprise Valley. I have spent a great deal of time on Mill Creek, which flows into Bidwell Creek, as part of a USFS Technical Review Team examining grazing allotments and fishing/hiking. I find no difference in sedimentation/siltation between Mill Creek and any other creek on the east side of the Warner Mountains. The only difference is that the access road crosses through this creek instead of crossing over a culvert as it does on Lake City Creek (also called Mill Creek) and Deep Creek. In Granger Creek the access road also crosses through the creek in several locations. All creeks on the east side of the Warner Mountains have rather steep falls and are prone to some sedimentation during large flow periods. I would suggest that either Mill Creek be removed from the 303(d) list or most, if not all, all creeks on the east side of the Warner Mountains be added to the 303(d) list.

Sincerely yours,

James H. Swinehart

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CORRECTION TO FACT SHEETS

Fork from Hope Valley to the state line. Near Woodfords, the watershed is still recovering from the impacts of wildfire. Cattle ranching is important in the lower section of the West Fork watershed, where pastures are irrigated with secondary wastewater effluent exported from the Lake Tahoe Basin.

Water Quality Objectives Violated

Water quality objectives for nitrogen in this segment of the West Fork Carson River, in milligrams per liter (mg/L), are as follows: Total Kjeldahl nitrogen, 0.13 mg/L; nitrate 0.02 mg/L, and total nitrogen, ~~1~~ 0.15 mg/L. All objectives are expressed as "means of monthly means"; these are running averages incorporating historical data.

Evidence of Impairment

Regional Board staff calculated means of monthly means based on data collected by the South Tahoe Public Utility District at Woodfords between 1981 and 2000. (Total Kjeldahl N samples were available only since 1991.) For the Woodfords station, the current means of monthly means were as follows: total Kjeldahl N = 0.20 mg/L; nitrate (as N) =0.04 mg/L; total N = 0.20 mg/L. All of these values exceed the objectives.

Extent of Impairment

The reach of the river above Woodfords is recommended for listing.

Potential Sources

Scientific research in the Lake Tahoe Basin, to the north of the Carson River watershed, has shown that much of the nitrogen loading to Lake Tahoe comes from long distance transport and deposition from upwind sources. It is probable that similar nitrogen loading to the Carson River watershed is occurring. Local sources of nitrogen loading to this segment may include septic systems, erosion, stormwater, historic livestock grazing, and natural nitrogen fixation by plants and soil bacteria.

TMDL Priority.

This TMDL is recommended for high priority with completion after 2015.

IMC Chemicals

IMC Chemicals Inc.
P.O. Box 367
Trona, California 93592-0367

December 19, 2001

Ms. Judith Unsicker
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, California 96150

Re: Comments on Draft Recommendations for Changes in Lahontan Region's Section 303(d) List

Dear Ms. Unsicker:

This letter is submitted in response to the November 27, 2001 notice soliciting comments on recommended changes to California's list of impaired surface water bodies under Section 303(d) of the federal Clean Water Act, as implemented by California Water Code Section 13170. These comments, submitted on behalf of IMC Chemicals Inc. ("IMCC"), focus upon the recommended changes affecting Searles Lake in Trona Hydrologic Unit 621.00. As discussed herein, data supports the recommended removal of Searles Lake from the Section 303(d) list for salinity, Total Dissolved Solids (TDS), and chlorides. Further, data fails to support the recommendation to add Searles Lake to the Section 303(d) list on the basis of petroleum hydrocarbons. For purposes of these comments, IMCC assumes that California's list of impaired surface water bodies applies to "waters of the state".

Recommended Removal of Searles Lake for Salinity, TDS, and Chlorides

The recommended deletion of Searles Lake from the Section 303(d) list for salinity, TDS and Chlorides is based upon the finding that these constituents are naturally occurring. This conclusion is discussed further in the "Water Body Fact Sheets for 2002 Section 303(d) List Update, Lahontan Region, Mojave, Trona, and Amargosa Hydrologic Units" (Fact Sheet). In the section pertaining to Searles Lake, the Fact Sheet states that: "The high concentrations of salts in surface waters, and brine deposited in surface waters, come ultimately from natural sources including evaporative concentration in a closed hydrologic basin over geologic time." The Fact Sheet also concludes that naturally occurring salts and trace elements are not pollutants under the definition in the Clean Water Act.

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There is ample evidence to support that conclusion that salinity, TDS and chlorides in Searles Lake are naturally occurring. The Searles Dry Lakebed occupies the central and lowest part of Searles Valley. The lake was the third in a chain of five lakes that received water from the Owens River in the late Pleistocene. Water overflowed China Lake and filled Searles Dry Lake to depths as great as 600 feet above the present valley floor (Smith 1979).

The lakebed contains high concentration saline deposits that are part of a sequence of mud and saline evaporite strata formed during alternating wet and dry periods. The saline deposits developed as the Searles Lakebed filled with water in wet periods and then evaporated during dry periods. This cycle of recharge and evaporation produced highly concentrated saline layers in the Searles Lakebed.

Montgomery (1989) identified three important subdivisions of the saline deposits:

a) The Upper/Lower salt deposits separated form each other by a mud layer, and separated from deeper saline deposits by bottom mud.

b) The Mixed Layer consisting of saline deposits below the bottom mud and comprised of at least nine layers.

c) The Transition Zone in the periphery of the saline deposits where the saline and alluvial deposits interfinger.

The total thickness of the saline deposits may exceed 2,275 feet. Where present, the individual salt deposits are about 100 feet thick.

Extensive sampling of Searles Dry Lake brine indicate that the brine consists of sodium-chloride. Average TDS concentration is about 420,000 mg/l in brine from the Upper and Lower Salt, and about 350,000 mg/l in brine from the Mixed Layer. (Montgomery 1989)

Thus, the data clearly establish that the saline minerals in Searles Lake brine are naturally occurring. Saline deposits have built up in layers over the millennia. Because naturally occurring salt and trace elements are not "pollutants" under the definition in the federal Clean Water Act, IMCC agrees with the recommendation that Searles Lake should be removed from the Section 303(d) for these deposits.

Recommended Addition of Searles Lake for Petroleum Hydrocarbons

The recommended addition of Searles Lake to the Section 303(d) list for Petroleum Hydrocarbons is based on "documented bird kills from industrial pollutants". As further asserted in the Fact Sheet: "Petroleum hydrocarbons (including kerosene) in

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surface waters of Searles Lake have been linked to waste discharges from the IMCC industrial facilities at Trona, Argus, and Westend". However, relatively recent data does not support the recommendation to list Searles Lake for petroleum hydrocarbons. As discussed in more detail below, necropsies performed on deceased waterfowl found at Searles Dry Lake have not linked waterfowl deaths to exposure to petroleum hydrocarbons.

There was a suspicion in early 2000 that hydrocarbons in IMCC discharges to Searles Dry Lakebed adversely affected waterfowl. IMCC has worked closely with the Lahontan Regional Board and the California Department of Fish and Game to assess whether, in fact, hydrocarbon discharges from the facilities are responsible for waterfowl mortality. After intensive searches for deceased waterfowl and carefully conducted necropsies, there has been no evidence that exposure to hydrocarbons caused the death of waterfowl found at Searles Dry Lake.

Working with the California Department of Fish and Game and private experts, IMCC is undertaking extensive efforts to assist distressed waterfowl, and to investigate the cause of waterfowl mortality at Searles Lake. IMCC contracted with EREMICO Biological Services to conduct a year-long shorebird and waterfowl survey at Searles Lake. IMCC also contracted with the International Bird Rescue Research Center (IBRRC) to maintain a continuous presence at Searles Lake to assist distressed waterfowl, and collect any deceased waterfowl. Under the direction of the California Department of Fish and Game, 25 deceased birds collected at Searles Dry Lake have been sent to independent examiners and analyzed to determine the cause of death. The necropsies were performed by the California Animal Health & Food Safety Laboratory System at the University of California, Davis. Tissue samples from some of the birds were analyzed by Frontier Geosciences Inc. in Seattle, Washington.

Summaries of the necropsy results are attached. (Twenty-four necropsies are summarized in the attached table. The twenty-fifth necropsy is summarized in the attached December 13, 2001 laboratory report.) Of the 25 necropsied birds , six (25%) were diagnosed with salt toxicity, and five (20%) were diagnosed with infections and/or parasites. Fourteen (56%) died of unknown causes. Significantly, no hydrocarbons were detected in any of the birds.

The necropsy results show that most of the bird mortality is due to infections and/or parasites, and from unknown conditions. Considering the harsh environment (extreme heat and lack of fresh water) and immature or weakened state of many of the birds, it is reasonable to conclude that the unknown deaths are due to causes outside of the actions of IMCC. Again, it is significant that none of the necropsies detected hydrocarbons in any of the deceased birds.

Thus, the statement in the Fact Sheet that waterfowl deaths at Searles Lake have been linked to petroleum hydrocarbons is without support and should be stricken. Petroleum hydrocarbons have not been found in necropsied waterfowl. The data does not support the finding that hydrocarbons are responsible for waterfowl deaths at Searles Lake. Thus, Searles Lake should not be added to the 303(d) list on the basis of petroleum hydrocarbons.

Fact Sheet

There is an additional point that should be noted about the Fact Sheet. The Fact Sheet states that "Regional Board staff are proposing Basin Plan amendments to define beneficial uses for the brine ponds separate from the uses of the natural ephemeral surface waters of the lake as a whole." This statement fails to define terms. The only surface waters that arguably would support existing beneficial uses are brackish seeps between the lakebed and the IMCC Argus Facility. All other surface waters termed "ephemeral" have been found to be far more saline than the brine ponds (Kennedy Jenks 2001).

Instead of focusing only on the brine ponds, IMCC understands that Regional Board staff is considering alternative Basin Plan amendments to define beneficial uses for the area of Searles Dry Lake that is over the subsurface brine, excluding the brackish seeps. Since both the brine ponds and ephemeral surface waters percolate into the same subsurface brine, and since both contain high levels of salts, TDS, and chlorides, it is more appropriate to consider the larger area of Searles lake bed rather than only the brine ponds.

Thank you for this opportunity to comment on the recommended changes to the California Section 303(d) list. If you have any questions, or if you wish to discuss this matter further, please telephone me at (760) 372-2042. Please also contact me if you would like copies of any of the materials referenced in this letter.

Very truly yours,

Larry Trowsdale

cc: Hisam Baqai (w/enc.)

bcc: Darlene Ruiz
Chuck Hungerford

335553 v02.SV (76wx02!.DOC)
12/20/01 2:06 PM (17117.0002)

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References

Kennedy Jenks, Report of Comparison of Searles Dry Lake Ephemeral and Process Ponds Brine Composition, submitted to the California Regional Water Quality Control Board, Lahontan Region, 15 June 2001

Montgomery, E.L., 1989, Hydrogeologic Conditions, Searles Lake Area, Inyo and San Bernardino Counties California, prepared by Earl L. Montgomery & Associates, Inc., Tucson, Arizona for Kerr-MrGee Chemical Corporation, Trona, California, 14 June 1989.

Smith, G.I., 1979, Subsurface Stratigraphy and Geochemistry of Late Quaternary Evaporties, Searles Lake, California, U.S. Geological Survey Professional Paper 1043.

Final Report Printed: 12/17/01
(This report supersedes all previous reports for this accession)

****
* File copy of a FAXed report. *
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FAX to :JULIE YAMAMOTO DVM ,916 324-8829

California Animal Health & Food Safety Laboratory System (CAHFS) - Davis
PO Box 1770
Davis, CA 95617
(530) 752-8700

ACCESSION#:D0111639
District: 6
County: SAN BERNARDINO
Case Coordinator: LWOODS

Submitter
JULIE YAMAMOTO DVM
CDFG OSPR SCIENTIFIC PROGRAM
1700 K ST P O BOX 944209
SACRAMENTO, CA 94244

Owner:
LARRY TROWSDALE
IMC CHEMICAL INC
P O BOX 367

TRONA, CA 93952

Agent or Collector:
Reference Number:

Species: OTHER AVIAN
Herd/Flock ID: 258/R43
Date Taken: 12/04/01
Date Received: 12/05/01

1 Specimens submitted: carcass

Electronically signed by:
Leslie Woods, DVM

L A B O R A T O R Y F I N D I N G S / D I A G N O S I S

1. Skeletal muscle degeneration, widespread, acute, with sarcoplasmal mineralization.
2. Esphagitis, hemorrhagic, focal, ulcerative with underlying muscle degeneration.
3. Glottis, cartilagenous degeneration.

A C C E S S I O N S U M M A R Y

Aerobic cultures were negative for growth. Sodium level of the brain was not in the toxic range. Fluorescent antibody for Chlamydophila was negative. The significant lesion seen in this bird is the widespread degeneration in the skeletal muscle. There is mineralization associated with the degenerative changes. Some of the causes of this lesion include selenium or vitamin E deficiency, and less likely, some toxins such as ionphores. It may be interesting to run the livers for selenium and vitamin E is any tissue

remains after protocol testing. The lesion in the eosphagus appears to be associated with the deep muscle degeneration, therefore related to the generalized myopathy. This completes testing on this case at this laboratory.

GROSS PATHOLOGY

Postmortem state of this male pied bill grebe is good. This bird is in good flesh. The masking tape is labeled Trona 3; 12-2-01, Pied Bill Grebe; 1100 Dredge Pond; 258; R-43; euth. 12-4-01. Breast skin with feathers, liver, kidneys and proventriculus/gizzard with contents are placed in glass jars and sent to Fish and Wildlife water pollution control laboratory. The oral cavity is unremarkable. The conjunctiva of both eyes is edematous. There is a rough greenish plaque on the most proximal portion of the trachea. The remaining trachea is clear and dry and the mucosa is unremarkable. THe liver is slightly swollen. The kidneys are uniformly red/brown and not swollen. The proventriculus is unremarkable. THe gizzard contains presumptive feather material. The lungs are red. The intestines are unremarkable. Thyroids/parathyroids are symmetrical and normal size.

HISTOPATHOLOGY

Brain, heart, liver, kidney, lungs, spleen, intestines, pancreas, peripheral nerve, skeletal muscle, thyroid, thymus, parathyroid, testes, proventriculus, gizzard, bone marrow, eyes, cloaca, eye lids are examined. There are dense lymphocytic cuffs around some of the central veins in the kidneys. There are presumptive coccidia oocysts within the lumen of the urethra. In all skeletal muscle examined (thigh and pectoral muscles), there is widespread degeneration of myocytes characterized by fragmentation of the sarcoplasm with vacuolation, loss of striations and fine basophilic stippling (mineralization). The great vessels of the heart have a layers basket weave appearance with pale basophilic matrix alternating with eosinophilic matrix. The eye lids are unremarkable except for the focal congestion and hemorrhage in one. Kupffer cells are prominent in the liver with cytoplasmic brown/grey pigment. There is degeneration of the cartilage of the glottis with amorphous eosinophilic matrix with hemorrhage and degenerated inflammatory cells. There are foci of apparent mineralization in the degenerated cartilage. In the section of esophagus, there is mineralization and degeneration of skeletal muscle with associated hemorrhage. There is focal ulceration of the surface mucosa over this regions.

V I R O L O G Y

*** **CHLAMYDIA FA**

Specimen Information		Results
ID	**Type**	
258/R43	LAS-SMEAR	Negative

T O X I C O L O G Y

The brain contained a non-toxic sodium concentration for avian species (toxic > 2000 ppm). MDL = method detection limit (lowest concentration detectable by our test method).

*** **SODIUM/SALT SCREEN (P,S,MG,NA,CA,K)**

Specimen Type BRAIN

Salts		**Sodium**
258/R43	MDL	1460 ppm

B A C T E R I O L O G Y

*** **BACTERIAL AEROBIC CULTURE**

Specimen Information		Results
ID	**Type**	
258/R43	LUNG-PLATE	No growth - In 48 Hrs.
258/R43	LIVER-PLATE	No growth - In 48 Hrs.

C L I N I C A L H I S T O R Y

**********Bill and copy to owner**********
P. B. Grebe taken into care 12-2-01 at 1100. Collected from Dredge Pond. Animal was wet to skin in places. Seemed to be some kind of film on feathers. Only able to collect enough blood for Hct. Only 1 dose of itraconazole .24 cc and 1 dose Baytril .26 given 12-2-01 PM, stopped due to seizures.

Treatments: Euthanized 12-4-01 1100 with .5 cc.

S P E C I M E N S U M M A R Y

Specimen Type	Breed	ID	Age	Sex	Qty
CARCASS	PIED-BILLED G	258/R43	ADULT	MALE	1

Final - FEE ESTIMATE

Accession #: D0111639 Date Submitted : 05 DEC 2001
Reference #: Report Date : 17 DEC 2001

Bill To: TRO035 LARRY TROWSDALE
Submitter: YAM002 JULIE YAMAMOTO DVM
Owner / Ranch: TRO035 LARRY TROWSDALE

SPECIMEN SUMMARY: Species: OTHER AVIAN
Flock / Herd Id: 258/R43 # Animals in Group:

Specimen Type	Breed	ID	Age	Sex	Qty
CARCASS	PIED-BILLED G	258/R43	ADULT	MALE	1

This Fee Estimate is based on the tests performed. If there are differences on your statement please contact the CAHFS Business Offices (1-800-553-6878) for more Information. For out of state clients call (530)-752-4613.

Current Charges:

Code	Test Name	Qty	Charge
7000	GROSS PATHOLOGY- NECROPSY EXAM	1	$65.00
	Total		$65.00

THIS IS NOT A BILL **PLEASE DO NOT PAY**

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GROSS PATHOLOGY

A single Ruddy duck is submitted. The bird is unremarkable externally. The bird is in fair postmortem condition. The breast muscles appear relatively normal in size and are dark red-brown in color. In the thoracoabdominal cavity there are numerous small white crystalline-like deposits seen in the pericardial sac compatible with gout crystals. The heart has a relatively large size, relative to the size of the bird but is otherwise unremarkable. The lungs are diffuse red-pink in color with a soft soggy texture. The bird is male. The testicles are small in size. The bursa is not visible. The kidneys are red-brown in color with a normal size and soft texture (no evidence of gout). The liver is normal in size and dark red-brown in color with a smooth capsular surface and soft texture. The spleen is small in size and dark red-pink in color with a soft texture.

The gizzard contains a small amount of very soft mashed green forage admixed with sand. The intestinal tract is essentially empty with a small amount of fluid urates in the cloaca. The bursa is not visible. There are moderate-sized fat depots present in the thoracoabdominal cavity. The trachea is patent and unremarkable. The muscles within the limbs are unremarkable. The brain has a unique shape with the cerebrum compressing the cerebellum creating an elongated crescent-shape to the cerebellum.

TOXICOLOGY

SODIUM/SALT SCREEN (P,S,MG,NA,CA,K)

Specimen Information

ID	Type
Pending	

BACTERIOLOGY

BACTERIAL AEROBIC CULTURE

Specimen Information

ID	Type	
#269, R27	LIVER	Pending
#269, R27	LUNG	Pending

SALMONELLA CULTURE - AVIAN

Specimen Information

ID	Type	
#269, R27	GUT	Pending

C L I N I C A L H I S T O R Y

**********Bill and copy to owner**********

S P E C I M E N S U M M A R Y

Specimen Type	Breed	ID	Age	Sex	Qty
CARCASS	RUDDY DUCK	#269, R27		MALE	1

Preliminary 1 - FEE ESTIMATE

Accession #: D0111823 Date Submitted : 12 DEC 2001
Reference #: Report Date : 13 DEC 2001

Bill To: TRO035 LARRY TROWSDALE
Submitter: YAM002 JULIE YAMAMOTO DVM
Owner / Ranch: TRO035 LARRY TROWSDALE

SPECIMEN SUMMARY: Species: OTHER AVIAN
Flock / Herd Id: 269/R27 # Animals in Group:

Specimen Type	Breed	ID	Age	Sex	Qty
CARCASS	RUDDY DUCK	#269, R27		MALE	1

This Fee Estimate is based on the tests assigned to date. Your final cost may differ. You will receive a final Fee Estimate with your Final Report if there is any difference in charges. Please call the CAHFS Business Office (1-800-553-6878) for more Information. For out of state clients call (530)-752-4613.

Current Charges:

Code	Test Name	Qty	Charge
7000	GROSS PATHOLOGY- NECROPSY EXAM	1	$65.00
8141	SODIUM/SALT SCREEN (P,S,MG,NA,CA,K)	1	$21.60
	Total		$86.60

THIS IS NOT A BILL **PLEASE DO NOT PAY**

Preliminary Accumulative Report #1 - Printed: 12/13/01
(This report supersedes all previous reports for this accession)

****
File copy of a FAXed report. *
****

FAX to :JULIE YAMAMOTO DVM ,916 324-8829

California Animal Health & Food Safety
Laboratory System (CAHFS) - Davis
PO Box 1770
Davis, CA 95617
(530) 752-8700

ACCESSION#:D0111823
District: 6
County: SAN BERNARDINO
Case Coordinator: BBARR

Submitter
JULIE YAMAMOTO DVM
CDFG OSPR SCIENTIFIC PROGRAM
1700 K ST P O BOX 944209
SACRAMENTO, CA 94244

Owner:
LARRY TROWSDALE
IMC CHEMICAL INC
P O BOX 367

TRONA, CA 93952

Agent or Collector:
Reference Number:

Species: OTHER AVIAN
Herd/Flock ID: 269/R27
Date Taken: 12/10/01
Date Received: 12/12/01

1 Specimens submitted: carcass

Electronically signed by:
Bradd C. Barr, DVM PhD

L A B O R A T O R Y F I N D I N G S / D I A G N O S I S

Gross preliminary diagnosis:
1. Presumptive gout deposits, pericardial sac.
2. Compressed cerebellum.

A C C E S S I O N S U M M A R Y

The significant findings are listed above. The bird appeared to be in fairly good flesh but the GI tract was essentially empty. The compressed appearance of the cerebellum would suggest that the cerebrum was swollen, although I have not autpsied Ruddy ducks, and am uncertain whether this might be some odd characteristic of this species. Additional tests are pending and an updated report will follow.

Necropsy Summaries

	Date Taken	Accession No.	Date of Report	Report Type	Bird and Band Number	Sodium ppm	Location Found	Gastrointestinal Tract	Bacterial Culture	Salmonella Culture	Cause of Death	Other Comments	Liver B	Liver Na	Liver As	Liver Se	Blood B	Blood Na	Blood As	Blood Se
1	7/4/01	D0106534	7/15/01	Final	Gadwall R-3245	1960	12th Street Trona	Empty	No growth	No growth	None Given	Few significant gross findings. Inflammation in peripheral nerve.	5.51	1490	0.19	1.40				
	7/6/01	D0106708	7/13/01	Preliminary	Mallard B-2125	2280		Small amount	No growth	No growth	Presumptive sodium ion toxicosis	*Died in care*								
2	7/6/01	D0106708	7/31/01	Final	Mallard B-2125	2280	Westend Secondary Pond	Small amount	No growth	None	Presumptive sodium ion toxicosis	Died in care. Presumptive parasitic etiology, parasite ID unknown. Cecum parasite infestation	13.60	2270	0.42	4.83				
	7/14/01	D0106987*	7/21/01	Preliminary	Blue Winged Teal #149, Y-61	1530	Hornsby Road	Empty	Liver: Mixed flora rare; Lung: Escherichia coli Mod#			Tracheitis								
3	7/14/01	D0106987	8/25/01	Final	Blue Winged Teal #149, Y-61	1530	Hornsby Road	Empty	Liver: Mixed flora rare; Lung: Escherichia coli Mod#		Tracheitis. Cause not determined. No viruses isolated. Elevated iron.	Tracheitis; Hepatic lipidosis. Myopathy. Enteritis								
	7/24/01	D0107260	7/27/01	Preliminary	Western Grebe #151	2150			Pending			WE Secondary Pnd								
4	7/20/01	D0107260	8/6/01	Final	Western Grebe #151	2150	Westend Secondary Pond	Dark brown contents mixed with feathers	Hepatitis does not look like bacterial hepatitis.	---	group 1) was isolated from both the liver and lung. Significance unknown	Dehydration was noted. Systemic congestion.	6.25	1460	1.05	6.52				
5	7/26/01	D0107354	7/31/01	Final	Blue Winged Teal #152, Y-65	1670	Northeast Dredge Pond		No growth	No growth	Not Established	Died in care	8.64	1630	0.24	0.923				
	7/27/01	D0107420	7/31/01	Preliminary	Mallard #153, Y-92	Pending		Empty			Congestion/Edema of lungs									
6	7/27/01	D0107420	8/7/01	Final	Mallard #153, Y-92	2370	West Side Percolation Pond	Empty	Liver, No growth; Lung, Mixed flora Mod# w/ Coliforms	No growth	congestion and multifocal hemorrhage; Pulmonary congestion	of the lungs and congestion with possible swelling of the brain.	7.18	2100	0.19	1.26	9.14	2830	0.24	0.626
	7/27/01	D0107420	7/31/01	Preliminary	Mallard #153, Y-100	Pending		Empty												
7	7/27/01	D0107420	8/7/01	Final	Mallard #153, Y-100	3590	South end of Dredge Pond	Empty	Liver, No growth; Lung, Mixed flora Mod# w/ Coliforms	No growth	group 1) was isolated from both the liver and lung. Significance unknown	of the lungs and congestion with possible swelling of the brain.	30.60	2520	0.86	1.22				
	7/30/01	D0107493	8/1/01	Preliminary Accumulative #1	Blue Winged Teal #153, Y-175	Pending		proventriculus (stomach) is empty												
	7/30/01	D0107493	8/2/01	Preliminary Accumulative #2	Blue Winged Teal #153, Y-175	2170		proventriculus (stomach) is empty	No growth											
8	7/30/01	D0107493	8/8/01	Final	Blue Winged Teal #153, Y-175	2170	South of Hustny Husy, Perc	proventriculus (stomach) is empty	No growth	---	Salt toxicosis / enteritis	Accumulation of crystalline material at neck and chest. No significant findings.	9.28	2050	0.40	2.27	10.5	2600	0.42	1.62
9	8/1/01	D0107603	8/8/01	Final	Pied Billed Grebe #156, Y-88	1250	East Trona Skimmer, north end		No growth	None	Not Clear	*Gross Brain Swelling; lab* noted lightly oiled	1.72	1440	0.16	3.18	6.87	2420	0.42	4.55
	8/6/01	D0107720	8/16/01	Preliminary	Blue Winged Teal No. ID#, Y-72	---		Empty	---	---										
	8/6/01	D0107720	8/23/01	Preliminary Accumulative #2	Blue Winged Teal No ID#, Y-72	No brain sample collected	Perc. Pond	Empty	Insignificant		Undetermined	Schistosoma Infection Noted.								
10	8/6/01	D0107720	8/27/01	Final	Blue Winged Teal, No ID #; Y-72	No brain sample collected	Perc. Pond	Empty	Insignificant; Neisseria-like sp. Mod#		No significant pathologic findings. Cause of death *undetermined.*	Nematodiasis; presumptive Schistosomiasis	71.60	4650	1.66	2.28	2.04	2460	0.12	0.415

Necropsy Summaries

	Date Taken	Accession No.	Date of Report	Report Type	Bird and Band Number	Sodium ppm	Location Found	Gastrointestinal Tract	Bacterial Culture	Salmonella Culture	Cause of Death	Other Comments	Liver B	Liver Na	Liver As	Liver Se	Blood B	Blood Na	Blood As	Blood Se
	8/6/01	D0107720	8/16/01	Preliminary	Blue Winged Teal #158, Y-163	1275		Empty	No growth	None										
	8/6/01	D0107720	8/23/01	Preliminary Accumulative #2	Blue Winged Teal #158, Y-163	1275	Perc. Pond	Empty	No growth	None	Undetermined	Schistosoma Infection Noted.								
11	8/6/01	D0107720	8/27/01	Final	Blue Winged Teal #158; Y-163	1275	Perc. Pond	Empty	No growth	None	Undetermined	Presumptive Schistosomiasis	5.11	1660	0.12	0.863	13.4	2940	0.47	0.718
	8/6/01	D0107720	8/16/01	Preliminary	Blue Winged Teal #159, Y-174	1390		Empty	No growth	None										
	8/6/01	D0107720	8/23/01	Preliminary Accumulative #2	Blue Winged Teal #159, Y-174	1390	Westend SecondaryPond	Empty	No growth	None	Ventriculitis, focal, heterophilic, mild to moderate	Schistosoma Infection Noted.								
12	8/6/01	D0107720	8/27/01	Final	Blue Winged Teal #159, Y-174	1390	Westend SecondaryPond	Empty	No growth	None	Ventriculitis, focal, heterophilic, mild to moderate	Schistosoma Infection Noted.	4.76	1650	0.10	1.81	1.24	1600	0.16	2.28
	8/6/01	D0107720	8/16/01	Preliminary	Blue Winged Teal #162, Y-164	2740		Empty	No growth	None										
	8/6/01	D0107720	8/23/01	Preliminary Accumulative #2	Blue Winged Teal #162, Y-164	2740	Westend SecondaryPond	Empty	No growth	None	Presumptive Salt Toxicosis	Schistosoma Infection Noted. Covered by large number of salt crystals								
13	8/6/01	D0107720	8/27/01	Final	Blue Winged Teal #162, Y-164	2740	Westend SecondaryPond	Empty	No growth	None	Presumptive Salt Toxicosis	Schistosoma Infection Noted. Covered by large number of salt crystals	12.90	1940	0.37	1.48				
	8/8/01	D0107770	8/13/01	Preliminary	Blue Winged Teal Y-166	2360		Empty	Pending	Pending	Presumptive Salt Toxicosis									
14	8/8/01	D0107770	8/15/01	Final	Blue Winged Teal Y-166	2360	East of N-S Rd. near Perc Pond	Empty	No growth	None	Presumptive Salt Toxicosis	Found dead. Small amount of crystalline brine on dorsal feathers	10.70	1950	0.35	1.01				
	8/8/01	D0107773	8/13/01	Preliminary	Blue Winged Teal #161, Y-156	1590		Few seeds in ventriculus (stomach cavity).	Pending	Pending										
15	8/15/01	D0107773	8/15/01	Final	Blue Winged Teal #161, Y-156	1590		Few seeds in ventriculus (stomach cavity).	No growth	None	None Given	No remarkable lesions. Normal brain sodium.	3.77	1600	0.07	1.17				
	8/27/01	D0108391	8/23/01	Preliminary Accumulative #1	Blue Winged Teal #170, Y-168	Pending	Perc Pond	Empty	Pending	Pending	No significant gross path findings noted.									
16	8/27/01	D0108391	9/8/01	Final	Blue Winged Teal #170, Y-168	1670	Perc Pond	Empty	No growth	None	Cloacitis, multifocal, heterophilic, moderate, surface of bursa.	No significant gross path findings noted. Large unidentified parasite in intestines. IBRRC noted >15 ppm of H2S in vicinity.	9.29	2180	0.34	1.36				
	8/18/01	D0108142	8/25/01	Preliminary Accumulative #1	Blue Winged Teal #166, Y-171	2260	West Dredge Pond	Distended gall bladder	Liver, Mixed flora rare; Lung Pending	Pending	Inflamed intestines, Trachetis, High Brain sodium.									
17	8/18/01	D0108142	8/31/01	Final	Blue Winged Teal #166, Y-171	2260	West Dredge Pond		Liver, Mixed flora rare; Lung, Vibrio cholerae non-o group 1 sm No.	None	Inflamed intestines	Inflamed gizzard, liver, kidney & intestines likely due to parasitic load	4.13	1570	0.11	1.02				

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Necropsy Summaries

	Date Taken	Accession No.	Date of Report	Report Type	Bird and Band Number	Sodium ppm	Location Found	Gastrointestinal Tract	Bacterial Culture	Salmonella Culture	Cause of Death	Other Comments	Liver B	Liver Na	Liver As	Liver Se	Blood B	Blood Na	Blood As	Blood Se
18	8/20/01	D0108143	9/31/01	Final	Blue Winged Teal, Y-151	2900	Perc. Pond	Scant yellow fluid along esophegus.	No growth	None	Tracheitis and air sacculitis; Unilateral cataract; Enteritis; Conjunctivitis; High Brain Sodium	Feathers covered with white crystalline material.	20.10	2120	0.69	1.87				
19	8/29/01	D0108488	9/14/01	Final	Northern Shoveler #173, Y-157	1360	Perc Pond	Proventriculus (stomach) has scant pasty light brown content	Negative	None	Tracheitis; Interstitial Nephritis; Hepatitis	Bird was euthanized. Inflamation in trachea noted.	1.82	1310	0.05	1.00				
	9/3/01	D0108618	9/10/01	Preliminary Accumulative #1	Mallard, #174, B02614	1840	Shallow pond at Huang Huay	Empty	Pending	Pending	Consistent with acute bacterial infection.									
20	9/3/01	D0108618	9/17/01	Final	Mallard #174, B2614	1840	Shallow Pond at Huang Huay	Empty	Pending	None	Klebsiella pneumoniae isolated in respiratory tract. Bronchopneumonia and airsacculitis; Splenitis	Lesions in respiratory tract are consistent with acute bacterial infection.	52.40	1600	0.23	2.01				
	9/5/01	D0108739	9/18/01	Preliminary Accumulative #1	Pied Billed Grebe Y-120	51,000	East Trona Skimmer					Bird was scavenged; oil globs ware removed;								
21	9/5/01	D0108739	9/19/01	Final	Pied Billed Grebe Y-120	51,000	East Trona Skimmer					Condition of the bird will likely preclude adequate histologic evaluations.								
	9/16/01	D0109021	9/19/01	Preliminary Accumulative #1	Northern Pintail #177, B-2618	Pending	Westend SecondaryPond	Empty	Pending	Pending	Possible renal gout; Chronic diverticulating ulcer	Bulging in gizzard corresponds to an ulcer or diverticulum.								
22	9/16/01	D0109021	10/1/01	Final	Northern Pintail #177, B-2618	1540	Westend SecondaryPond	Empty	None	None	Most likely renal failure associated with renal gout. Large chronic cavitating ulcer, proximal gizzard wall.	Renal gout, acute, moderate					9.82	2700	0.53	1.00
23	9/255/01	D0109292	10/1/01	Final	Eared Grebe #179, Y116	2320	Dredge Pond	Unremarkable	None	None	Presumptive Salt Toxicosis	Euthanized.								
24	10/28/01	D0110616	11/13/01	Final	Ring-Necked Duck, #220, R-33	1780	L Channel, south end of Dredge Pond		None	None	Not identified	Acute vascular congestion noted. Parasites in small intestine and cecum.								
25	12/2/01	D0111639	12/17/01	Final	Pied Billed Grebe, #258, R-43	1460	Dredge Pond		None		Skeletal muscle degeneration with sarcoplasmal mineralization.	Euthanized on 12/4/01								

Necropsy Summaries

	Date Taken	Accession No.	Date of Report	Report Type	Bird and Band Number	Sodium ppm	Location Found	Gastrointestinal Tract	Bacterial Culture	Salmonella Culture	Cause of Death	Other Comments	Liver B	Liver Na	Liver As	Liver Se	Blood B	Blood Na	Blood As	Blood Se
26	12/10/01	D0111823	12/13/2001	Preliminary Accumulative #1	Ruddy Duck #269, R-27	Pending	On Perc Pond, ~ T of Cement & Injection Line Roads	Empty	Pending	Pending	Presumptive gout deposits, pericardial sac. Compressed cerebellum.									

Note: Normal Sodium = 1600 to 1710 ppm or <2000 ppm

*Gross pathology notes along with identification #149, Y-61, 'Horseyrd"

OFFICE OF
CITY ATTORNEY
ROCKARD J. DELGADILLO
CITY ATTORNEY

PHILIP SHINER
CHIEF ASSISTANT CITY ATTORNEY
FOR WATER AND POWER

DEPARTMENT OF WATER AND POWER
LEGAL DIVISION
P.O. BOX 51111 - SUITE 340
LOS ANGELES, CALIFORNIA 90051-0100

TELEPHONE (213) 367-4500
FAX (213) 367-4588

December 21, 2001

Judith Unsicker
California Regional Water Quality
Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

Re: Comments on Draft Recommendations for
Changes in Lahontan Region's Section 303(D) List

Dear Ms. Unsicker:

This letter is the City of Los Angeles' response to your request for comments on the Staff Report on Recommended Changes to the Lahontan Region's List of Impaired Water Bodies under the federal Clean Water Act. The staff report implicates several water bodies of great interest to the Los Angeles Department of Water and Power and we are pleased to have the opportunity to offer additional information that may prove useful to the Board as it considers its options.

In the past year, it has become apparent that the national TMDL process is in flux and needs to be improved. At a time when the Environmental Protection Agency has taken the unprecedented step of meeting with stakeholders and interested parties throughout the country in order to improve the TMDL program, Los Angeles hopes that the Lahontan Board intends to conduct a similar analysis of its current process.

First, we would like to address the staff's recommendation to retain the Haiwee Reservoir Complex on Lahontan's 2002 list. After discussing the Haiwee listing, we will comment on other water body components of Los Angeles' drinking water delivery system.

Los Angeles Department of Water and Power staff have been working diligently with Lahontan Board staff since Lahontan first raised concerns about the status of Haiwee in the early 1990s. In both discussions and correspondence, we have reiterated our view that the original listing used faulty data, and therefore, Haiwee deserves to be delisted.

JURISDICTION

The Clean Water Act was enacted in 1972 "to restore and maintain the chemical, physical and biological integrity of the Nation's waters." 33 U.S.C. section 1251(a). Of course, the "Nation's waters" must mean something beyond a general

categorization of every water body in the land. After an initial interpretation of limited jurisdiction, the Army Corps of Engineers defined "waters of the United States" to include intrastate waters, "the use, degradation or destruction of which could affect interstate or foreign commerce," 33 CFR §328.3(a)(3) and asserted jurisdiction over all waters that could provide habitat for migratory birds. This year, the United States Supreme Court said the Army Corps of Engineers was wrong. The Court ruled that in passing the Clean Water Act, Congress did not intend to invoke the outer limits of its powers and intrude on states' regulation of their own intrastate waters, but instead meant to regulate waters traditionally considered waters of the United States. *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.* (2001) 531 U.S. 159, 121 S. Ct. 675. (SWANCC). Neither the Environmental Protection Agency nor the Lahontan Board can expand the Clean Water Act to include waters not authorized by Congress. *Id.*

Understandably, the Lahontan Board did not have the guidance of the recent Supreme Court pronouncements when it initially listed Haiwee as an impaired water body on the 1998 list. However, a fact-intensive examination of the construction and use of Haiwee Reservoir shows that this is exactly the type of water body that the Supreme Court refers to as outside the label of "waters of the United States" in SWANCC. The Supreme Court's guidance in this matter should be heeded as California implements federal law.

Haiwee is an artificial reservoir constructed in 1913 on a site that was never part of any historical watercourse. Haiwee's two reservoirs have a surface area of approximately 1400 acres, an average depth of about 28 feet, and can store approximately 38,800 acre feet of water. The natural course of the Owens River led to Owens Lake and did not lead to the land which is now Haiwee, but the water was diverted there as a part of the construction of the Los Angeles Aqueduct. Haiwee is approximately five miles south of the southernmost point of Owens Lake, the natural terminus of the Owens River. After water passes through the uncovered water storage facility at Haiwee, it enters the covered aqueduct for delivery to Los Angeles, where it is ultimately consumed by residents of the City. Water diverted to Haiwee does not reenter any natural body of water except as part of the municipal sewer system flow.

The United States First Circuit has found that once "water leaves the domain of nature and is subject to private control rather than purely natural processes . . . [it] has lost its status as waters of the United States." *Dubois v. U.S. Dept. of Agriculture* (1st Cir. 1996) 102 F.3d 1273, 1297. Haiwee's creation, maintenance and continued existence is wholly subject to private control. Its waters have left the domain of nature, having been converted into a municipal drinking water system. Since Haiwee does not possess the characteristics of a "water of the United States," it does not fall under the aegis of the Clean Water Act and the TMDL process. Jurisdictionally, Lahontan is without authority to regulate Haiwee under the federal statute. The delisting of Haiwee is appropriate for a water body that is not subject to the Clean Water Act and was mistakenly placed on the "impaired" list at a time when the full extent of the Clean Water Act was not clear.

LISTING/DELISTING CONSIDERATIONS

While we understand there is currently no formal statewide listing/delisting guidance, Los Angeles is encouraged by the specific criteria identified by the Lahontan Regional Board Staff. After reviewing these considerations, however, it is unclear as to why the staff has not recommended delisting for the Haiwee Reservoir. Application of the

delisting criteria to the current listing of Haiwee shows that this water body should be considered a prime candidate for delisting under the Lahontan staff's standards.

Consideration 2: "The Basin Plan is revised to remove a designated beneficial use in accordance with the circumstances set forth in federal water quality standards regulations and USEPA guidance, and the non-support issue is thereby eliminated. (USEPA regulations prohibit the removal of designated uses under certain circumstances.)

As noted above, Haiwee was built in 1913 as a reservoir. The outflow of lower Haiwee is used for a hydroelectric power plant. In 1991, the Department of Water and Power applied to the Department of Health Services for an amendment to its drinking water permit to allow fishing in the reservoir. The California Constitution provides for a right to fish on lands previously owned by the State. However, this right is not absolute, and both the California Supreme Court and the Attorney General have envisioned scenarios where fishing must cede to the need to provide potable drinking water.

In a San Luis Obispo case, the California Supreme Court ruled that the right to fish cannot exist in a vacuum. The Court examined the ballot argument presented to the voters when they approved the constitutional amendment in 1910 and concluded that the framers and electorate did not intend the right to fish to apply to state-owned lands which are used for a governmental purpose that is incompatible with use by the public for fishing. (*State of California v. San Luis Obispo Sportsman's Association, et al.* (1978) 22 Cal. 3d 440 at 447.) The ballot arguments in favor of the amendment aimed at protecting the continuation of public fishing on waters of the state as the lands surrounding them were sold off and developed. At the time those ballot arguments were drafted, no fishing was possible on the dry land that was destined to become the Haiwee Reservoir because it had not yet been constructed.

The California Attorney General, in a seminal opinion regarding the importance of safe drinking water, opined that in the event of conflict between the right to fish on waters impounded by a dam and the threat to public domestic water supply, the protection of the municipal water supply must prevail. (25 Ops. Atty. General 246 (1955)). The State of California has determined that the provision of safe drinking water is of the highest priority. The Legislature has endowed the Department of Health Services with expansive powers to ensure that the people of California receive the best quality water available and to force water suppliers to use the best technology available to meet state and federal standards. In prior correspondence and in conversations with Regional Board staff, Department of Water and Power staff have encouraged Lahontan to consider amending the Basin Plan to reflect the actual beneficial uses of Haiwee and not those which are unattainable and those which did not exist on the effective date of the Clean Water Act, such as fishing. These requests have been given little or no consideration.

Consideration 3: *Faulty data led to the initial listing. Faulty data include, but are not limited to, typographical errors, improper quality/assurance/quality control (QA/QC) procedures, or limitations in the analytical methods that would lead to an inaccurate conclusion regarding the status of the water body.*

Lahontan first listed Haiwee as an impaired water body on its 1992 list, based on the results of limited fish tissue data showing elevated copper. The State Regional

Water Quality Control Board subsequently discredited fish tissue data as unreliable and directed regional boards not to use that as the basis for listing water bodies. Therefore, Lahontan based its later listing decisions solely on alleged fish kills in 1991 and 1994. In its 1998 listing of Haiwee as an impaired water body, Lahontan relied on the fact that it had previously issued a Clean Up and Abatement Order (CAO) in 1995. The CAO was intended to prevent DWP from applying copper sulfate from a fixed source. DWP changed the method of application to aerial spraying and continued to apply the pesticide only on an as-needed basis. The CAO relied heavily on data from the California Department of Fish and Game ("DFG"). This DFG information consisted of:

1. A July 24, 1991 DFG lab report containing the total copper concentration results of only five water samples, all collected on June 28, 1991 within the aqueduct or within the mixing zone of the aqueduct.

2. An October 1, 1991 lab report on two trout fish gill samples. This lab report indicates the samples were received on September 12, 1991 for fish collected in August. However, the only fish kills that occurred in 1991 took place in June. The DFG warden reported having collected five dead fish (3 carp and 2 trout) on June 28, 1991. Therefore, the fish samples received by the lab had been collected two months beforehand. Additionally, the lab reports noted receiving fish gill tissue samples, as opposed to whole fish samples for dissection in the lab, indicating the possibility for sample contamination. Serious quality control and sample chain of custody issues exist.

3. Anecdotal, qualitative, and subjective opinions from DFG biologists as to the lack of biodiversity in the reservoir based on the contents of a limited sample set of trout fish stomachs. The collection of these trout were for a wholly disparate reason unrelated to the review of stomach contents to assess biodiversity.

4. A reference to eight sediment samples collected by DFG on May 4, 1992.

It is clear from the CAO administrative record, both from DWP's comments and those from the state's expert scientist, that the integrity and quality of the underlying scientific information was suspect. DWP, in its petition for review of the CAO, challenged the quality, integrity, and validity of this data. Those comments in their entirety are incorporated by reference. In short, DWP asserted:

1. The DFG trout stomach data set was small and not fully representative of the reservoir since the electroshock survey was performed for a wholly different reason. The conclusions drawn were qualitative and not scientifically supportable.

2. The fish samples were subjected to post-mortem contamination, thus invalidating their results.

3. The fish necropsies were biased towards copper in that no other fact finding was performed.

4. Improper collection and possible contamination of field water samples occurred. Clean sampling and analytical techniques were not used.

5. Improper sediment sample collection techniques as noted in the declarations made by DWP scientific experts in our response to the CAO.

In Lahontan's response to DWP's Petition, its expert scientist from University of California, Berkeley, Tom L. Dudley, Ph.D., stated on several occasions throughout his declaration that he concurred about the flaws in the data and called for the need to perform additional studies. Referring to the water and fish samples collected by DFG, Dr. Dudley declared in relevant part:

"There is general agreement that DFG sampling methods were highly compromised by reverse order of sample acquisition, dependence on anecdotal, non-quantitative information, lack of replication or collection of control samples of animal tissues, and possibly other non-rigorous sampling protocols . . . [T]hese inadequacies do not negate the linkage between copper sulfate addition [and] fishkills . . . In my opinion, they do provide justification of suspicion, and these poor-quality data provide a basis for requesting further investigation and interim modification of procedures." Dudley declaration at p. 7.[1]

While Dr. Dudley states that one cannot negate copper as a causative factor in Haiwee fish kills, more studies are clearly needed. It should be noted that since DWP began applying copper sulfate via aircraft, no fish kill has been reported for Haiwee.

The CAO was rescinded in 1998 on the condition that DWP continue to perform studies to determine whether the reservoir's ecology and overall health had been adversely impacted by copper sulfate applications. DWP has continued in good faith to pursue those studies, but the need for such studies is questioned since the application of copper sulfate occurs only to ensure that Haiwee is a safe drinking water source.

Consideration 6: *There are control measures in place which will result in attainment of standards, including protection of beneficial uses, by the next listing cycle (in 2004). Control measures include permits, cleanup and abatement orders and Basin Plan requirements which are enforceable and include a time schedule (see 40 CFR 130.7(b)(1)iii).*

This consideration is tailor-made for a water body like Haiwee, even if it were considered a "water of the United States." As stated earlier, Haiwee's primary function is to serve as a drinking water reservoir for Los Angeles' main supply. There is no plan to change the use of this reservoir; moreover, its drinking water supply permit issued by the Department of Health Services requires the continued addition of copper sulfate to combat algae. (Enclosure 1)

The data collected for the initial Clean Up and Abatement Order and the basis upon which the 1994 and 1996 303(d) lists were established is reflective of a copper application time period that no longer exists. In 1995, the Department of Water and Power changed the method of application of copper sulfate from a single pipe point source to aerial spraying. All applications follow label directions and are in full compliance with the

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[1]Dr. Dudley's declaration was attached to an October 25, 1995 letter from Lahontan Senior Engineer Ken Carter to Bruce Kuebler of DWP as Enclosure 4.

State Department of Pesticide Regulation and the County Agricultural Commissioner who oversees application compliance.

It is well documented that drinking water obtained from Haiwee meets state and federal standards and there is no reliable data showing that any other beneficial uses are impaired based on the applications of copper sulfate required by the DHS permit. Haiwee serves as the direct domestic water source for the six employee housing units located at the reservoir. Moreover, water from the reservoir is consumed by employees at San Francisquito Power Plants, Numbers 1 and 2, located south of Haiwee and above the Los Angeles Filtration Plant. To ensure that drinking water standards are maintained, no reduction in the application of copper as an algacide is permissible under state or federal law.

BASIN PLAN AMENDMENT PROCESS

In your literature, you define the amendment process as " . . .lengthy and complex, involving scientific peer review, compliance with the California Environmental Quality Act, and approvals of the amendments by several other agencies following Regional Board action." Likewise, the preparation of the Impaired Water Bodies List is a complex process and should not be taken lightly. The same scientific standards your staff use to select waters to add to the impaired water body lists should apply to those waters your Board chooses to retain on the list. The process of developing a TMDL for Haiwee is not a barrier to consideration of whether Haiwee should have been listed in the first place.

The Basin Plan amendment process can be used to ensure that California public policy is being followed. We have suggested in the past that Lahontan change the beneficial uses for Haiwee. As you stated in your literature, some of the water quality objectives in the Lahontan Basin Plan were established in 1975 based on very limited monitoring data or on older published water quality criteria. The following beneficial uses are now assigned to Haiwee:

1. Municipal and domestic supply;
2. Cold Freshwater Habitat;
3. Agricultural supply;
4. Industrial Service Supply;
5. Groundwater Recharge;
6. Water Contact Recreation;
7. Non-contact Water Recreation;
8. Commercial and Sportfishing;
9. Wildlife habitat;
10. Rare, threatened, or endangered species;
11. Spawning, Reproduction and Development.

Since the Clean Water Act aims to ensure that all waters are swimmable, fishable and drinkable, and all California waters contain the Municipal and Domestic supply beneficial use designation, the Basin Plan does not even acknowledge that Haiwee's entire purpose for existence is to supply drinking water.

The California Department of Health Services specifically requires DWP to apply copper sulfate to combat algal blooms and prohibits any water contact as a condition of its permit. Los Angeles only applies copper sulfate on an as-needed basis and it does so because that is the best available technology to combat algae, and the best management practices in the water supply business dictate that algae be eradicated before it blooms and creates health risks to the consumers.

Recent studies conducted by the Centers for Disease Control and Prevention showed that blue green algae or cyanobacteria can produce toxins that harm skin and liver functions and cause nerve disorders in humans. Obviously, the EPA is concerned enough about this problem because it has listed algae and their toxins on its Candidate Contaminant List and the agency is planning to examine the occurrence of cyanobacteria in drinking water under the Unregulated Contaminant Monitoring Rule. These recent studies only add to the documented health effects that algae can have on domestic and wild animals.

The Basin Plan could and should be amended to delete the unnecessary, boilerplate beneficial use designations and concentrate on the beneficial use that Water Code section 106 calls the "highest use of water" in the state - the municipal and domestic supply.

DWP remains regulated in its use of copper sulfate, even without the application of the Clean Water Act. The Department of Health Services requires regular reports on water quality data. In addition, DWP is accountable to the Department of Pesticide Regulation (DPR) and the County Department of Agriculture. Under DPR regulations, DWP must inform the County Department of Agriculture every time it applies copper sulfate. And the Environmental Protection Agency establishes strict labeling directions on how to use the copper sulfate. By delisting Haiwee and amending its Basin Plan to reflect the actual uses of the water, instead of uses that are not even potential uses, Lahontan would serve the public well.

OTHER WATER BODIES ESSENTIAL TO LOS ANGELES' WATER DELIVERY SYSTEM

Delisting

The City of Los Angeles concurs with Lahontan staff recommendations to delist the affected water bodies in the Mono and Owens Hydrologic Units because the arsenic impairment is natural and there are no "pollutants." This decision is supported by case law under the Clean Water Act.

Recommendations for Retention on the 303(d) List

The Tinemaha Reservoir is recommended to be retained on the list for copper. The listing considerations provided by the Lahontan staff appear to be quite broad and the listing of Tinemaha for copper does not include any demonstration of impairment. Like Haiwee, Tinemaha is an integral part of Los Angeles' water delivery system. Copper sulfate has been applied to that water body only on an as-needed basis and the same arguments regarding its priority of beneficial uses apply to its listing. At most, it appears that Tinemaha could be placed on the 305(b) "watch list" until such a time that scientifically

valid and credible data supports its listing on the 303(d) list. Otherwise, the decision to place that water body on the impaired list is premature and unsupported by sound science.

An additional group of water bodies, including Lee Vining Creek, Owens River (Long HA), Owens River (Upper), Owens River (Lower), Tuttle Creek, and Cottonwood Creek below LADWP diversion is designated with a footnote stating:

"Pending revisions to federal regulations for the implementation of Section 303(d) of the Clean Water Act would clarify that TMDLs are not required for waters impaired by flow alterations, water/flow variability and habitat alterations, unless specific 'pollutants' are also involved. (Load calculations are not feasible in cases where there are no pollutants.) Under the proposed new regulations, waters impaired by habitat or flow alterations, or by flow variability, would be placed on a separate list of impaired waters to highlight the need for control strategies other than TMDLs."

It would appear to be a reasonable course to recommend taking those water bodies off the Impaired Water Body list if there is no evidence of pollutants. We recommend that the Board remove these water bodies from the 303(d) list rather than retain them on the list until the EPA's final action. This removal would leave staff more time to focus on other water bodies actually polluted.

Additional Study Needed

An additional group of water bodies is listed with the designation "Need study to verify need for TMDL." These water bodies include: Mammoth Creek. The explanation for those water bodies' listing appears to be more appropriate for placing them on the 305(d) "watch list." The listing of water bodies on the 303(d) list should take place in a uniform fashion.

In closing, the Los Angeles Department of Water and Power takes its responsibility to provide safe drinking water very seriously. The Department regularly reports its water quality data to the California Department of Health Services and complies with the conditions the state has placed on its permit. We believe that the Lahontan Board shares our concern for a clean, safe environment and look forward to a continued cooperative relationship with the Board and its staff.

If you have any questions or require additional information about our drinking water or power systems, please do not hesitate to contact me.

Sincerely,

S. David Hotchkiss

S. DAVID HOTCHKISS
Assistant City Attorney

SDH:kr 80244
(213) 367-4591

Enclosures
c: Gerald A. Gewe Pankaj Parekh
James McDaniel Susan Damron

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY PETE WILSON, Governor

DEPARTMENT OF HEALTH SERVICES
OFFICE OF DRINKING WATER
1449 WEST TEMPLE STREET, ROOM 202
LOS ANGELES, CA 90026
(213) 620-2980
FAX 213-620-2656

November 16, 1993

City of Los Angeles
Department of Water and Power
Water Quality Division
Room A-18
P.O. Box 111
Los Angeles, CA 90051-0100

Gentlemen:

PERMIT AMENDMENT NO. 04-93-000
SYSTEM NO. 1910067

The application of the City of Los Angeles, Department of Water and Power, dated May 24, 1993 requested a permit amendment to allow shore fishing at North and South Haiwee Reservoirs, Inyo County. The application was made in accordance with Section 4463 of the California Health and Safety Code. Enclosed is a copy of the engineering report dated September 30, 1993 prepared by the Drinking Water Field Operations Branch regarding your application.

It is the Finding of the State Department of Health Services that Sections 4010 to 4039.6, 4450 to 4468, inclusive, of the California Health and Safety Code can be met by your water system. This finding is based on the cited report. An amendment to your domestic water supply permit is hereby granted to the City of Los Angeles, Department of Water and Power, to permit limited shore fishing on North and South Haiwee Reservoirs, subject to the following provisions:

1. The surveillance and enforcement program shall be updated as needed. This office shall be notified in writing of any changes within 30 days.

2. The Aqueduct notification list shall be updated as needed. This office shall be notified in writing of any changes within 30 days.

3. The Policy on Coordination Water Quality Problem Episodes shall be updated as needed. This office shall be notified in writing of any changes within 30 days.

4. Only shore fishing, sealed wading and fishing with sealed waders from float tubes are permitted. Other recreational activities are forbidden.

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12/1/93 c: J. Miller, P. Parekh, B. White

5. A copy of the informational brochure for visitors shall be provided to this office prior to the Haiwee Reservoir being opened for fishing.

This permit amends and adds to the existing permit granted on May 7, 1919 and amendments granted on September 17, 1982, November 5, 1982, March 29, 1985, October 15, 1986, May 31, 1991 and July 19, 1991.

If you have any questions, please contact Vera Melnyk Vecchio at (213) 620-5460.

Sincerely,

Gary H. Yamamoto

Gary H. Yamamoto, P.E.
District Engineer

cc: LACDHS
Inyo CHD

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STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY PETE WILSON, Gove.

DEPARTMENT OF HEALTH SERVICES
OFFICE OF DRINKING WATER
1449 WEST TEMPLE STREET, ROOM 202
LOS ANGELES, CA 90026
(213) 620-2980
FAX 213-620-2656

Engineering Report
For Consideration of the Permit Application From
City of Los Angeles, Department of Water and Power
Serving the City of Los Angeles and Environs
Los Angeles County
October 4, 1993

Drinking Water Field Operations Branch
State Department of Health Services
Vera Melnyk Vecchio, Project Engineer

The City of Los Angeles, Department of Water and Power (DWP), has applied for an amended permit dated May 24, 1993 to allow shore fishing at North and South Haiwee Reservoirs in Inyo County.

In 1991 DWP noted that some of the land at North and South Haiwee Reservoirs was acquired from the State of California, and as such the reservoir may be required to be open to public fishing. Article I, Section 25 of the California Constitiuion specifies that "No land owned by the State shall ever be sold without reserving in the people the absolute right to fish thereupon." However the right to fish may be extinguished if public recreational fishing were to become incompatible with the reservoir's function as a domestic water source (State of CA vs. San Luis Obispo Sportsman Association [1978] 22 Cal 3d440).

A. HAIWEE COMPLEX

The Haiwee Reservoir Complex is located approximately 10 miles south of Owens Lake and 1.5 miles east of Highway 395 in Inyo County, California. It conisists of North and South Haiwee Reservoirs which are separated by an earthen berm at Merritt Divide (Attachment No. 1). The Haiwee Reservoir Complex was originally designed to allow flow from the North Reservoir into the South Reservoir. However, South Haiwee Reservoir has been out of service since July 1989 pending a review of South Haiwee Dam

by the State Department of Water Resources, Division of Safety of Dams. During that time period, the Haiweee Bypass Channel diverted flows to the Los Angeles Aqueduct. Groundwater flows have been sufficient to maintain a stable surface water elevation of approximately 3,708 feet and a maximum depth of 15 feet in South Haiwee Reservoir.

In 1992 the Division of Safety of Dams approved South Haiwee Reservoir for permanent storage at a maximum water surface level of 3,742 feet, totaling 27,300 acre feet of stored water. DWP began filling South Haiwee Reservoir in early 1993. Filling would be based upon approval of DWP's operational plan by the Division of Safety of Dams. Once it is filled, North Haiwee Reservoir will primarily supply the second Los Angeles Aqueduct via the bypass channel, while South Haiwee Reservoir will supply the first Los Angeles Aqueduct. Water will also flow through North Haiwee Reservoir into South Haiwee Reservoir for storage.

North Haiwee Reservoir is an 11,533-acre-foot reservoir that was placed into service in 1913. Detention times vary between approximately 4 and 23 days, depending on the operation of the Los Angeles Aqueduct. Flow through the reservoir appears to be at least partially channelized, and there may be several dead-water regions along its meandering shoreline. Water flows southward and can exit the reservoir through the Merritt Divide invert when South Haiwee Reservoir is in service, or through the Haiwee Bypass Channel, or both. Northerly and southerly winds predominate. Wind-induced turbidity events are possible during reservoir drawdowns.

South Haiwee Reservoir was originally constructed in 1913 as a 46,600-acre-foot reservoir. It had been out of service since 1989, except for short-term exemptions at reduced capacity. Historically, standard operation included southward flow from the Merritt Divide invert through South Haiwee Reservoir to the outlet tower and retention times were roughly three to four weeks. As in North Haiwee Reservoir, flow is probably channelized to some extent and wind-induced turbidity events have occurred in the past. Pedestrian hazards include the Haiwee Bypass Channel.

B. RESERVOIR TREATMENT

Both reservoirs have a history of blue-green algal blooms that can produce significant taste and odor problems. Also the Asiatic clam, Corbicula, which has obstructed water-transfer facilities in other places is known to be established in the Owens River watershed. These clams can be controlled by the addition of copper sulfate.

Liquid copper sulfate is currently stored on-site in two 12,000-gallon tanks at the inlet to North Haiwee Reservoir. Liquid copper sulfate is fed as needed at the North Haiwee inlet to control algae and other contributors to taste and odor problems. Treatment rates are adjusted manually in response to aqueduct flow changes and to maintain an effective residual throughout the entire reservoir. A copper concentration of approximately 0.25 mg/l at the reservoir inlet is usually adequate to achieve a residual of 0.08 mg/l at the outlet. Two storage tanks located at Merritt Cut have been out of service since 1988, but liquid copper sulfate treatments are expected to resume once South Haiwee Reservoir is fully operational. All treatments are performed and supervised by state-certified, Grade 3 water treatment operators. The Haiwee Complex is not closed during liquid copper sulfate additions.

C. PROTECTIVE ZONE

Fencing and appropriate signage will delineate a protective zone of at least 500 feet around the point of water withdrawal for water supply from recreational areas.

D. RULES AND REGULATIONS REGARDING USAGE

DWP will open both North and South Haiwee Reservoirs to recreational fishing. DWP is continuing to discuss potential future recreational uses of the Haiwee Reservoirs with the County of Inyo, the State Department of Fish and Game, the Bureau of Land Management, the Owens Valley Warm Water Fishing Association, and others. A permit for additional activities may be requested at a later date pending these negotiations. A permit will be required from the State Department of Health Services, Drinking Water Field Operations Branch.

Sections 4465 and 4466 of the Health and Safety Code permit a public agency owning or operating a reservoir to establish and enforce all rules and regulations necessary to conduct public fishing on the reservoir and its surrounding land. These rules and regulations shall be published in Inyo, Kern, and Los Angeles counties in newspapers of general circulation and posted in the area open to public fishing. DWP has proposed that certain rules and regulations will be adopted to control fishing and protect the operation of the reservoir, its structures and facilities and the surrounding environment. The following rules and regulations have been adopted and

will be published and posted throughout the reservoir complex. Recreational fishing will be permitted at Haiwee Reservoir Complex under the following conditions and prohibitions:

1. Haiwee Reservoir is a domestic water-supply reservoir and shall not be polluted.

2. Only shore fishing, fishing with sealed waders, or fishing with sealed waders from float tubes is permitted. Waders must be in sound condition and completely cover the immersed portions of an angler's body so as to prevent direct body contact with the water. No wetsuits. Waders must be worn at all times while float tube fishing. Waders must be worn at all times while wading for the purpose of fishing. A United States Coast Guard approved personal flotation device must be worn at all times while float tube fishing.

3. No fishing from reservoir facilities or adjacent areas that are posted with "No Fishing" signs.

4. Boating, flotation devices except for float tubes with sealed waders, swimming, and any form of direct body contact with the water are prohibited.

5. No hunting or possession of firearm on DWP Haiwee Reservoir property.

6. Parking permitted only at designated locations posted with "Parking Area" signs.

7. Parking of vehicles with waste holding tanks is prohibited at the Merritt Divide parking area.

8. Dumping of recreational vehicle waste holding tanks is prohibited.

9. Bodily elimination only permitted at the restrooms provided.

10. No overnight camping or campfires permitted on DWP Haiwee Reservoir property.

11. No gutting or cleaning of fish on DWP Haiwee Reservoir property.

12. Haiwee Reservoir fishing access is open from one hour before sunrise to one hour after sunset.

13. Violation of these rules and regulations is a misdemeanor punishable by law. California Health and Safety Codes 4465, 4466, 4467.

E. RESERVOIR ACCESS

Public access by fishermen and others would include use of existing access roads on the west side of the Haiwee Reservoir Complex, indicated on Attachment No. 1. There will be no vehicle access provided to the east side of the reservoirs. The shore road on the west side of North Haiwee Reservoir will be gated and posted to provide access only to pedestrian or bicycle traffic.

The westside roads will lead to four small and unpaved parking areas totaling 1.1 acres (Attachment No. 1). Parking availability will limit vehicular traffic but there will be no restrictions placed on foot access or on the total number of visitors. Due to the remoteness of the location and the prohibition of body contact with the water of the reservoirs, few visitors are expected on any one day. Other California reservoirs offering similar recreational opportunities typically host less than 20,000 visitors per year. This estimate is consistent with the number of anglers currently fishing Pleasant Valley Reservoir under comparable restrictions for the past several years.

Between Highway 395 and DWP land surrounding the Haiwee Reservoir Complex, there are intervening government and private owners. It should be noted that DWP has no control over public access and parking on lands not under its ownership. (See Attachment No. 1)

F. SANITATION FACILITIES

A chemical toilet will be available in each parking area to encourage visitors to make use of the sanitary facilities before approaching the shoreline. Single chemical toilets have been placed at the locations along the west shore road indicated on Attachment No. 1. These locations were identified as probable high-use areas in consultation with professional reservoir recreation managers on the basis of two criteria: ease of shoreline access, and presence of near shore fish habitat. Use patterns will be monitored and the original toilets moved or additional toilets added as

necessary. All of the toilet facilities will be anchored and surrounded by a protective berm. A covered and anchored trash container will be placed near each toilet facility.

A competitive bidding process will be used to select the appropriate contract services for trash removal and toilet maintenance. Due to the remoteness of the Haiwee Reservoir Complex and the limited number of expected visitors, the toilet and trash facilities located in each of the four parking areas will be inspected daily by the caretaker and will be serviced weekly by the contractor. Facilities along the shore road will be inspected and maintained on a weekly basis. More frequent inspections and maintenance will be arranged if necessary.

G. WATER QUALITY MONITORING

The reservoir will be inspected biweekly during the spring and summer and monthly during the fall and winter. Inspections may be more frequent at the beginning of the season when water temperatures approach 17°C. The following parameters will be monitored: levels of planktonic algae, dissolved oxygen, alkalinity, pH, odor, appearance, temperature, turbidity, transparency, and copper residual. The Inyo County Health Department is contracted to analyze monthly samples from North Haiwee Inlet, Merritt Cut, and the Los Angeles Aqueduct Intake for fecal and coliform bacteria using the multiple tube fermentation method.

H. VISITOR EDUCATION

The public will be made aware that the Haiwee Reservoir complex is a source of domestic water supply. Informational brochures will be provided at each of the parking facilities and local visitor centers and sporting goods stores. The brochures shall state all rules and regulations, cite pertinent civil codes, and indicate that the facility is a domestic water source and shall not be polluted. Large permanent signs with two-inch lettering stating the same rules, regulations, civil codes, and admonitions will be placed on the main access roads, in each parking lot, and near each toilet facility.

I. EMERGENCY NOTIFICATION AND RESPONSE

The emergency procedures are enclosed. Aqueduct Notification List (Attachment No. 2) and the Water Quality Emergency Notification Plan (Attachment No. 3) provide details on existing procedures.

The reservoirs will be closed in the event of natural disasters such as earthquake, flood, or fire, or when the safety of the stored domestic water supply is jeopardized for any reason. The access roads will be blocked and any visitors instructed to leave by the reservoir keeper.

Existing procedures are sufficient to resolve all foreseeable water quality problems at the Haiwee Complex. The two days needed for Haiwee water to reach the Los Angeles Aqueduct Filtration Plant provide ample time for appropriate actions to be taken to ensure the protection of drinking water quality. The Policy on Coordination of Water Quality Problem Episodes (Attachment No. 4) and the Water Quality Division Notice of Change form (Attachment No. 5) provide details regarding the management of unusual occurrences and the communication of response orders to appropriate staff.

An investigation will be conducted by a DWP biologist of any contamination of the Haiwee drinking water supply and the sampling frequency will be increased as needed. A report detailing the nature of the event, the circumstances leading up to it, and the steps taken to prevent a reoccurrence will be provided to the California Department of Health Services within 30 days of notification.

J. SURVEILLANCE AND ENFORCEMENT PROGRAM

Two reservoir keepers reside at the Haiwee Reservoir Complex at all times; one at the north end of North Haiwee Reservoir and one at the south end of South Haiwee Reservoir. One reservoir keeper is on the premises and available for duty at all times and the reservoirs are patrolled periodically during daylight hours. Additional on-call personnel will be placed at the disposal of the reservoir keeper for temporary surveillance duty when needed.

Jack V. Pearson, the Aqueduct and Reservoir Keeper residing at South Haiwee Reservoir, has primary oversight responsibility for the Haiwee Reservoir Complex. In the event that additional personnel are needed to monitor fishing activities, Mr. Pearson is authorized to direct one of three other DWP employees to report immediately for temporary patrol duty. The employees permanently on call are:

Michael S. Miller, Aqueduct and Reservoir Keeper, North Haiwee Reservoir
Lowell J. Trent, Aqueduct and Reservoir Keeper, radio call No. A-315

Clark Lennox, Aqueduct and Reservoir Keeper, radio call No. A-314

Mr. Pearson is to request any additonal assistance from one of his supervisors:

Robert E. Stockman, Independence Labor Supervisor
Larry B. Thompson, Independence Labor Supervisor
Charles R. Miller, Independence Labor Supervisor
Eric Johnson, Independence Labor Supervisor
Michael Coia, Construction and Maintenance Superintendent

Persons violating the recreational rules and regulations will be instructed by the reservoir keeper to comply. The Inyo County Sheriff will be called upon to evict those who disobey the Health and Safety Code or disregard the conditions and prohibitions herein.

K. GRANTING PERMIT TO OPERATE

It is the finding of the Drinking Water Field Operations Branch of the State Department of Health Services that the City of Los Angeles, Department of Water and Power, is hereby granted an amended domestic water permit to allow limited shore fishing on North and South Haiwee Reservoirs subject to the following provisions:

1. The surveillance and enforcement program shall be updated as needed. This office shall be notified in writing of any changes, within 30 days.

2. The Aqueduct notification list shall be updated as needed. This office shall be notified in writing of any changes, within 30 days.

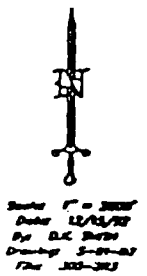
3. The Policy on Coordination Water Quality Problem Episodes shall be updated as needed. This office shall be notified in writing of any changes within 30 days.

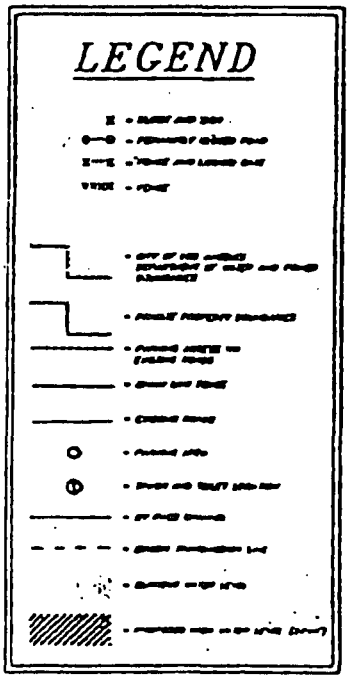
4. Only shore fishing, sealed wading and fishing with sealed waders from float tubes are permitted. Other recreational activities are forbidden.

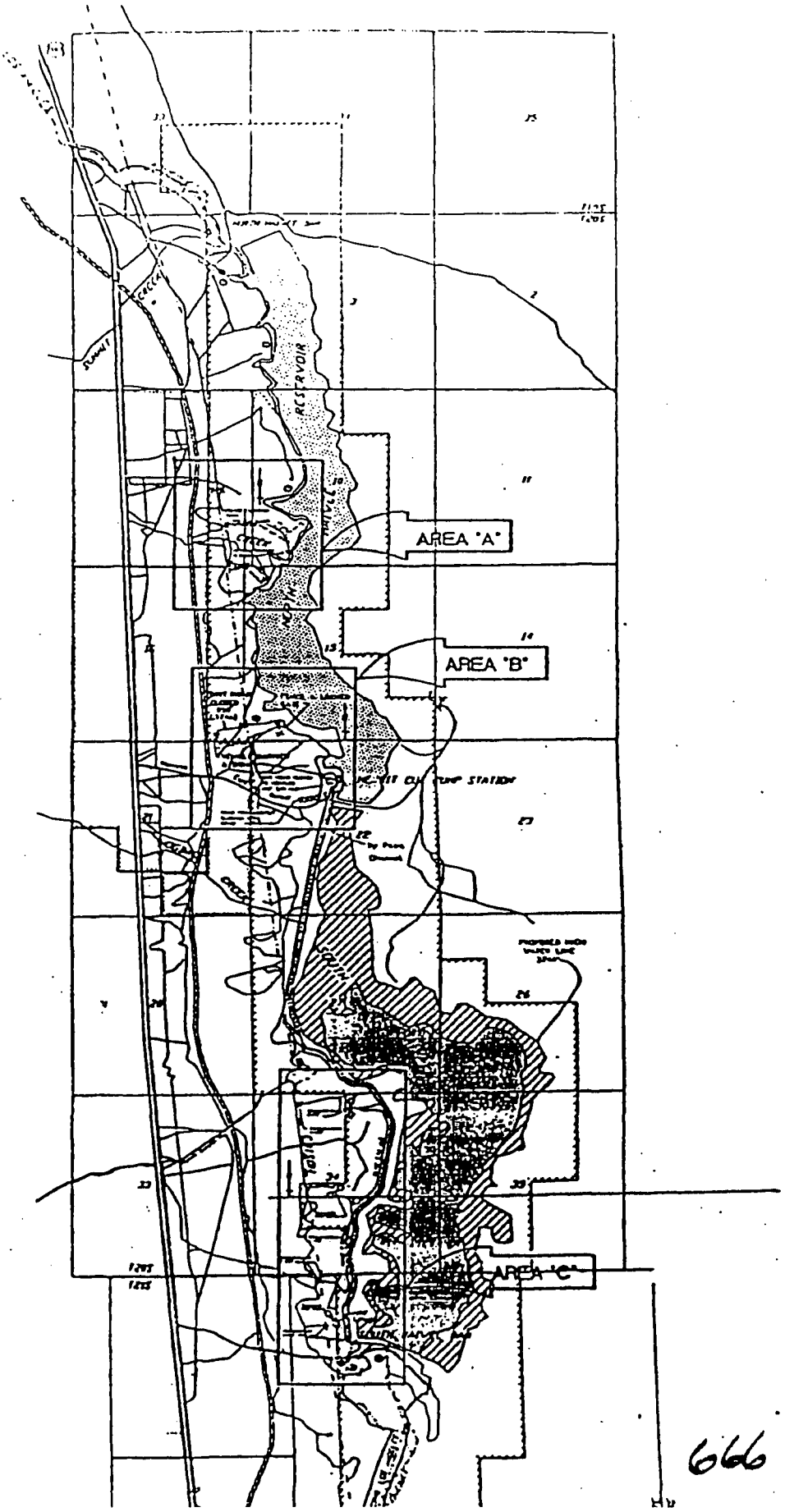
5. A copy of the informational brochure for visitors shall be provided to this office prior to Haiwee Reservoirs being opened for fishing.

Attachment No. 1

NORTH AND SOUTH HAIWEE RESERVOIRS







Attachment 2
REVISED 6/7/93

Code 8701147
Rev. 9-91

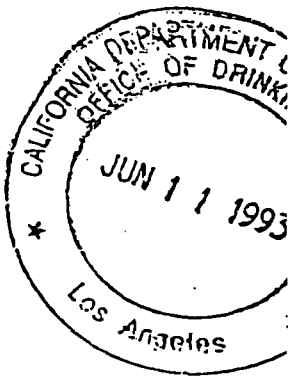
MEMORANDUM

LOS ANGELES AQUEDUCT DIVISION

MEMO BY Henry R. Venegas TO Distribution DATE June 7, 1993

FILE TITLE Aqueduct Notification List

The following is a listing of persons to contact and procedures to follow in the event of an emergency or other necessary notification involving the Los Angeles Aqueduct. Water quality problems are to be immediately reported to the Water Quality Division personnel shown.



Primary Notification

Aqueduct Division Southern District (Haiwee Reservoir to Los Angeles)

	Person	Work Number	Page Number
1.	Jay Beidelman (Aqueduct Operations Dispatcher)	(213) 481-6200	(213) 919-5497 *
2.	Vee Miller (Associate Engineer - Aqueduct Operations)	(213) 481-6200	(213) 919-5498 *
3.	David Allen (Assistant Engineer - Aqueduct Operations)	(213) 481-6200	

* **Paging Procedures:**

1) Telephone page number
2) Wait for three beeps
3) Key in your phone number, including area code
4) Hit pound sign
5) Hang up

Aqueduct Division Northern District (Mono Basin to Haiwee Reservoir)

	Person	Work Number	Page Number
1.	Michael A. Coia (Construction and Maintenance Superintendent)	2-873-0226 or (619) 873-1104	1069**
2.	Fred Finkbeiner (Waterworks Engineer - Aqueduct)	2-873-0256 or (619) 873-1104	5570**

** Paging Procedures:

1) Telephone (619) 243-7243
2) Wait for beep
3) Enter Page Number
4) Hit pound sign
5) Wait for ring and three beeps
6) Enter your call-back number
7) Hit pound sign
8) Hang up

Water Quality Division

Person	Work Number	Page Number
1. Kendrick Okuda (Assistant Engineer - Engineering Operations and Analysis)	(213) 482-0158	(213) 919-0403 *
2. William Heyer (Biologist Supervisor - Biological Control)	(818) 771-2651	(213) 919-0399 *
3) Douglas Ball (Biologist - Biological Control)	(818) 771-2641	(213) 919-0390 *
4) Jay Negrin (Biologist - Biological Control)	(818) 771-2641	(213) 919-0398 *

* Paging Procedures:

1) Telephone page number
2) Wait for three beeps
3) Key in your phone number, including area code
4) Hit pound sign
5) Hang up

Secondary Notification

If no response is received from calls or pages to the above parties, contact the appropriate persons listed below during normal work hours. If after normal work hours, call the Department Operator (Southern District) or Control Gorge Power Plant Operator (Northern District), both available 24-hours, at (213) 481-4211 and (619) 387-2400 respectively. Inform the Operator which of the following person(s) should be notified based on the nature and location of the

problem. Persons are listed by jurisdictional responsibility and order of notification preference.

Aqueduct Division Southern District (Haiwee Reservoir to Los Angeles)

1. Jerry Sterling, Construction and Maintenance Superintendent
   Internal work number: 2-824-7901
   External work number: (805) 824-7901
   Mojave Yard

2. Kenneth L. Salsman, Waterworks Engineer
   Work number: (213) 481-6198
   Room 1466, General Office Building

3. Donald G. McBride, Southern District Engineer
   Work number: (213) 481-5339
   Room 1466, General Office Building

Aqueduct Division Northern District (Mono Basin to Haiwee Reservoir)

Glenn Singley, Northern District Engineer
Internal work number: 2-873-0223
External work number: (619) 873-0223
Pager number: (800) 272-4363 **
Bishop Office

Water Quality Division

1. John D. Miller, Sanitary Engineer
   Work number (213) 481-3147
   Room A-18, General Office Building

2. Eldon E. Horst, Senior Waterworks Engineer
   Work number: (213) 481-3150
   Room A-18, General Office Building

3. Bruce W. Kuebler, Principal Waterworks Engineer
   Work number: (213) 481-3142
   Room A-18, General Office Building

If primary and secondary notification results in unsuccessful contact with any of the above listed persons, the Aqueduct Division Engineer shall be contacted at either of the following numbers:

Henry R. Venegas, Engineer in Charge
Los Angeles Aqueduct Division
Work number: (213) 481-6191
Room 1466, General Office Building
Home Number: (213) 724-9560

Mitchell M. Kodama, Assistant Engineer in Charge
Los Angeles Aqueduct Division
Work number: (213) 481-6180
Room 1466, General Office Building
Home Number: (818) 333-5572

Once contact is made with one of the above listed persons, that person will be responsible for all internal Aqueduct notifications warranted by the particular situation.

If you have any questions or require additional information, please contact Vee Miller of my staff at (213) 481-6201.

BNW:cc

Distribution

James F. Wickser
Laurent McReynolds
Duane D. Buchholz
Bruce W. Kuebler
Dennis C. Williams
Control Gorge Power Plant
Haiwee Power Plant Control Room
Power Plant 1 Control Room
ECC Control Room
Water Trouble Board, LAWS-DAC
LA Aqueduct Filtration Plant Control Room
M. Adams
Henry R. Venegas
G. C. Singley
M. M. Kodama
K. L. Salsman
T. J. Sterling
J. E. Herbaugh
L. L. Graves
R. Nagel
V. N. Miller
J. D. Miller
G. J. Beidelman
D. F. Allen
K. K. Okuda
W. M. Heyer
D. B. Ball
J. M. Negrin

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Attachment 3

WATER QUALITY EMERGENCY NOTIFICATION PLAN

City of Los Angeles Department of Water and Power

System No. 19-067

Upon determination by the City of Los Angeles Department of Water and Power (Department) or notification by the State of California Department of Health Services (DHS) that an imminent danger to the health of the water users exists, this emergency notification plan may be implemented by one of the following persons of the Department:

Assistant General Manager - Water (213) 481-6171
James F. Wickser: Home Telephone No. (213) 257-3623

Director of Water Quality Division (213) 481-3142
Bruce W. Kuebler: Home Telephone No. (818) 889-4241

Implementation of the plan may be ordered by the DHS, 2151 Berkeley Way, Berkeley, California, Telephone No. (415) 843-7900, or a designated officer, and carried out in coordination with the following public health agencies:

State of California Department of Health Services
1449 West Temple Street
Los Angeles, California
(213) 620-2980
Gary H. Yamamoto

Los Angeles County Environmental Health Program
Water and Sewage Subdivision
2525 Corporate Place
Monterey Park, California 91754
Norman L. Groom: (213) 881-4147

Upon determination that this public notification plan is to be implemented, the following persons will be notified immediately through Department personnel:

General Manager and Chief Engineer of the City of Los Angeles Department of Water and Power

President of the Board of Water and Power Commissioners

Mayor of the City of Los Angeles

President of the Los Angeles City Council

Chairperson of the Commerce, Energy and Natural Resources Committee of the Los Angeles City Council

NOTIFICATION PLAN

It is acknowledged that differing circumstances may require modification of this generalized plan, especially for a service area the size served by the Los Angeles system. Therefore, this plan is intended to be flexible and to allow rapid adjustment as required to meet the needs of a particular situation.

The Director of Water Quality Division, in cooperation with the Director of Public Affairs, will prepare a statement describing the nature, extent, and estimated duration of the water quality emergency. DHS and the Los Angeles County Health Services Department personnel previously named will be informed of the wording of the statement. The statement will be issued in English and Spanish and distributed by the Director of Public Affairs to local English and Spanish television and radio stations, and to local daily newspapers through the established procedures. Maps, drawings, and other illustrative material will be included as needed. The Department's Director of Customer Services, James M. Derry, (213) 481-5748, and each of the five District Water Trouble Boards will also be furnished sufficient information to answer customer inquiries involving the emergency.

Use of the news media should be an effective and rapid method of notification to persons living in large service areas. Supplementary methods of notification, or alternative methods that may be used if the area involved is small, are:

1. Door-to-door distribution of a notice describing the nature, extent, and expected duration of the emergency.

2. Use of the City of Los Angeles Police Department vehicles equipped with public-address equipment. Messages delivered by this means would be prepared as described under the news media section of this plan.

Attachment 4

Code 8701147
Rev 9-81

MEMORANDUM

WATER QUALITY DIVISION

MEMO BY Bruce W. Kuebler TO Distribution DATE May 3, 1993

FILE TITLE Policy on Coordination of Water Quality Problem Episodes

Distribution
Eldon E. Horst
Shirley H. Cheng
Marlyn C. Stasiak
John D. Miller
William H. Heyer
Kendrick K. Okuda
Glenn R. Whitney

The following policy was developed by the persons listed above for the investigation and resolution of water quality problem episodes and for the proper notification of external agencies during such events. The policy is to be applied to all water quality problem episodes such as positive coliform samples, overchlorination, reservoir biological growths causing tastes and odors, and confirmed customer complaints indicating a system problem.

1. Eldon Horst will coordinate all activities associated with water quality problem episodes. All water quality problems in the distribution system are to be brought to Eldon Horst's attention as soon as practical after taking whatever emergency actions, if any, are necessary. In his absence, Eldon Horst's alternates are John Miller and Kendrick Okuda.

2. Upon notification of a problem, Eldon Horst will convene a meeting of the key individuals involved in water quality problem investigation including John Miller, William Heyer, Marlyn Stasiak, Kendrick Okuda, and others as appropriate.

3. In their meeting, the above individuals will jointly develop a plan for investigation and resolution of the problem. Assignments necessary to carry out that plan will be made by Eldon Horst. When and if the services of Water Operating Division or water treatment operations personnel are required, Eldon Horst will arrange for their assistance. The individual most closely associated with the problem area will be assigned the task of preparing an unusual occurrence report, if appropriate.

4. If, in their meeting, the above individuals determine that the water quality problem under investigation requires notification of the Department of Health Services (DHS) or other outside agencies, the above group will notify Bruce Kuebler, who will contact DHS or other agencies, or delegate that task.

5. Kendrick Okuda has assumed the responsibility for daily coordination with Water Operating Division. Kendrick Okuda will notify William Heyer, Marlyn Stasiak, Daniel Saenz, and others when he becomes aware of operational changes that may affect water quality.

Portions of this procedure may be inappropriate under some scenarios. Consequently, individuals involved in this process should keep in mind the primary objectives of the procedure, which are: 1) to assure that all necessary resources are quickly utilized and efficiently coordinated in the investigation and resolution of water quality problems; 2) to assure that water quality problems are evaluated by staff before notification of external agencies is attempted; and 3) to assure that communication with external agencies are factual, consistent, and conducted at an appropriate level.

RJD/BNW:alh

c: James F. Wickser/Norman L. Buehring
Laurent McReynolds
Bruce W. Kuebler
Nancy J. Body
Willie E. Hodges
Daniel L. Saenz
Pankaj Parekh
Gary F. Stolarik
Brian N. White

(a:wqdcoord/bnw)

Attachment 5

WATER QUALITY DIVISION
NOTICE OF CHANGE

ENGINEERING OPERATIONS & ANALYSIS FAX #: 481-3219

WATER CONTROL		TREATMENT OPERATIONS SECTION			WATER QUALITY CONTROL		
481-6237	(ADAMS)	LAAFP	2-771-6020	(CTRL ROOM)	EOA	482-0158	(OKUDA)
481-6143	~~(MACKEY)~~ (HORNER)	LAAFP	2-771-6002	(SAENZ)	BIO-CTRL	481-3146	(HEYER)
		LAAFP	2-771-6009	(MACKEY)	DIST-CTRL	481-3130	(WHITNEY)
		SLVR LK	481-3690	(NORMAN)	EOA	580-8539	(BRIDE)

SENT TO: _____ SENT BY: _____ TODAY'S DATE: _____ 24 HR TIME: ____

INITIATED BY (CIRCLE): WOD EOA BIO-C LAAFP METRO DIST-C

FOR QUESTIONS CONTACT: _____ EFFECTIVE DATE: _____

PHONE: _____ EFFECTIVE TIME: _____

NECESSARY ACTIONS:

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DESCRIPTION OF CHANGE / REASON:

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	FAX	CALL	FAX NUMBER	PERSON NAMED BELOW MUST CONFIRM WITH CONTACT PERSON UPON RECEIPT OF FAX
TOS LAAFP	Y / N	Y / N	2-771-6094	_____
TOS METRO	Y / N	Y / N	213-661-8833	_____
DIST- CONTROL	Y / N	Y / N	213-481-3219	_____
BIO- CONTROL	Y / N	Y / N	213-481-3219	_____
WATER CONTROL	Y / N	Y / N	213-481-6236	_____
EOA	Y	Y / N	213-481-3219	_____

675

CARSON WATER SUBCONSERVANCY DISTRICT
777 East William Street, Suite 110A
Carson City, NV 89701
775/887-7450, fax 775/887-7457

December 21, 2001

Dr. Judith Unsicker
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

Re: Proposed 303(d) Listing for the West Fork and East Fork of the Carson River

Dear Dr. Unsicker:

Due to the holiday season and the short response time to provide comments regarding Section 303(d) List Update, the Carson Water Subconservancy District (CWSD) is not able to provide detail comments by December 28, 2001. Therefore, we would appreciate the opportunity to provide additional comments at your January 2002 Board Meeting. Although my comments generally apply to the entire proposed 303(d) listing for the West Fork and East Fork Carson River Hydrologic Units, since I do not have the time to research the issues regarding sodium, nitrogen, and pathogens the focus of my comments will relate to the phosphorus listing.

A. It is our understanding that the reason Lahontan Regional Water Quality Control Board (LRWQCB) is recommending changes to the 303(d) list is because the water quality in the West Fork of the Carson River and Indian Creek is not meeting the existing water quality standards for these water bodies. The purpose of the listing is a precursor for establishing Total Maximum Daily Loads (TMDL). CWSD is concerned that these water quality standards were established based on a limited amount of data that was collected. It is our understanding that in developing the phosphorus standard, data collected from the USGS was not included in establishing the water quality standard for the West Fork. If the USGS data had been used, the existing standard for phosphorus would be greater than 0.02 mg/l.

B. Another concern is that LRWQCB has not identified where the phosphorus is coming from. A review of the water data collected seems to indicate that a majority of the phosphorus on the West Fork is naturally occurring. According to the Clean Water Act, affected water bodies should not be listed if the violations of the standards are attributed to natural sources.

C. In an earlier discussion you indicated that LRWQCB has not done a Basin Plan review since 1993. Before LRWQCB considers adding additional water bodies to the 303(d) list, CWSD would ask that LRWQCB do a Basin Plan review first. Once this has been completed a 303(d) listing could be established based on water bodies that are truly impaired.

Again, due to the short response time, CWSD does not have the time to provide a more in-depth critique of the proposed 303(d) listing. CWSD supports the protection of water quality in the watershed and would like to work with your agency to better identify the sources of "pollutants" in the watershed and to set water quality standards that are based on actual data collected.

Thank you for your consideration of our comments.

Sincerely,

Edwin D. James

Edwin D. James
General Manager

EDJ/tl

TAHOE REGIONAL PLANNING AGENCY

308 Dorla Court
Elks Point, Nevada
www.trpa.org

P.O. Box 1038
Zephyr Cove, Nevada 89448-1038

(775) 588-4547
Fax (775) 588-4527
Email: trpa@trpa.org

December 27, 2001

Ms. Judith Unsicker
California Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

Subject: 303(d) Listing of Streams in the Lake Tahoe Hydrologic Unit

Dear Ms. Unsicker, and Lahontan RWQCB,

My main concern in 303(d) listing of several streams in the Lake Tahoe Hydrologic Unit is the listing for Iron. TRPA water quality staff agree with Lahontan staff in the evaluation that the Iron standard is likely set too low and does not reflect background concentrations in the Tahoe Basin. Recent statewide monitoring data from Caltrans has also suggested that Iron background concentrations in the Tahoe Basin are higher than most areas of the state in general. However, my concern is that in so listing the goal of revising the Iron standard may be lost and somehow perpetuate efforts to meet a standard that may not be attainable. The listings for Chloride may be a similar concern, but the potential sources in that case may be anthropogenic (and subject to decrease over time).

TRPA and Lahontan have similar antidegradation goals for the Lake Tahoe Basin. I hope that reasonable standards can be set for constituents such as Iron, while still preventing degradation and impairment of beneficial uses for Tahoe streams. At a recent meeting, senior staff from Lahontan, NDEP, EPA, and TRPA verbally agreed to attempt setting uniform standards for tributary streams in the Lake Tahoe Hydrologic Unit, and the Tahoe Basin as a whole. Standards for Iron do not exist for Nevada tributaries at this time, but a goal should be set for a uniform protective Iron standard for all the Lake Tahoe tributaries.

In general I support your efforts in proposed additions to the 303(d) list, but want to ensure that questionable standards such as those for Iron are not perpetuated in the process.

Sincerely,

Larry F. Benoit

Larry F. Benoit
Water Quality Program Manager

To: Judith Unsicker

WATER RECLAMATION
SOLID WASTE MANAGEMENT

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

JAMES F. STAHL
Chief Engineer and General Manager

December 27, 2001
File No.: 31-370.10

Mr. Harold Singer, Executive Officer
California Regional Water Quality Control Board
Lahontan Region - Victorville Branch Office
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359

Dear Mr. Singer:

Comments on Proposed 2002 Update of Clean Water Act
Section 303(d) List of Impaired Waters of the Lahontan Region

The County Sanitation Districts of Los Angeles County (Districts) are providing you with comments regarding the proposed 2002 Update of the Clean Water Act Section 303(d) List of Impaired Water of the Lahontan Region. The Districts commend the Lahontan Regional Water Quality Control Board (Regional Board) on efforts to provide a documented procedural basis for inclusion and exclusion of impaired water bodies and target constituents from the 303(d) List. The Districts also commend the Regional Board for the use of a "Watch List". This list helps raise awareness of potential impairment problems in water bodies, which may be further investigated, corrected or removed from the Watch List after resolution of questioned status, and without having to prematurely include these water bodies in the 303(d) list due to lack of sufficient data or other uncertainties that limit adequate assessment of impairment.

Table 2 ("Watch List") includes three references to Littlerock Reservoir in the Antelope Hydrologic Unit. Page 3, paragraph one of the 303(d) List Staff Report states, "Section 303(d) applies only to surface waters of the United States...." With these two points in mind, the Districts are unclear as to why a surface water body in an hydrologically isolated region would be included on this list. The Antelope Valley is an enclosed basin with no discharge to navigable waters. The Districts question whether Littlerock Reservoir has been designated as a water of the United States and should be included on the 303(d) "Watch List". Can the listing be solely based on a water of the State determination? The Districts request that the reason for including Littlerock Reservoir be clarified.

The Districts would also like to encourage the Regional Board to use the procedures described in the 303(d) List Update Document. Despite staff resource limitations and time constraints, the Districts believe that the best course of action in response to questions concerning the appropriateness of water quality

standards is for the Regional Board to pursue solutions using documented regulatory and legislative review and assessment procedures that take into account site-specific conditions. Specifically, the Districts have previously commented concerning the appropriate application of Beneficial Uses and water quality objectives to water bodies of the State. For example, we continue to be concerned about the use of blanket beneficial use designations for minor surface waters, and ask the Regional Board to pursue refinements of beneficial uses and water quality objectives based on the presence of effluent-dominated waters (EDW), site specific objectives or other site-specific conditions. These refinements have a direct connection to the 303(d) listing process in the region, and will prevent listings and TMDLs based on inappropriate listings. Hence, this effort should be a priority for future Basin Plan amendments.

Thank you for the opportunity to comment on the proposed Update to the 303(d) List for the Lahontan Region. If you have any questions concerning this letter, please contact Jose Saez at (562) 699-7411, extension 2803.

Very truly yours,

James F. Stahl

Victoria O. Conway
Head, Monitoring Section
Technical Services Department

VOC:JRC:drm

cc: Ted Saari, RWQCB - Lahontan Region
Tim Post, RWQCB - Lahontan Region
Hisam Baqai, RWQCB - Lahontan Region

L:\Caudle\Miscellaneous\Lahontan 303d List Comment Letter.wpd:01.12.27

From: "Al Pettit" <alprise@gbis.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/31/01 8:49AM
Subject: Jan 2002 meeting

BlankDear Ms. Unsicker; could you please provide us with time and place of the Jan. 9th and 10th meetings? Thanks, Al

ALPINE ENTERPRISE NEWSPAPER
Al Pettit - Publisher - Editor
Email:alprise@gbis.com
Phone/Fax: 530-694-0018
web site:www.alpine-enterprise.com
P.O. Box 386
Markleeville, Ca. 96120

ON-LINE AT:WWW.ALPINE-ENTERPRISE.COM

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

Meeting of January 9-10, 2002
South Lake Tahoe

LATE REVISIONS

ITEM: 5

SUBJECT: RECOMMENDATIONS TO THE STATE WATER RESOURCES CONTROL BOARD FOR UPDATEOF THE LAHONTAN REGION'S SECTION 303(D) LIST AND PRIORITIES FOR TOTAL MAXIMUM DAILY LOADS

The following changes are recommended to Table 1, the attachment to the proposed resolution:

Under the recommendations for the Mojave River watershed, delete the three rows related to proposed additions of a segment of the Mojave River to the Section 303(d) list for total dissolved solids, chloride, and sulfate.

ERRATA FOR SECTION 303(D) WATER BODY FACT SHEETS
January 2002

The following changes to the November 2001 Water Body Fact Sheets prepared by Lahontan Regional Board staff are made by reference. (Fact Sheets are supporting information in the record of the Section 303(d) list update, but are not part of the Lahontan Regional Board's recommendations to the State Water Resources Control Board.)

West Fork Carson River, Headwaters to Woodfords, Nitrogen, Page 2:

In the "Water Quality Objectives Violated" section, the total nitrogen objective in the third line should be 0.15 mg/L rather than 15 mg/L. In the last line of the "Evidence of Impairment" section, the units "mg/L" should be added after the mean of monthly means (0.20) for total N.

West Fork Carson River, Woodfords to Paynesville, Pathogens, Page 2:

In the third line of the "Evidence of Impairment" section, the units for numbers of bacterial colonies should be expressed as numbers per 100 ml, rather than numbers per ml.

Tallac Creek, Pathogens, Page 2:

The "Evidence of Impairment" section was inadvertently left blank. It should read as follows:

"The U.S. Forest Service, Lake Tahoe Basin Management Unit monitors fecal coliform bacteria at two stations in the Baldwin grazing allotment. Results for Station B-1 (the downstream station) in 2001 showed fecal coliform bacteria numbers ranging from 0-108 per 100 ml, with violations of the 40/100 ml single value component of the objective in June, July, August and October. Bacteria numbers at Station B-2 ranged from 0-264, and the 40/100 ml component of the objective was violated in July".

Change the "Potential Sources" section as follows:

"Livestock are probably the major sources of fecal coliform loading to the segment of Tallac Creek proposed for listing. Wildlife (particularly beavers), human recreational users of the watershed and their pets are other possible sources".

Searles Lake, Petroleum Hydrocarbons:

Add the following sentence at the end of the "Watershed Characteristics" section:

"Searles Lake is located to the Pacific Flyway and serves as resting habitat for several species of migratory birds including Brown Pelican, Common Snipe, Whitefaced Ibis, Mallard and American Coot".

Change the "Water Quality Standards Not Attained" section as follows:

~~"Searles Lake is located to the Pacific Flyway and serves as resting habitat for several species of migratory birds including Brown Pelican, Common Snipe, Whitefaced Ibis, Mallard and American Coot. Documented bird kills are considered impairment of the Wildlife Habitat (WILD) beneficial use for surface waters of the Lake.~~ Lahontan Regional Board Cleanup and Abatement Order No. 6-00-64 ~~also~~ cites impairments of the Non-Contact Water Recreation (REC-2), Water Contact Recreation (REC-1) and Saline Water Habitat (SAL) uses and violations of narrative water quality objectives for chemical constituents, floating material, oil and grease, and toxicity. The Regional Board has asked staff to evaluate the appropriateness of some beneficial uses at Searles Lake, particularly REC-1".

In the eleventh line of the italicized quotation in the "Evidence of Impairment" Section, correct the date in parentheses to June 23, 2000.

In the "TMDL Priority" section, change the last sentence to read:

"Searles Lake may be recommended for delisting in the future if ongoing cleanup activities lead to attainment of water quality standards ~~the wildlife use~~".

Upper Truckee River, Phosphorus:

In the "Evidence of Impairment" section on page 2, the median total phosphorus concentration between 1988 and 1996 should be 0.03 mg/L, rather than 0.30 mg/L.

Item 5

Recommendations for Update of Section 303(d) List and TMDL Priorities

Lahontan RWQCB
January 2002

303(d) List Update

- Required by Clean Water Act
- Affects only surface waters not meeting standards
- List update every two years
- Coordination with Section 305(b) reporting process
- Update includes priority ranking for TMDLs

List Update Process

- Solicit information and data
- Review "existing and readily available" info
- Make recommendations available to public
- Regional Board considers comments and takes *advisory* action on staff recommendations
- State Board and USEPA approve statewide list and priorities

Listing and Delisting Considerations

- List if standards are violated
- Consider data quality/quantity
- Delist if faulty data led to listing
- Delist if impairment is entirely natural
- Delist if remedial activities will ensure attainment within next listing cycle.

Region 6 Approach

- "Weight of evidence" approach
- Data quantity/quality evaluated on a case-by-case basis
- Physical/chemical data with known QA/QC
- Emphasis on violations of objectives

Summary of Recommendations

- Add 42 new water body-pollutant combinations
- Remove 29 water body-pollutant combinations
- Retain 69 existing water body-pollutant combinations
- Clarify nature of pollutants for some retained combinations (e.g., nutrients, metals)

Changes by Watershed

WATERSHED	DELIST	ADD	RETAIN	2002 LIST
Lassen-Modoc	6	0	14	14
Truckee/Little Truckee	2	0	7	7
Lake Tahoe	1	22	6	28
Carson	1	9	10	19
Walker	3	10	13	23
Mono/Owens/ Deep Springs	13	0	17	17
Mojave/Trona/ Amargosa	3	1	2	3

"Watch List"

- In staff report; not to be part of "official" 303(d) list
- Includes 162 water bodies which need additional monitoring and assessment to determine whether listing is warranted
- EPA may require "watch lists" in the future

TMDL Priorities

- All listed waters must be given priority rankings for development of TMDLs
- Region 6 recommendations:
  - 60 "High"
  - 26 "Medium"
  - 25 "Low"

TMDL Priorities

- Considerations: resource value, severity of problem, other TMDL priorities, etc.
- Most "Low" priority waters (waters listed for habitat and flow problems) would not need TMDLs under pending revisions to regulations.
- Some "Low" priority waters will probably receive revisions in standards rather than TMDLs

TMDL Schedules

- "Completion" of TMDLs means Regional Board action on Basin Plan amendments
- Completion by 2011 proposed for "retained" waters from 1998 list
- Completion after 2015 proposed for waters first listed in 2002

Revisions in Standards

- Some waters may need revised standards rather than TMDLs (e.g. iron in Tahoe streams)
- Many numerical objectives are based on limited historical data
- EPA expects California to adopt new or updated objectives for nutrients and bacteria

Issues Raised in Public Comments

- 22 letters or emails were received during the public review period
- Some comments requested or offered information but did not address specific listing/delisting issues
- Some comments suggested listing/delisting based on qualitative observations or limited data

Issues Raised in Public Comments

- **Lake Tahoe Watershed**
  - Concern about impacts of listing tributaries for iron on ability to treat stormwater
  - Support for revision of iron standards

Issues Raised in Public Comments

- **Carson River Watershed**
  - Impacts of listing on tourism
  - Standards are based on limited data and should be revised.
  - Need to conduct more monitoring before listing to define background conditions, atmospheric deposition impacts, smaller reaches for listing
  - Questions about data quality/quantity; criteria used in specific listing recommendations.
  - Consider planned remedial activities in relation to need for listing

Issues Raised in Public Comments

- **Owens River Watershed**
  - LADWP opposes continued listing of Haiwee Reservoir and urges revision of designated beneficial uses
  - LADWP opposes continued listing of Tinemaha Reservoir
  - LADWP supports delisting of naturally impaired waters, and recommends delisting of other waters impaired by habitat and flow alterations, or identified as needing further study

Issues Raised in Public Comments

- **Searles Lake**
  - IMCC supports proposed delisting for salinity/TDS/chlorides
  - IMCC presents evidence that petroleum hydrocarbons are not implicated in bird kills, and opposes the proposed new listing for petroleum hydrocarbons

Issues Raised in Public Comments

Mojave River

- Concern with impacts on groundwater recharge with/use of imported State Water Project water and related development
- Concern with impacts on ability to recycle and reuse wastewater
- Listing is based on limited data collected during a dry period; violations may be due to groundwater overdraft
- Listing is premature due to ongoing watershed planning that may result in revised standards

Staff Response

- Consider comments when developing future priorities for monitoring and standards revisions
- Clarify Searles Lake fact sheet regarding bird kills but list for petroleum hydrocarbons due to violations of other standards
- Delete three proposed listings for Mojave River (TDS, chloride, sulfate) and place river on "watch list"

Recommendation

- Adopt resolution approving recommendations to State Board for list changes and TMDL development priorities, with Table 1 changed to delete the 3 added listings for the Mojave River.

California Regional Water Quality Control Board
Lahontan Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

March 13, 2001

To Interested Parties:

PUBLIC SOLICITATION OF WATER QUALITY INFORMATION

The Lahontan Regional Water Quality Control Board (Regional Board) is contacting the public on behalf of the State Water Resources Control Board (SWRCB) to solicit data and information regarding water quality conditions in surface waters in this Region. The information gathered will be used in various assessments of the State's waters including the development of a submission to the U.S. Environmental Protection Agency (US EPA) required by the federal Clean Water Act (Section 303(d)). This submission will be developed by the SWRCB and will provide the US EPA with a revised list of waters considered by the State to be impaired (not attaining water quality standards) after certain required technology-based water quality controls are in place. It is anticipated that this submission will be provided to the US EPA by April 2002, as required by federal regulations. The submission will be based on information and data available to the SWRCB and the Regional Water Quality Control Boards. The information gathered in this solicitation will also contribute to the preparation of the 2002 federal Clean Water Act Section 305(b) Report on Water Quality.

Anyone, including but not limited to, private citizens, public agencies, state and federal governmental agencies, non-profit organizations, and businesses, possessing information regarding the quality of the Region's waters may provide information.

We are seeking to obtain all readily available data and assessment information generated since July 1997. All data and information you wish to provide must be received by the Regional Board **by 5:00 p.m. on May 15, 2001**. For purposes of this solicitation, "information" is any documentation describing the current or anticipated water quality condition of a surface water body. We consider "data" to be a subset of "information" that consists of reports of measurements of specific environmental characteristics. The data and information may pertain to physical, chemical, and/or biological conditions of the region's waters or watersheds.

Information provided should conform to the following considerations:

- The name of the entity or person providing the information.
- Mailing address, phone number, and email address for a contact person able to answer questions about any of the information provided.
- Two hard copies and an electronic copy of all information provided. For reports Microsoft Word is the preferred software. Please specify the software used to format the information and provide definitions for any codes or abbreviations used.
- Bibliographic citations for all information provided.
- If computer model outputs are included in the information, please provide bibliographic citations and specify any calibration and quality assurance information available.

Any data provided should conform to the following considerations:

- Data in electronic form, in a spreadsheet, database or ASCII format. Please specify the format and define any codes or abbreviations used in your database.
- A description of, and reference for your quality assurance procedures.
- Metadata for the field data, i.e., when measurements where taken, locations, number of samples, detection limits, etc.
- If possible, **two** hard copies of the data, so that we can verify that we have accurately transferred the data to our database.
- In addition, for data from citizen volunteer water quality monitoring efforts:

➢ The name of your group;
➢ Indication of any training in water quality assessment completed by members of your group;

We would like to receive data and information as soon as possible and no later than **May 15, 2001.** Data or information received after May 15, 2001 will not be considered in developing the April 2002 submission to US EPA required by Clean Water Act Section 303(d).

Please send any information and data you wish to provide to:

Judith Unsicker
Lahontan RWQCB
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

Email address: <unsij@rb6s.swrcb.ca.gov> .

If you have questions regarding information or data you wish to submit, please contact Judith Unsicker at the mailing or email addresses above, or by telephone at (530) 542-5462).

The Regional Boards have been requested to provide recommendations to the SWRCB in Fall 2001 on the condition of Regional waters. The SWRCB will consider all Regional Boards' recommendations regarding the conditions of the Region's waters when formulating the 303(d) submission. The State's submission revising the list of impaired waters will be considered by the SWRCB in a public process to be conducted next winter. Opportunities for review of the proposed submission and public comment on the submission will be announced at a later date.

Sincerely,

Robert S. Dodds
Assistant Executive Officer

Enclosure:

JEU/shT:303dsolic.doc".
[Basin Plan-Water Quality Assessment" general file]

MAILING LIST NOTICE

Your name is on our mailing list to receive water quality information of the Lahontan Regional Water Quality Control Board.

If you wish to continue receiving information, please complete the form below (indicating any necessary corrections), and return this notice to **Shirley Harada**.

UNLESS THIS FORM IS RETURNED BY MAY 15, 2001, YOUR NAME WILL BE REMOVED FROM OUR MAILING LIST.

Please return this notice to:

California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

Please check the appropriate box and provide updated information where appropriate.

SAME AS LABEL ☐ **REVISED** ☐ **NEW ADDRESSEE** ☐

Please print information below:

NAME_____

ORGANIZATION_____

ADDRESS_____

CITY_____**STATE**_____**ZIP CODE**_____

303d Mail List Update.doc

694

California Regional Water Quality Control Board
Lahontan Region

Winston H. Hickox
Secretary for Environmental Protection

2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

TO: Regional Board Members

FROM: Harold J. Singer
Executive Officer
LAHONTAN REGIONAL WATER QUALITY CONTROL BOARD

DATE: January 2, 2002

SUBJECT: JANUARY 9-10, 2002 REGIONAL BOARD MEETING – supplemental items

Attached are the submittals recently received from separate parties who have items on your agenda.

Item # 3: Minutes. The draft minutes of the November 13-14, 2001 Board meeting in Truckee are attached for your review.

Item # 5: Recommendations to the State Water Resources Control Board for Update of the Lahontan Region's Section 303(d) List and Priorities for Total Maximum Daily Loads.
Some additional comment letters were received on or near the last day for comments (December 28) are enclosed in this mailing. Staff will provide responses at the Board meeting.

Please call me if you have questions on any agenda item or other issue.

Attachments

California Regional Water Quality Control Board
Lahontan Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.mscomm.com/~rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

DRAFT MINUTES

NOVEMBER 14-15, 2001

Regular Meeting

Lahontan Regional Water Quality Control Board
City of Truckee, Town Hall Council Chambers
10183 Truckee Airport Road
Truckee

Dr. Cooley, Chairperson, called the meeting to order at 1:05 p.m. on November 14, 2001. Roll call of Board members and staff introductions. All Board members present.

BOARD MEMBERS PRESENT	BOARD MEMBERS ABSENT
John Brissenden, Hope Valley Beatrice Cooley, Ph.D., Bishop Eugene B. Nebeker, Ph.D., Lancaster Jack Clarke, Apple Valley Eric Sandel, P.E., Truckee	None

LEGAL COUNSEL

Phillip Wyels, State Water Resources Control Board

STAFF PRESENT

Harold J. Singer, Executive Officer
Robert S. Dodds, Assistant Executive Officer
Hisam Baqai, Supervising WRCE, South Lahontan Watersheds Division
Lauri Kemper, Supervising WRCE, North Lahontan Watersheds Division
Chuck Curtis, Supervising WRCE, Planning and Toxics Division
Lisa Dernbach, Senior Engineering Geologist, MTBE, UST Cleanups
Alan Miller, Senior WRCE, Carson/Walker Watershed
Scott Ferguson, Senior WRCE, Northern Watersheds
Eric Taxer, WRCE, Northern Watersheds
Martin Goldberg, Environmental Scientist, Northern Watersheds
Anne Sutherland, Engineering Geologist, TMDL Unit
Doug Smith, Associate Engineering Geologist,UST/DoD Unit
Tammy Lundquist, Associate Engineering Geologis, UST/DoD Unit

Thomas Gavigan, Associate Engineering Geologist, UST/DoD Unit
Richard Booth, Associate Engineering Geologist, UST/DoD Unit
Brian Grey, Environmental Scientist, UST/DoD Unit
Cadie MacDonald, Associate Engineering Geologist, Planning & Toxics
Thomas Suk, Staff Environmental Scientist
John Steude, WRCE, Carson/Walker Watershed
Abby O'Keefe, Student Assistant
Christine Eklund, Student Assistant
Michelle Bovard, Student Assistant
Marietta Christoffersen, Office Technican
Susan-Marie Hagen, Executive Assistant

ADDRESSING THE BOARD

Mike Livak, Squaw Valley Ski Corporation
Nancy Wendt, Squaw Valley Ski Corporation
John Chisholm, wildlife advocate
Carl Gustafson, Squaw Valley resident
Don McCormack, Mayor of Truckee
Kenn Rieders, Prosser Lakeview Estates, Truckee
Donna L. Hollenstain, Property owner
Ron Herman, Property owner
Ivo Bergsohn, South Tahoe Public Utility District
William McClintock, TCN Company

Regular Meeting
1:00 p.m. November 14, 2001

ENFORCEMENT ACTION

1. *Public Hearing* – **Consideration of a Cleanup and Abatement Order for Squaw Valley Ski Corporation, Squaw Valley Preserve, and Squaw Valley Development Company for Violation of Waste Discharge Requirements, Conditions Specified in Waivers of Waste Discharge Requirements, Waste Discharge Prohibitions Prescribed in the Water Quality Control Plan for the Lahontan Region, and Provisions of the California Water Code, Squaw Valley Ski Area,** Placer County.

   Harold Singer, Executive Officer, addressed the Board and stated that on November 13, 2001, Squaw Valley Ski Corporation (SVSC) requested that the Board continue this item to its next regular meeting of January 9-10, 2001. Mr. Singer recommended that the Board hold a hearing at this time. The Board agreed to continue with the hearing.

Scott Ferguson gave the staff presentation and Regional Board staff's recommendation that the Board adopt a Cleanup and Abatement Order with Late Revisions for SVSA.

Mr. Singer and Regional Board staff responded to questions from the Board and made concluding comments.

Mike Livak, Director of Planning, made the presentation for SVSA. Regional Board staff and Mr. Singer addressed various technical issues. Mr. Wyels, Legal Counsel for the Regional Board, addressed several legal issues raised by the dischargers. Nancy Wendt, President of SVSC, addressed the Board regarding a few items on the last page of the formal response that SVSC had provided to the Board. Questions were raised and comments made by Board members and SVSC. Mr. Singer, Ms. Kemper Mr. Wyels and Regional Board staff responded to questions from Board members.

The following members of the public presented testimony: Carl Gustafson, who also presented photographs to the Board as an exhibit, and John Chisholm.

Mr. Ferguson provided clarification on the SVSC facilities assessment plan and its use in identifying additional sources of erosion adversely affecting the beneficial uses of Squaw Creek and its tributaries. Mr. Wyels stated his opinion, contrary to SVSC's interpretation, that the receiving water objectives in the waste discharge requirements apply to all water bodies in the watershed including ephemeral water bodies and drainages. Board members made additional comments and presented questions to the dischargers to which Mr. Livak responded before he made his closing comments.

Mr. Singer suggested four possible options regarding a response to the hearing and issues raised: 1) Board decides not to issue an order and closes the hearing; 2) Board decides to continue the hearing to the next Board meeting in January; 3) Board directs Mr. Singer and staff to work with SVSC over a very limited period to resolve all or specific issues and then to issue an order at some future date whether or not those issues are resolved; 4) Board adopts the order today as proposed by staff or with any modifications suggested by Board. Mr. Singer recommended that the Board adopt the order as proposed by the staff at this time, with any additional modifications in light of today's testimony. Dr. Cooley asked for any other testimony. There being none, the hearing was closed.

Mr. Singer addressed procedural questions and concerns from Board members.

> **Motion**: Moved by Dr. Nebeker, seconded by Mr. Sandel to request Mr. Singer to issue a Cleanup and Abatement Order to Squaw Valley Ski Corporation (SVSC) on Dec. 14, 2001, with the modifications that he deems appropriate based on Board member comments from today's hearing, and after further discussions have occurred between Lahontan Regional Board staff and SVSC.
> Voting "Yes": Dr. Nebeker, Mr. Sandel, Dr. Cooley, Mr. Clarke. Voting "No": Mr. Brissenden.

OTHER BUSINESS

5. **California Department of Food and Agriculture, Truckee Agricultural Inspection Station Relocation Project – Exemption to Waste Discharge Prohibition Contained in the Water Quality Control Plan for the Lahontan Region,** Nevada County. Mr. Don McCormack, Mayor of Truckee, addressed the Board briefly on this item.

> **Motion:** Moved by Mr. Clarke, seconded by Mr. Sandel **and unanimously carried** to accept staff's recommendation and adopt as proposed Item # 5.

The afternoon Board meeting session adjourned at 5:18 p.m.

Regular Meeting, Continued
7:05 p.m., November 14, 2001

Chairperson Dr. Cooley convened the evening Board meeting session at 7:05 p.m. Other Board members present included: Mr. John Brissenden; Mr. Jack Clarke; Dr. Eugene Nebeker; and Mr. Eric Sandel.

Mr. Singer introduced the staff members present from the Lahontan Regional Board.

3. PUBLIC FORUM

Mr. Kenn Rieders, private property owner in Truckee, presented a petition from residents in his subdivision requesting that (1) a sewer line be installed to their area to replace the current individual leach field systems because of potential ground water contamination, and (2) that the subdivision be included in the Truckee Sanitary District's service area. Mr. Singer said that he would talk to staff and report back on this at the next Board meeting.

Ms. Donna Hollenstain, property owner in Bishop, read a letter she submitted to the Board along with a packet of information regarding the denial of her appeal of a letter of developability that Regional Board staff had sent to her tenant, Tosco Corporation, in July 2001. Her property at 351 North Main Street in Bishop has been under cleanup activity since 1986. She stated that after many months of discussions with Regional Board staff, an impasse has been reached and that staff had informed her that the Office of Chief Counsel, State Water Resources Control Board, had determined that a letter of developability was not an appealable action. Mr. Ron Herman, part owner of this same property, also made comments to the Board.

Mr. Baqai, Mr. Singer, and Regional Board legal counsel, Mr. Wyels responded to questions from the Board and to Ms. Hollenstain and Mr. Herman.

4. **MINUTES**

The minutes of the Regular Meeting of October 10-11, 2001 in Bishop were approved.

Motion: Moved by Mr. Sandel, seconded by Mr. Clarke **and unanimously carried** to adopt the October minutes as proposed with noted corrections on pages 4 and 5.

6. **Status Report – Surface Water Ambient Monitoring Program**
Thomas Suk, Lahontan Regional Board Staff, and Dr. David Herbst, University of California, Sierra Nevada Aquatic Research Laboratory, made the presentation on the surface water ambient water quality monitoring program and the bioassessment programs currently underway and planned for the Lahontan Region.

7. **Workshop – Discussion of the Closure Process for Underground Storage Tank (UST) Cases**
Lisa Dernbach, Lahontan Regional Board staff, made the presentation and explained the case closure process to the Board. Mr. Ivo Bergsohn, a geologist with South Tahoe Public Utilities District, made additional comments.

The evening meeting adjourned at 9:50 p.m.

Regular Meeting, Continued
8:30 a.m., November 15, 2001

Chairperson Cooley called the morning session of the meeting to order at 8:34 a. m. Board members present included: Eric Sandel; John Brissenden; Jack Clarke; and Eugene Nebeker. Mr. Singer introduced the staff members present from the Lahontan Regional Board.

ENFORCEMENT ACTION

10. ***Public Hearing* – Consideration of an Administrative Civil Liability Order for the TCN Company, William McClintock, Bessie Pomin, and David and Betty Lowry for Violation of California Water Code Section 13267, Big Tree Cleaners,** Placer County.

This was a continuation of a public hearing from the March 14-15, 2001 Board meeting in Truckee regarding failure to submit a technical report for the Big Tree Cleaners.

Mr. Singer reported to the Board that staff has been working with the various parties and have reached a tentative settlement which he was asking the Board to ratify. At the March Board meeting, the Board had asked for a report on three items and their status which Mr. Singer presented: (1) To continue the monitoring effort at the site. This has been ongoing with regular reports being submitted on time; (2) That a long-term corrective action proposal be developed and submitted. It was submitted and staff is pleased with the direction is proposed and all work has been implemented that was previously proposed; and (3) The Board requested that all the parties work together to accomplish these ends. This has occurred.

The tentative settlement contains the following terms to be considered together: (1) That the amount of the civil liability be reduced to $10,000; (2) That the Board, in a finding, would acknowledge that payment of the civil liability is not an admission of liability for the allegations made in the complaint; (3) That the liability would be paid in two equal payments- one payment due within thirty days, and the second payment due on April 15, 2002. (This part of the package would be put into the cover letter rather than the complaint itself.) Staff suggested that the Board modify the proposed Board Order to incorporate these components and that the Board adopt the proposed order to ratify the settlement.

Mr. McClintock addressed the Board and stated that all the items requested by the Board had been accomplished. He then asked the Board to adopt the settlement and its terms. The Board stated that it was pleased with the progress and direction of the parties' efforts.

Motion: Moved by Mr. Sandel, seconded by Mr. Brissenden **and unanimously carried** to accept staff's recommendation and adopt the settlement agreement.

9. **CLOSED SESSION**

The Board members met in closed session on November 15, 2001 from 8:50 a.m. to 11:05 a.m. in the council chambers of the Truckee Town Hall to discuss item (c). The Board reconvened in open session at 11:06 a.m.

There being no further business to come before the Board, the November 14-15, 2001 meeting of the Lahontan Regional Board adjourned at 11:07 a.m.

Prepared by:_____ Adopted_____
Susan-Marie Hagen, Executive Assistant

AGENDA ITEM 5 ENCLOSED

From: Judith Unsicker
To: "sburak@qnet.com".mime.Internet
Date: 12/19/01 9:38AM
Subject: Re: TMDL for Mammoth Creek

Thank you for your email. You requested information on how Mammoth Creek can be made part of the Total Maximum Daily Loads (TMDL) program.

To be made part of the TMDL program, a water body must first be placed on the Clean Water Act Section 303(d) list of impaired water bodies. Mammoth Creek is already on the Section 303(d) list for metals, with TMDL development tentatively scheduled between 2005 and 2008. If there is evidence to show that the turbidity standard for Mammoth Creek is being violated, the Creek could also be listed for turbidity, with TMDL development scheduled at a later date. (Because of resource constraints and a backlog of waters needing TMDLs, TMDL development for water body-pollutant combinations added to the Lahontan Region's Section 303(d) list in 2002 will probably not begin until after 2011.) Because turbidity units are not concentration units, it would be difficult to calculate loads for turbidity per se. The TMDL would probably need to be developed for suspended sediment concentration or some other sediment- related parameter.

The applicable water quality objective for turbidity in Mammoth Creek is the regionwide narrative objective, as follows:

"Waters shall be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity shall not exceed natural levels by more than 10 percent".

To assess compliance with this objective, it would be necessary to collect enough monitoring data at a reference station to define natural turbidity levels (including seasonal and annual variations) and/or reference aquatic life conditions (e.g., benthic invertebrate, periphyton and fish communities) for Mammoth Creek. The Regional Board is sponsoring a study of eastern Sierra benthic invertebrate communities by Dr. David Herbst of the University of California to define reference conditions and aid the development of "biocriteria" water quality standards that define desirable aquatic life conditions, but it will be several years until we can consider adopting such standards. Very high turbidity could affect other beneficial uses, including the drinking water use and the "aesthetic enjoyment" component of the Non-Contact Water Recreation use.

Your email references large increases in turbidity over background levels during storm events. Such variation can occur naturally. In order to separate the impacts of natural stormwater runoff from those of stormwater from disturbed areas, it would be desirable to collect samples above and below disturbed areas during the same storm event.

As part of the Lahontan Regional Board's Surface Water Ambient Monitoring Program (SWAMP), the U.S. Geological Survey is sampling suspended sediment and turbidity quarterly at two stations above and below the town of Mammoth Lakes (Twin Lakes and Highway 395). You may want to coordinate your proposed in-depth turbidity study with the SWAMP program. The Regional Board's regionwide monitoring/SWAMP coordinator is Tom Suk; his telephone number is (530) 542-5419, and his email address is Sukt@rb6s.swrcb.ca.gov .

Please contact me if you have further questions about the Regional Board's Section 303(d) list update process. I will be on vacation from December 20-January 1, and will be back at work on January 2.

Judith Unsicker
Staff Environmental Scientist
Lahontan RWQCB
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96158
Phone: (530) 542-5462

Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> "Sue Burak" <sburak@gnet.com> 12/15/01 12:34PM >>>
Hello Judith;
I am in charge of the citizen's water quality monitoring group in Mammoth Lakes. I am thinking of applying for some grant money to do an in depth study of turbidity in Mammoth Creek. Our WQ monitoring shows turbidity levels spike to 10-24 times background levels whenever there is a summer rainstorm event, or as happened over Thanksgiving, a rain on snow event. I am very interested in learning about what is required to get Mammoth Creek into the TMDL program.

Thank you very much,
Sue burak

Sue Burak
Snow Survey Associates
P.O. Box 8544
Mammoth Lakes, CA 93546
760.934.1707

CC: Chuck Curtis; Cindi Mitton; Thomas Suk

From: Kimberly Cox - Water Resource Specialist <KCox@ci.hesperia.ca.us>
To: "'hbaqai@rb6v.swrcb.ca.gov'" <hbaqai@rb6v.swrcb.ca.gov>
Date: 12/21/01 1:47PM
Subject: 303(d) list comment

Hisam, please find the comment from the City of Hesperia attached. A hard copy will follow via U.S. Mail. Please include our response in the agenda packet.
Thank you. Have a wonderful holiday.

<<SWRCB 303D response 12-20-01.doc>>
Kimberly Cox
760-947-1488
Water Resource Specialist
City of Hesperia
Every Day is a new opportunity!

CC: Mike Podegracz - City Engineer <mpodegracz@ci.hesperia.ca.us>

CITY OF HESPERIA

Incorporated 1988

December 21, 2001

Hisam Baqai, Division Manager
California Regional Water Quality Control Board, Lahontan Region
15428 Civic Drive, Ste 100
Victorville, CA 92392

RE: SWRCB consideration of 303(d) listing for the Mojave River between Upper and Lower Narrows

Dear Mr. Baqai:

It has come to our attention that a portion of the Mojave River between the Lower Narrows and the Upper Narrows is being recommended for inclusion on the 303(d) list of impaired water bodies with projected implementation of mitigation measures by 2015. We would like to enter the following comments in response to this proposed classification.

- We do not feel that we have had adequate time to fully determine the impacts such a classification would have on the City of Hesperia and the Hesperia Water District.

- The development of an implementation plan to mitigate the water quality issues identified between the Upper and Lower Narrows could serve to stymie groundwater recharge efforts in the river channel using State Water Project water that is higher in Total Dissolved Solids than native water in some parts of the river basin. The quality of state water project water is within drinking water standards and will support beneficial use within the watershed.

- Imported State Water Project water for groundwater recharge is the only available resolution to reverse the trend of overdraft in the High Desert. Additionally, imported sources of water must be explored to service the future needs of municipal growth. To limit SWP recharge efforts in the Upper Mojave River could potentially serve to stifle growth in the Victor Valley. In addition, consideration needs to be given to the terms of the stipulated judgment overseen by the Mojave Water Agency which relies heavily on the ability to import SWP water for recharge purposes to cure the existing overdraft

- The development of TMDL's for the Mojave River Narrows would have a disparate impact on the City of Hesperia and cause undue economic hardship relevant to mitigation measures.

15776 Main Street
Hesperia, California 92345
(760) 947-1477 Fax (760) 244-2515
www.ci.hesperia.ca.us

CITY OF HESPERIA
Incorporated 1988

Based upon the disparate economic impact of mitigation measures and potential restrictions on groundwater recharge efforts we do not feel that the requested designation is appropriate. We respectfully request that the Board not support the inclusion of the Mojave River between the Upper and Lower Narrows on the 303(d) list of polluted water bodies and that it remain on the "watch list" until further analysis can be performed and stakeholder comments assessed.

If you have any questions regarding this request, please contact me at (760) 947-1438.

Sincerely,

Mike Podegracz
Development Services Director/City Engineer

CC: Jack Clark, Member, SWRCB
Bill Betterly, Member, SWRCB

From: Jehiel Cass
To: "norm.tc@gte.net".nonmime.Internet
Date: 12/30/01 4:20PM
Subject: Re: Mojave River 303(d) Possible Listing

Norm - I have been on vacation and will return to the office on January 2, 2002. Very good questions. I will give a brief answer in bold, below. Jay

****

Jehiel (Jay) Cass
CA Regional Water Quality Control Board
15428 Civic Dr. Ste 100
Victorville CA 92392
phone (760) 241-2434
fax (760) 241-7308
email jcass@rb6v.swrcb.ca.gov
****

>>> norm.tc@gte.net 12/26/01 11:06AM >>>
From: Norm Caouette <norm.tc@gte.net>
Subject: 303(d) Listing Questions
Cc: unsij@rb6s.swrcb.ca.gov;, kirbyb@mojavewater.org
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Hello Jay and Hisam:

I attempted to contact Judith Unsicker as recommended on the Board's web page regarding the recommended 303(d) listings, but according to her voice mail she is out of the office until January 2, which is after the December 28 deadline to respond. I have a couple of questions and a request regarding the proposed listing of the Mojave River from the Upper to Lower Narrows.

1. What are the practical implications to the Mojave Water Agency of listing the Upper to Lower Narrows for TDS, Chlorides and Sulfates, particularly since the recommendations identify imported State Water Project water as a source for each of these constituents. Will this prohibit or place limits upon recharge with State Project Water upstream of or within the Narrows?

Listing a water body on the Clean Water Act's Section 303(d) list is required if State Water Quality Standards are being violated. Listing alone will have no immediate impact but will begin a series of actions to determine what the probable causes are and development of a Total Maximum Daily Load or TMDL. One component of the TMDL is an Implementation Plant to assess a load reduction plan between Point sources, Non-Point sources, Natural sources, and a Safety Factor to restore the Water Quality Standards. It may also trigger a review of the standards in question. Staff here have appreciated the stakeholder support during the Mojave Watershed data collection program. So - the long term results range between the two extremes of 1) the water body is delisted and 2) a very stringent implementation plant to restore the water body. PS - the recent Daily Press article illustrates that the reduced flow between the narrows may be reflected in the data we have.

2. The staff report indicates that the "Update of the Section 303(d) list is not a regulatory or policy action, but an administrative procedure to prioritize water bodies for action." The staff report identifies the "TMDL

End Date" as "After 2015" which is footnoted to explain that TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments incorporating TMDLs. Should I interpret this to mean that whatever the practical implications of the listing, they will not be in effect until sometime after 2015, or are there interim implications by virtue of being listed?

We need to verify this with Judith, but the answer is there would be no real implications for some time. I believe the listing is appropriate if 1) the data support it and 2) the listing criteria are met. This will drive the debate on issues because as you know the Mojave River system is under a great deal of stress. Staff would not be working on this for some time and have a long list of TMDLs to go through first.

3. One of the data references identified as supporting the listing includes "Maxwell, C.R., A Watershed Management Approach to Assessment of Water Quality and Development of Revised Water Quality Standards for the Ground Waters of the Mojave River Floodplain. Paper presented at the National Water Quality Monitoring Council Conferences, April 25-27, 2000, Austin TX." We do not have that document available to us and would appreciate a copy sent to the MWA.

I have not seen this paper either so I would have to defer to Judith if she has a copy.

Please note that this inquiry is not in-lieu of an Agency comment letter to the Regional Board, which will be transmitted by 12/28.

Thank you for your assistance.

Norm Caouette

CC: Baqai, Hisam; Unsicker, Judith

From: "Randy Pahl" <rpahl@govmail.state.nv.us>
To: <waterquality@trpa.org>
Date: 12/31/01 8:43AM
Subject: Attn: Larry Benoit

Larry:

I received your letter of December 27, 2001 to Judith Unsicker regarding 303(d) listing of Tahoe streams. I wanted to clarify that Nevada does have iron standards for Tahoe and its tributaries. We have a standard of 1,000 ug/l for aquatic life protection for all waterbodies in Nevada. This standard is based upon EPA recommendations for aquatic life and doesn't address antidegradation issues. Contact me if you have any questions.

Randy Pahl
Standards Branch Supervisor
Nevada Division of Environmental Protection
333 W. Nye Lane
Carson City, NV 89706
(775) 687-4670, x. 3161
rpahl@govmail.state.nv.us

CC: "Judith Unsicker (E-mail)" <unsij@rb6s.swrcb.ca.gov>

From: Jehiel Cass
To: "dcron@applevalley.org".mime.Internet
Date: 12/19/01 12:37PM
Subject: RE: Proposed Revisions to Imparied Water Bodies List (303d)

Dennis - I'm sorry for the time crunch. I can not grant an extension but by this reply I am forwarding your request to Dr. Judith Unsicker in our South Lake Tahoe office. You may want to call her directly at (530) 542-5462 and ask if such an extension can be granted.

****

Jehiel (Jay) Cass
CA Regional Water Quality Control Board
15428 Civic Dr. Ste 100
Victorville CA 92392
phone (760) 241-2434
fax (760) 241-7308
email jcass@rb6v.swrcb.ca.gov
****

>>> "Dennis Cron, Public Services Manager" <dcron@applevalley.org> 12/19/01 12:22PM >>>
Jay, given that it is the holiday season and many of our staff are out on vacation, and the city of victorville is closed completely, the time that you have allowed for study and comment on the possible impacts that this proposal might have on our operations is inappropriately short. My request would be that the comment period should be extended to the next regional board meeting.

-----Original Message-----
From: Jehiel Cass [mailto:jcass@rb6v.swrcb.ca.gov]
Sent: Monday, December 17, 2001 2:59 PM
To: Anvrz@aol.com; dcron@applevalley.org; jack@avrwater.com; Kcox@ci.hesperia.ca.us; Mmiller@ci.victorville.ca.us; Normc@mojavewater.org; Avpw@netzero.net; tsutton@sdd.co.san-bernardino.ca.us; Clstamos@usgs.gov; reggiel@vvwater.org; cnalian@vvwra.com
Cc: Judith Unsicker; Hisam Baqai
Subject: Proposed Revisions to Imparied Water Bodies List (303d)

Interested Parties:

Below is the URL address for the Regional Board's listing of proposed changes to the federal Clean Water Act's List of Impaired Water Bodies (known as the 303(d) List). Among other changes, Regional Board staff is proposing to add the Mojave River (between the Upper and Lower Narrows) for total dissolved solids, chloride and sulfate. Written comments are requested by December 28, 2001 and the changes will be considered at the Regional Board's January 9-10 meeting in Truckee. I am sending this message to you as stakeholders so that you have the opportunity to comment if desired. Please cc comments to the Regional Board's Victorville office as well as sending your original comments to the South Lake Tahoe office. Please give me a call if you have questions. Thank You - Jay Cass

http://www.swrcb.ca.gov/rwqcb6/303d/303dindex.htm

****

Jehiel (Jay) Cass
CA Regional Water Quality Control Board
15428 Civic Dr. Ste 100
Victorville CA 92392
phone (760) 241-2434
fax (760) 241-7308
email jcass@rb6v.swrcb.ca.gov
****

CC: Baqai, Hisam; Unsicker, Judith

From: Judith Unsicker
To: dcron@applevalley.org
Date: 12/19/01 12:57PM
Subject: Your Request for Time Extension on Section 303(d) Comments

Jay Cass of the Regional Board's Victorville office has forwarded your request to me. We cannot postpone consideration of Regional Board action on the recommendations for update of the Section 303(d) list to our February meeting because of the schedule set by California State Water Resources Control Board staff. The Regional Board's action is only advisory, and State Water Board action on a statewide Section 303(d) list is currently planned for early 2002. There will be a separate public participation process for the State Water Board's action, and you will have the opportunity to submit written comments then. The contact person for the list update process at the State Board is Diane Beaulaurier, at (916) 341-5549.

I will be attending a meeting this afternoon and will be on vacation from December 20 until January 1. Please contact me on or after January 2 if you have further questions about our list update recommendations or the listing process.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

CC: Chuck Curtis; Diane Beaulaurier; Jehiel Cass

From: norm.tc@gte.net
To: <jcass@rb6v.swrcb.ca.gov>
Date: 12/26/01 11:07AM

From: Norm Caouette <norm.tc@gte.net>
Subject: 303(d) Listing Questions
Cc: unsij@rb6s.swrcb.ca.gov;, kirbyb@mojavewater.org
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Hello Jay and Hisam:

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1. What are the practical implications to the Mojave Water Agency of listing the Upper to Lower Narrows for TDS, Chlorides and Sulfates, particularly since the recommendations identify imported State Water Project water as a source for each of these constituents. Will this prohibit or place limits upon recharge with State Project Water upstream of or within the Narrows?

2. The staff report indicates that the "Update of the Section 303(d) list is not a regulatory or policy action, but an administrative procedure to prioritize water bodies for action." The staff report identifies the "TMDL End Date" as "After 2015" which is footnoted to explain that TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments incorporating TMDLs. Should I interpret this to mean that whatever the practical implications of the listing, they will not be in effect until sometime after 2015, or are there interim implications by virtue of being listed?

3. One of the data references identified as supporting the listing includes "Maxwell, C.R., A Watershed Management Approach to Assessment of Water Quality and Development of Revised Water Quality Standards for the Ground Waters of the Mojave River Floodplain. Paper presented at the National Water Quality Monitoring Council Conferences, April 25-27, 2000, Austin TX." We do not have that document available to us and would appreciate a copy sent to the MWA.

Please note that this inquiry is not in-lieu of an Agency comment letter to the Regional Board, which will be transmitted by 12/28.

Thank you for your assistance.

Norm Caouette

From: Hisam Baqai
To: Rofer-Wise, Cindy
Date: 12/28/01 8:23AM
Subject: Fwd: 303(d) list comment

Hi Cindy,

Here is a letter commenting on Mojave River 303-D list proposed designation. I have spoken about it briefly with Judith Unsicker and recommended that this item should not be put on the 303-D list because it is a salinity issue which is not correctable by controlling conventional remedies such as treatment or BMP implementation. I also feel that there may be insufficient data to conclude that water quality objectives for salinity constituents are being violated. I also have reservations about water quality objectives contained in the Basin Plan for the Mojave River. These objectives were probably established on limited and short term data.

Happy Holidays, Thanks,

Hisam

Hisam A. Baqai
Division Manager
Lahontan RWQCB 6B
(760) 241-7325 Fax (760) 241-7308
hbaqai@rb6v.swrcb.ca.gov

CC: Cass, Jehiel; Curtis, Chuck

Owens Valley Indian Water Commission

169 Short Street, Suite A, Bishop, CA 93514 760-873-3300 873-3320 FAX

January 28, 2001

Ms. Judith Unsiker
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

RE: Public comment on recommended changes to California's list of impaired surface water bodies

Dear Ms. Unsiker,

The Owens Valley Indian Water Commission is a consortium of three of the Owens Valley Tribes (Bishop Paiute Tribe, Big Pine Paiute Tribe and the Lone Pine Paiute-Shoshone Reservation) and is involved in water management issues for these Owens Valley Tribes. The Owens Valley Indian Water Commission understands that the California Regional Water Quality Control Board, Lahontan Region, is soliciting comments from the public on recommended changes to California's list of impaired surface water bodies. Late yesterday afternoon we were faxed the Notice of Availability of and Request for Comments on Draft Recommendations for Changes in Lahontan Region's Section 303(D) List dated November 27, 2001 by the Environmental Management Office of Bishop Tribe. Since these comments are due in your office today by 5 PM, our comments will of necessity be brief.

In Table 1, we noticed that you propose removing Keough Hot Springs from the 303(d) list for metals saying that the impairment is natural; no pollutants. Recently it has been brought to our attention that the Keough Hot Springs resort is chlorinating the water in their swimming pool that then flows out of the pool and down into Keough Hot Springs creek. We want to point out that the source of the chlorine in that stream is not natural, and we do not agree that Keough Hot Springs should be removed from the 303(d) list. Please consider this when making changes to the list. Thank you for allowing us this brief comment.

I hope that you will make sure that the Owens Valley Indian Water Commission is added to your mailing list so that we can receive future correspondence and notices from Lahontan Region.

Sincerely,

Teri Cawelti
Executive Director

715

Cc: file

From: "Darla Heil" <djheil@inreach.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/28/01 3:16PM
Subject: RE: Comments on recommended changes to California's list of impaired surfacewater bodies

Ms. Unsiker,

Please find attached an MS Word file containing the Comments of the Owens Valley Indian Water Commission on recommended changes to California's 303(d) list. I will mail the original letter, but since the comments were due today, I e-mailed the commentsto meet the deadline.

Sincerely,
Darla J. Heil
Environmental Specialist
Owens Valley Indian Water Commission
169 Short Street, Suite A
Bishop, CA 93514
760-873-3300

From: "Judy Molnar" <jmolnar@gbis.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 12/28/01 9:41AM
Subject: Letter to Harold Singer re:Lahontan

Judith,

Attached is the above referenced letter that Mark DeMaio asked that I e-mail to you. A hard copy will be sent in the mail.

Beth Nunes
Assistant to Judy Molnar

December 20, 2001

Harold Singer, Executive Officer
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

RE: Alpine County Comments regarding *Draft Recommendations for Changes in Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies*

Dear Mr. Singer:

At its meeting December 18, 2001, the Alpine County Board of Supervisors voted to submit the following written comments in response to the summary list of recommended changes provided in the November 2001 *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.* The limited review time available to County staff did not allow time to evaluate/review data quality for outliers, confidence intervals, rigorous statistical review or evaluation. With this in mind, Alpine County respectfully reserves its right to submit further oral and/or written comment before the District takes action to transmit the "final" administrative record to the State Board.

Alpine County objects to the listing of two primary water bodies in the County: Indian Creek Reservoir and the West Fork of the Carson River. Comments with respect to Indian Creek Reservoir have repeatedly been submitted to the District, but after cursory review of the Staff Report dated November 2001, are not addressed. Although these technical comments were submitted prior to the March 2001 (formal) solicitation, Alpine County requests that its letter dated May 2000 be added to the administrative record.

With respect to the West Fork of the Carson River, Alpine County would like to call attention to a number of quotes in the report and review comments addressing concerns, as follows:

Page 4: "Staff resources and time available for the update were limited. Monitoring data for surface waters within the Lahontan Region are limited due to past and present resource constraints on baseline/trend monitoring and the fact that the Lahontan Region has few discharges to surface water and thus few sets of discharger monitoring data." Alpine County contends that no data was provided or reference material cited providing Regional Board staff evaluation of waters for inclusion in the proposed Watch List. **Alpine County requests that the decision to add water bodies to the list be performed only when compelling reasons to place a well defined water body reach thresholds based on current data.**

Page 5: "There is currently no formal statewide listing/delisting guidance, although the State Board plans to develop and adopt formal guidance before the next (2004) listing cycle." Placing water bodies on the Watch List suspected of being potentially impaired would not be inappropriate while formal guidance is being adopted.

Page 6: "Impairment will be determined by 'qualitative assessment,' physical/chemical monitoring, bioassay tests, and other biological monitoring.... A qualitative assessment includes an assessment based on factors other than ambient monitoring data (for example, predictive monitoring, professional judgment, or public comments)."

Clearly the future socioeconomic implications and repercussions of placing the West Fork of the Carson River on the Section 303(d) list of impaired water bodies are not fully known at this time. The negative stigma and publicity associated with a recreational resource being placed on the Impaired Water Bodies List could negatively impact the limited economy of the County, which is heavily reliant upon tourism and associated recreational value of its watersheds. Alpine County recommends placement of the reaches being proposed on the Watch List to allow rigorous verification of the impairment hypothesis prior to placement on the Impaired Water Body List. Alpine County also recommends that Lahontan Staff work with the Alpine County Watershed group in terms of identifying data gaps and impairment hypothesis, as part of the upcoming condition assessment project/ State Water Resources Control Board Grant.

Page 8: "The Lahontan Basin Plan recognizes that not all factors affecting water quality may be controllable.....No Lahontan Region waters impaired only by natural sources are recommended for addition to the section 303(d) list."

Page 8: In the discussion under the section "Need for Changes in Water Quality Standards," the County concurs that standards and objectives need to be reviewed. However, the County's position is that these standards, objectives and beneficial uses should be reviewed prior to adding waters to the 303(d), rather than after the fact. Although the report indicates that Lahontan Regional Board staff has developed more specific listing and delisting considerations, the process has not been clearly articulated. Please provide a schedule for this standard review process, or provide information to the County Board of Supervisors outlining how this process may be pursued. Of particular interest to Alpine County would be a review of the Indian Creek Reservoir designated beneficial uses.

Page 9: "Listing based on only one or a few samples, or on qualitative analysis was not ruled out." **It has not been feasible to develop data quantity/quality thresholds for the Lahontan Region given the limited time and resources available.** Data quality should be reviewed and confidence intervals should be provided that clearly demonstrate impairment/ objective violation.

Alleged violation of water quality objectives on the West Carson River had characteristics which dispute including the water body/pollutant listing in the 303(d) update, as follows:

- Some violations noted were barely over the objective (sodium, phosphorus, nitrogen);
- Water quality is potentially affected by natural perturbations (phosphorus-fire, flood, and erosive bank impacts, nitrogen-flood impacts);
- Insignificant frequency of data gathering(pathogens-West Carson River and Indian Creek);
- Data was not reviewed for data quality (all);
- The Fact Sheet indicates that admittedly inappropriate standards over protecting the beneficial use (sodium) have been applied, and standard revisions are being recommended.

Water quality objectives utilized by Lahontan are similar to those applied in the Tahoe watershed rather than other eastern Sierra standards (i.e., California West Fork Carson River Nitrogen Objectives as compared to Carson River Downstream Nevada standards, Walker River standards). As well, much of the data used for listing of the West Fork of the Carson River was from the South Tahoe Public Utility District's (STPUD) monthly monitoring report, a monitoring plan with different objectives from those of the TMDL.

One very significant issue with Lahontan's proposed additions to the State Board's Section 303(d) list is the inclusion of long sections of streams as one unit. An example is the West Fork of the Carson River from the headwaters to Woodfords. This section includes approximately 21 miles of stream traveling through very different environments. The headwaters, and the headwater tributaries, are sure to behave differently under the stress of snowmelt (for example) than is the reach through Hope Valley. Similarly, one could argue that the reach near Woodfords is geomorphically dissimilar to the headwaters.

It is understandable that the lack of detailed spatial data led to the listing of long stretches of river. However, the lack of current data could equally lead to a call for more data acquisitions through monitoring.

In the interest of making scientifically-sound decisions while still maintaining the quality of public resources, Alpine County proposes that an additional two years of monitoring and study occur on the streams in Alpine County. The Alpine County Watershed Group recently received a grant in excess of $200,000 to perform monitoring and study of the watersheds in Alpine County. As well, the Alpine County Board of Supervisors and the Alpine County Water Agency is committed to furthering studies of the watershed that provide scientific basis for future decision-making, rather than relying on outdated or inappropriate data collection. For these reasons, the Alpine County Board of Supervisors request that the streams and tributaries of West Fork of the Carson River be placed on the Watch List until completion of the study.

Your attention to Alpine County's comments is appreciated.

Very truly yours,

DONALD M. JARDINE
Chair, Board of Supervisors

Cc: Rep. J. Doolittle, U. S. Congress
Rep. D. Ose, U.S. Congress
D. Feinstein, U.S. Senate
B. Boxer, U.S. Senate
California EPA

Victor Valley Wastewater Reclamation Authority

FAX TRANSMITTAL

FROM: **Daniel P. Gallagher**
Victor Valley Wastewater Reclamation Authority
20111 Shay Road, Victorville, CA 92394
PHONE: (760) 246-8638
FAX: (760) 246-5440

TO: **Ms. Judith Unsicker**
Lahontan Regional Water Quality Control Board
FAX NO: 530 542-5470

DATE FAXED: **12/26/01** **Time:** **4:01 PM**

Total number of pages transmitted including this cover sheet: 3

Proposed 303(d) Listing for the Mojave River Upper and Lower Narrows letter

Victor Valley Wastewater Reclamation Authority

A Joint Powers Authority and Public Agency of the State of California

20111 Shay Road • Victorville, California 92394
Telephone: (760) 246-8638 • Fax: (760) 246-5440
e-mail: mail@vvwra.com

December 26, 2001

Ms. Judith Unsicker, Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

RE: Proposed 303(d) Listing for the Mojave River Upper and Lower Narrows

Dear Ms. Unsicker;

It has come to our attention that the Lahontan RWQCB intends to recommend the Mojave River Upper and Lower Narrows for listing under the Federal Clean Water Acts' List of Impaired Waterways, otherwise known as the 303(d) list. We respectfully request that the Lahontan RWQCB consider the following comments before taking action on this issue:

1. The Victor Valley Wastewater Reclamation Authority (VVWRA) has not had sufficient time to evaluate the economic and/or environmental impacts associated with the proposed 303(d) listing, or the data that was submitted to substantiate this action. As an NPDES-permitted Discharger and water reclamation provider for nearly the entire Victor Valley area, the proposed listing could have significant cost impacts on the Authority and its customers. VVWRA serves an area of over 216 square miles, including the incorporated cities of Victorville, Apple Valley, and Hesperia, and portions of San Bernardino County.

2. The development of limitations on discharges of total dissolved solids, chlorides, and sulfates could have significant impacts on the region's ability to recycle and reuse fully treated wastewater that would otherwise meet California Title 22 regulations.

3. The development of limitations on discharges of total dissolved solids, chlorides, and sulfates could have significant impacts on the region's ability to recharge the river aquifer system using State Project Water, which is the Victor Valley's only available source of imported water.

4. In 1997 VVWRA completed and adopted the Mojave River Upstream Discharge Study, which was partially funded by the SWRCB via a 205(j) grant. The Study concluded that discharges of treated wastewater to areas upgradient from the Lower Narrows of the Mojave River would not result in significant impacts to groundwater quality and/or water quality objectives for the Mojave River Basin. The Lahontan RWQCB served as a partner with VVWRA in the Study, with a representative participating on the Study's Technical Advisory Committee. Including the Mojave River Upper and Lower Narrows on the 303(d) list does not appear consistent with the Study's findings.

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Based upon the potential economic and adverse environmental impacts associated with the proposed 303(d) listing, the Victor Valley Wastewater Reclamation Authority does not feel that the proposed listing is appropriate at this time. We respectfully request that the Board not approve recommending the Mojave River Upper and Lower Narrows for 303(d) listing at this time. We further recommend that the Lahontan RWQCB establish meetings for stakeholders, and conduct a series of public hearings prior to considering any additional 303(d) listing for the Mojave River.

Please feel free to contact me if you have any additional questions.

Sincerely,

Daniel P. Gallagher
General Manager

cc: VVWRA Board of Commissioners
VVWRA Technical Advisory Committee
Hisam Baqai, Victorville Office, Lahontan RWQCB
James P. Morris, Best Best & Krieger

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General Manager
Robert G. Baer

Directors
Cathie Becker
James R. Jones
Mary Lou Mosbacher
Duane Wallace
Eric Schafer

South Tahoe Public Utility District

1275 Meadow Crest Drive • South Lake Tahoe, • CA 96150-7401
Phone 530 544-6474 • Fax 530 541-0614

December 27, 2001

Via Facsimile
(530) 544-2271

Board of Directors
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, California 96150

Re: Comments on Proposed Updates to Section 303(d) List of Impaired Water Bodies for the East and West Forks of the Carson River and Their Tributaries

Dear Members of the Board of Directors:

The South Tahoe Public Utility District (District) submits the following comments with regard to the proposed updates by the Lahontan Regional Water Quality Control Board (Board) to the Clean Water Act (CWA) Section 303(d) list of impaired surface water bodies, particularly to the proposed updates for the Carson River watershed. The District would welcome the opportunity to discuss in more detail the issues raised herein and is willing to work with the Board's staff to address the water quality concerns for those water bodies relating to the District's activities and interests.

1. Updated Water Quality Standards and Understandings are Critical to the 303(d) Listing Process.

The District is informed that the water quality standards which the Board is currently using to assess water quality compliance and to update the Section 303(d) list are based on data from 1975. The Staff Report on Recommended Changes to the Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies (Staff Report) acknowledges that, "[T]hese [water quality] objectives may not reflect the natural background conditions of the affected water bodies, or current scientific criteria for protection of beneficial uses." The District believes that it is improper to base the Section 303(d) listing on these antiquated water quality standards. Although the Section 303(d) listing is not a regulatory or policy action, the listing does form the underlying perception of the water body's status and the foundation for regulatory action. It is therefore important that an accurate assessment be made prior to listing. Issues such as natural background conditions, the impact of airborne

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constituents, and other current scientific understandings should be considered. Moreover, water quality standards should be determined pursuant to extended data sets that can account for annual variations in hydrologic and human use conditions. Without such analysis we risk expending efforts and imposing regulations and hardships that do not accomplish our water quality objectives. As discussed below, the District recommends that efforts be made to update the water quality standards as soon as possible and is willing to assist in facilitating this process.

2. <u>Specific Comments on the Proposed Listings for the Carson River Watershed</u>

a. No Apparent Analysis of the Potential Remediating Effect of Technology-Based Effluent Limitations, BMPs, and Other Existing Pollution Controls

The introduction to the Staff Report states that the "[A]ct requires states to identify surface water bodies which are not attaining water quality standards and are not expected to do so even with the use of technology-based effluent limitations and other legally required pollution controls such as Best Management Practices." The District has been unable to ascertain whether this analysis has been undertaken for the proposed additions for the Carson River watershed. Such analysis does not appear to be included in the Water Body Fact Sheets for the West Fork and East Fork Carson River Hydrologic Units (Fact Sheet). The Fact Sheet does cite to evidence of violation of water quality standards, but it does not discuss whether existing regulations and practices could be expected to bring the subject water bodies into compliance. The District believes that this analysis should be performed and documented in the Fact Sheet to ensure that the proposed additions are appropriate and in accordance with the CWA.

b. Analysis of Natural Background Conditions

The District notes that the Board has not documented the extent to which natural background conditions account for the "impairment" cited for the proposed Section 303(d) additions relating to the Carson River watershed. The District believes assessing the natural background condition is critical to the listing process because it forms the baseline for determining whether the water body is actually impaired and whether regulatory action is ultimately appropriate. The Staff Report acknowledges this at page 9. Without a proper understanding of the natural background conditions we risk mistaking a human activity as the source of a naturally occurring element, and potentially imposing significant regulatory hardships without a corresponding improvement in water quality. Therefore, the District believes that this analysis should occur prior to proposing additions to the Section 303(d) list.

c. Analysis of the Effect of Airborne Constituents

The District also notes that the Board has not documented the extent to which airborne constituents are the source of pollutants to some of the proposed Section 303(d) listings. Like natural background considerations, the District believes that this analysis should be performed and documented prior to adding a water body to the Section 303(d) list. Without such analysis we again risk inaccurate assessment of the source of the pollutant and regulatory impositions that do not accomplish the water quality objectives. Similarly, the District believes that this analysis should occur prior to proposing additions to the Section 303(d) list.

d. The Fact Sheet Should Identify the Criteria Used to Justify Section 303(d) Additions.

The Staff Report provides, at page 6, a list of six separate considerations that were used by the Board's staff to determine whether a water body should be proposed for addition to the Section 303(d) list. The District requests that the criteria used to justify the specific additions in the Carson River watershed be identified in the Fact Sheet.

e. Identified Reaches are Too Long and Should be Subdivided.

The District believes the various reaches of the West Fork of the Carson River identified for additional listings are too long because they fail to account for differing human activities and use characteristics within the proposed reaches. For example, the proposed phosphorous listing for the West Fork of the Carson River stretches from the headwaters to Woodfords. Within this reach the uses and activities within the watershed include natural stretches without human activity, ranching, lodging, and others. The District believes this reach should be subdivided to address those areas that are contributing to the high phosphorous levels so that the regulatory actions that are ultimately adopted to accompany the listing are applicable *only* to those problematic areas.

f. The District's Data May be Inappropriate for Section 303(d) Listing Purposes.

The District notes that much of the monitoring information used to determine water quality compliance for the Carson River watershed was provided by the District's self-monitoring reports as directed by its Waste Discharge Requirements. This data is collected for reasons other than establishing compliance with water quality standards. Such monitoring by the District does not include information on river flow, weather, temperature, diversions, etc. For this reason, the District does not believe that this data is reliable for satisfying the

"weight of evidence" approach used by the Board to assess compliance with water quality standards and the resulting proposed Section 303(d) additions.

g. The Pathogens Analysis Should Include all Available Data.

The District notes that the data cited in the Fact Sheet to justify the listing for pathogens for both the West Fork of the Carson River and Indian Creek was for 2000/2001 only. This data, which was provided by the District to the Board, is available from 1997 to present. The District would like to know why the full data set was not analyzed and published, particularly in light of the Staff Report's statement at page 9 that the Board prefers data sets with several years of data. The District requests an analysis of the full data set to determine what the extended data indicates. As we know, last year's snow pack runoff and stream flows were well below average, which may have caused a higher than normal pathogen count. An analysis of the complete data set may indicate that last year was an aberration and that the normal-year pathogen count is within acceptable norms, and therefore that the listing is not required.

h. Setting of TMDL for the Indian Creek Watershed

As indicated in the Board's proposed Section 303(d) update, a TMDL for phosphorous is scheduled for the Indian Creek Reservoir in 2002. As the Board's staff is aware, the District imports water from the West Fork of the Carson River to fill the Indian Creek Reservoir. The West Fork of the Carson River is also proposed for listing for phosphorous, but is not scheduled for development of a TMDL until after 2015. Given the reservoir's reliance on water from the West Fork, the District believes it would be more appropriate to first determine a TMDL for the West Fork. However, the District also acknowledges the EPA's requirement that TMDLs be set for those water bodies on the 1998 Section 303(d) list before those now proposed for listing. As a substitute, the District requests that the phosphorous content of the West Fork water be considered when developing the TMDL for the reservoir.

3. <u>Recommendations for Improvement of the 303(d) Listing Process and Collaboration with the District</u>

The Board previously identified the Carson River as one of its five highest priority watersheds. Accordingly, the District recommends that the Board develop up-to-date, scientifically based water quality standards for the watershed. The District further recommends that a technical advisory committee be established to assist the Board staff in developing monitoring protocol and advising on further research for the watershed. The District understands that the Board has present staffing and financial constraints which

may inhibit this needed monitoring and research. However, these constraints cannot excuse reliance on inadequate analysis prior to the Section 303(d) listing. Therefore, the District recommends that the Board initiate and sustain efforts to secure the necessary funding to adequately perform the required monitoring and research. The District is willing to support such efforts.

Additionally, the District offers to work with the Board in developing and implementing an appropriate monitoring protocol. To this end, the District's staff is willing to meet with the Board's staff to review the District's existing monitoring protocols, and to determine whether modified protocols are necessary for appropriate and comprehensive water quality analysis. The District's staff has already requested a meeting with the Board's staff to review the District's Master Plan for Recycled Water Use in Alpine County. A key concept of the Master Plan is improvement of water quality, particularly in the Indian Creek watershed.

Finally, the District acknowledges that the State Water Resources Control Board (SWRCB) has not formulated specific policies to guide the RWQCBs in assessing water quality standards for purposes of listings and delistings pursuant to Section 303(d). The District believes that the SWRCB should issue formal guidelines so that the process is consistent and predictable throughout the state. Accordingly, the District encourages and would support the Board to seek the adoption of formal guidelines by the SWRCB.

Thank you in advance for your consideration of the forgoing comments and concerns. The District welcomes further discussion and collaboration with the Board on these important issues.

Sincerely,

Richard Solbrig

Richard Solbrig
Assistant Manager / Engineer

cc: Ross Johnson
Gary M. Kvistad, Esq.

TAHOE REGIONAL PLANNING AGENCY

308 Dorla Court
Elks Point, Nevada
www.trpa.org

P.O. Box 1038
Zephyr Cove, Nevada 89448-1038

(775) 588-4547
Fax (775) 588-4527
Email: trpa@trpa.org

December 27, 2001

Ms. Judith Unsicker
California Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

Subject: 303(d) Listing of Streams in the Lake Tahoe Hydrologic Unit

Dear Ms. Unsicker, and Lahontan RWQCB,

My main concern in 303(d) listing of several streams in the Lake Tahoe Hydrologic Unit is the listing for Iron. TRPA water quality staff agree with Lahontan staff in the evaluation that the Iron standard is likely set too low and does not reflect background concentrations in the Tahoe Basin. Recent statewide monitoring data from Caltrans has also suggested that Iron background concentrations in the Tahoe Basin are higher than most areas of the state in general. However, my concern is that in so listing the goal of revising the Iron standard may be lost and somehow perpetuate efforts to meet a standard that may not be attainable. The listings for Chloride may be a similar concern, but the potential sources in that case may be anthropogenic (and subject to decrease over time).

TRPA and Lahontan have similar antidegradation goals for the Lake Tahoe Basin. I hope that reasonable standards can be set for constituents such as Iron, while still preventing degradation and impairment of beneficial uses for Tahoe streams. At a recent meeting, senior staff from Lahontan, NDEP, EPA, and TRPA verbally agreed to attempt setting uniform standards for tributary streams in the Lake Tahoe Hydrologic Unit, and the Tahoe Basin as a whole. Standards for Iron do not exist for Nevada tributaries at this time, but a goal should be set for a uniform protective Iron standard for all the Lake Tahoe tributaries.

In general I support your efforts in proposed additions to the 303(d) list, but want to ensure that questionable standards such as those for Iron are not perpetuated in the process.

Sincerely,

Larry F. Benoit

Larry F. Benoit
Water Quality Program Manager

Victor Valley Wastewater Reclamation Authority

A Joint Powers Authority and Public Agency of the State of California

20111 Shay Road • Victorville, California 92394
Telephone: (760) 246-8638 • Fax: (760) 246-5440
e-mail: mail@vvwra.com

December 26, 2001

Ms. Judith Unsicker, Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

RE: Proposed 303(d) Listing for the Mojave River Upper and Lower Narrows

Dear Ms. Unsicker;

It has come to our attention that the Lahontan RWQCB intends to recommend the Mojave River Upper and Lower Narrows for listing under the Federal Clean Water Acts' List of Impaired Waterways, otherwise known as the 303(d) list. We respectfully request that the Lahontan RWQCB consider the following comments before taking action on this issue:

1. The Victor Valley Wastewater Reclamation Authority (VVWRA) has not had sufficient time to evaluate the economic and/or environmental impacts associated with the proposed 303(d) listing, or the data that was submitted to substantiate this action. As an NPDES-permitted Discharger and water reclamation provider for nearly the entire Victor Valley area, the proposed listing could have significant cost impacts on the Authority and its customers. VVWRA serves an area of over 216 square miles, including the incorporated cities of Victorville, Apple Valley, and Hesperia, and portions of San Bernardino County.

2. The development of limitations on discharges of total dissolved solids, chlorides, and sulfates could have significant impacts on the region's ability to recycle and reuse fully treated wastewater that would otherwise meet California Title 22 regulations.

3. The development of limitations on discharges of total dissolved solids, chlorides, and sulfates could have significant impacts on the region's ability to recharge the river aquifer system using State Project Water, which is the Victor Valley's only available source of imported water.

4. In 1997 VVWRA completed and adopted the Mojave River Upstream Discharge Study, which was partially funded by the SWRCB via a 205(j) grant. The Study concluded that discharges of treated wastewater to areas upgradient from the Lower Narrows of the Mojave River would not result in significant impacts to groundwater quality and/or water quality objectives for the Mojave River Basin. The Lahontan RWQCB served as a partner with VVWRA in the Study, with a representative participating on the Study's Technical Advisory Committee. Including the Mojave River Upper and Lower Narrows on the 303(d) list does not appear consistent with the Study's findings.

731

Based upon the potential economic and adverse environmental impacts associated with the proposed 303(d) listing, the Victor Valley Wastewater Reclamation Authority does not feel that the proposed listing is appropriate at this time. We respectfully request that the Board not approve recommending the Mojave River Upper and Lower Narrows for 303(d) listing at this time. We further recommend that the Lahontan RWQCB establish meetings for stakeholders, and conduct a series of public hearings prior to considering any additional 303(d) listing for the Mojave River.

Please feel free to contact me if you have any additional questions.

Sincerely,

Daniel P. Gallagher
General Manager

cc: VVWRA Board of Commissioners
VVWRA Technical Advisory Committee
Hisam Baqai, Victorville Office, Lahontan RWQCB
James P. Morris, Best Best & Krieger

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Mojave Water Agency

22450 Headquarters Dr., P.O. Box 1089, Apple Valley, CA 92307
760-240-9201 fax: 760-240-2642

FAX TRANSMITTAL

TO: JUDITH UNSICKER

COMPANY:

FAX NO. 530 544-2271 ~~530 - 542 - 5962~~

FROM: KIRBY BRILL

DATE: _____ PAGES INCLUDING COVER: ____

COMMENTS: RE: MOJAVE RIVER 303(d) LISTING

Mojave Water Agency

22450 Headquarters Drive • Post Office Box 1089 • Apple Valley, CA 92307-0019
Phone (760) 240-9201 • Fax (760) 240-2642 • www.mojavewater.org

December 28, 2001

Ms. Judith Unsicker, Staff Environmental Scientist
Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

RE: Lahontan Staff Recommended Changes to Section 303(d) List of Impaired Water Bodies

Dear Ms. Unsicker:

Thank you for the opportunity to comment upon the referenced proposed listings. The Mojave Water Agency has concerns with the recommendation to list the Mojave River as an impaired water body from the Upper Narrows to the Lower Narrows for total dissolved solids, chlorides and sulfates. The concerns are based upon the perceived lack of data for the Mojave River, the status of the Mojave Watershed analysis, and the uncertainty of impact to potential recharge programs associated with the proposed listing. Additionally, the MWA believes that sufficient notice was not provided to the stakeholders within the watershed to allow for effective review and comment upon the proposed listings. MWA staff was not notified of the proposed listings and the need to respond no later than December 28 until a phone conversation on December 17. Accordingly, we believe it premature to list the Mojave River as an impaired water body at this time.

The proposal to list the affected reach of the Mojave River is based upon a limited data set consisting of 5 water quality samples collected at the Upper Narrows between March 2000 and June 2001. The period between March 2000 and June 2001 had relatively little precipitation and associated surface water (storm) flows in the Mojave River, including the Narrows. It is quite possible that the limited quantity of water quality samples gathered during a period of relatively dry conditions will result in samples containing abnormally high concentrations of constituents not representative of ambient water quality conditions.

The staff analysis identifies evidence of impairment to include exceeded water quality MCLs, stated as 500 mg/L, for TDS. It should be noted that the State 500 mg/L

drinking water standard for TDS is not a maximum contaminate level for drinking water quality. 500 mg/L represents the recommended secondary (aesthetic) standard, with 1000 mg/L a recommended "upper" secondary standard and 1,500 mg/L a recommended "short-term" secondary standard.

Chloride mean values that slightly exceed the federal 4-day average continuous concentration for freshwater aquatic life are also identified as evidence of impairment. The staff analysis acknowledges, however, that the federal 4-day standard for chlorides is not necessarily applicable to local native species in this reach of the River because of the transitional nature between mountain and desert ecosystems.

The staff analysis identifies a slight exceedance of the Basin Plan water quality objective for sulfates as evidence of impairment for that constituent. Lahontan staff also concludes that the basin plan objectives for sulfates were developed in 1975 and were probably based on limited historical sampling data, and we concur with this conclusion.

We believe it premature to list the Mojave River as an impaired water body because an effort is currently underway that involves Mojave Watershed stakeholders and Lahontan staff to better define background water quality conditions and their relevance to current Basin Plan Water Quality Objectives. The Mojave Watershed group acknowledged, as does the staff report for the proposed listing of the Mojave River for impaired water body status, that prior development of the Basin Plan Objectives was based on a limited historic data set. Consequently, the Watershed Stakeholders and Lahontan staff developed the following mission statement for the Watershed Management Plan for the Mojave watershed, quoted from the Plan transmitted by Lahontan staff on June 16, 1998:

> *"To develop more thorough understanding of the spatial and seasonal variability in water quality in the surface and ground water of the Mojave River floodplain aquifer as an initial step in a long-term planning process for evaluation and possible modification of water quality objectives to ensure the ultimate protection of water resources for beneficial uses."* (Emphasis added.)

Finally, we believe it should be pointed out that one of the important factors to consider when deliberating the many variables that can influence water quality is water supply overdraft. The entire Mojave River system and ground water basins have been in overdraft since the 1950's. Consequently, ground water levels have continued to decline over time and the base flow (non-storm related surface water flows) in the Narrows has been greatly diminished and subject to periodic drying in some reaches. For example, the base flow at the USGS Lower Narrows Gage near Victorville had a

measured base flow of 18,750 acre-feet in 1975 when the Basin Plan Objectives were developed, and has since diminished to 6,322 acre-feet in 2000, which is a reduction in base flow of 66 percent. For reference, the 60-year average base flow at the Lower Narrows is approximately 21,000 acre-feet per year. Base flow estimates for the 2001 Water Year are currently still being developed, but are currently estimated to be reduced further, to about 5,500 acre-feet. This would represent a 74% reduction from the long-term average base flow.

One of the consequences of overdraft can be diminished water quality. The key to reducing and eventually eliminating overdraft will be the importation of State Water Project water. On average, State Water Project water has been within current drinking water standards and clearly can support beneficial uses within the basins. However, the Lahontan staff report identifies State Water Project water as a potential source for TDS, chlorides and sulfates. Should the listing effectively limit the ability to import State Water Project water, it would impede a needed source of good quality water to offset the overdraft and support beneficial uses within the basin.

We appreciate the opportunity to work with the Lahontan Board and staff to address the important water quality issues that face the region.

Sincerely,

Kirby Brill
General Manager

From: Judith Unsicker
To: "alprise@gbis.com".mime.Internet
Date: 1/2/02 12:07PM
Subject: Re: Jan 2002 meeting

The Section 303(d) list update item will be considered during the part of the Lahontan Regional Board meeting beginning at 7:00 p.m. on Wednesday, January 9. (The meeting will begin at 4:00 with a break for dinner.) No "time certain" has been set for the 303(d) list item; it is Item 5 and is scheduled after a public hearing for a Lake Tahoe Basin enforcement action.

The location is the South Lake Tahoe City Council Chambers,
1900 Lake Tahoe Boulevard, South Lake Tahoe. At the "South Tahoe Y", the intersection of Highways 50 and 89, go west on Lake Tahoe Boulevard
about 1 block until you see the red Kragen's auto parts sign on the left, and turn left on Tata Lane. The City Council Chambers are across from Kragen's on the corner of Tata and Lake Tahoe Boulevard. If parking is full, there is a plowed overflow lot on the east side of Tata behind Kragens.

Please call or email me if you have further questions.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542- 5462
Email: unsij@rb6s.swrcb.ca.gov

>>> "Al Pettit" <alprise@gbis.com> 12/30/01 06:32PM >>>
BlankDear Ms. Unsicker; could you please provide us with time and place of the Jan. 9th and 10th meetings? Thanks, Al

ALPINE ENTERPRISE NEWSPAPER
Al Pettit - Publisher - Editor
Email:alprise@gbis.com
Phone/Fax: 530-694-0018
web site:www.alpine-enterprise.com
P.O. Box 386
Markleeville, Ca. 96120

ON-LINE AT:www.ALPINE-ENTERPRISE.COM

From: Larry Benoit <lbenoit@trpa.org>
To: "'Randy Pahl'" <rpahl@govmail.state.nv.us>, Larry Benoit <lbenoit@trpa.org>
Date: 1/2/02 11:04AM
Subject: RE: Attn: Larry Benoit

Randy,
The Nevada Iron standard came as news to me. When was that standard adopted? I and others at TRPA were still under the assumption that there was no iron standard for Nevada tributaries in particular. Larry

-----Original Message-----
From: Randy Pahl [mailto:rpahl@govmail.state.nv.us]
Sent: Monday, December 31, 2001 8:44 AM
To: waterquality@trpa.org
Cc: Judith Unsicker (E-mail)
Subject: Attn: Larry Benoit

Larry:

I received your letter of December 27, 2001 to Judith Unsicker regarding 303(d) listing of Tahoe streams. I wanted to clarify that Nevada does have iron standards for Tahoe and its tributaries. We have a standard of 1,000 ug/l for aquatic life protection for all waterbodies in Nevada. This standard is based upon EPA recommendations for aquatic life and doesn't address antidegradation issues. Contact me if you have any questions.

Randy Pahl
Standards Branch Supervisor
Nevada Division of Environmental Protection
333 W. Nye Lane
Carson City, NV 89706
(775) 687-4670, x. 3161
rpahl@govmail.state.nv.us

CC: "Judith Unsicker (E-mail)" <unsij@rb6s.swrcb.ca.gov>

ALPINE ENTERPRISE

Alpine Enterprise Newspaper, Alpine County California, January 3, 2002

EDITOR-PUBLISHER
Al Petri
E-mail: alpnse@sbcglobal.com
Phone/Fax: (530)694-0018
P.O.Box 386
Markleeville, Ca. 96120

Past Issues
20 nov 2001
06 oct 2001
30 aug 2001
28 jul 2001
15 jun 2001
11 apr 2001
01 mar 2001
27 jan 2001
21 dec 2000
18 nov 2000
21 oct 2000

Local News Briefs

Forestdale Road Snowmobile Closure Fails

At the December 12, 2001 regular meeting of the Alpine Board of Supervisors, the issue of whether or not to close Forestdale Road to snowmobiles on an experimental basis was again addressed at a public hearing continued from November 20. (Ref. Alpine Enterprise, November edition, Editorial: "Forestdale Follies".). The Board had been considering a suggestion from Carson District Ranger Gary Schiff to temporarily close Forestdale, an Alpine County RS2477 road, and initiate a recreational use management plan for the eastern portion of Alpine County, particularly the possible opening of Monitor Pass and Hwy. 4 areas to snowmobiling, . It was also hoped that this action would stay an ongoing lawsuit now under appeal by the Sierra Club et. al v. U.S. Forest Service. However, plaintiffs indicated this would not be agreeable, according to Ranger Schiff.

During the public hearing, local residents and members of the Lake Tahoe Snowmobile Association protested any closure of Forestdale, especially prior to exploration and commitment by the Forest Service to open other areas. Friends of Hope Valley supported the temporary closure, but not subject to the development of new snowmobiling areas.

Supervisor Herman Zellmer made a motion to adopt a resolution authorizing proposed seasonal closure of Forestdale Road to snowmobile use and to approve an MOU for participation in a recreational management plan for Alpine County's's east slope. Supervisor Chris Gansberg commented he saw no common ground between the two groups (skiers and snowmobilers) and felt the court was the only way to resolve the situation. Supervisor Don Jardine supported the idea of collaborative efforts through the proposed MOU. The motion died for lack of a second.

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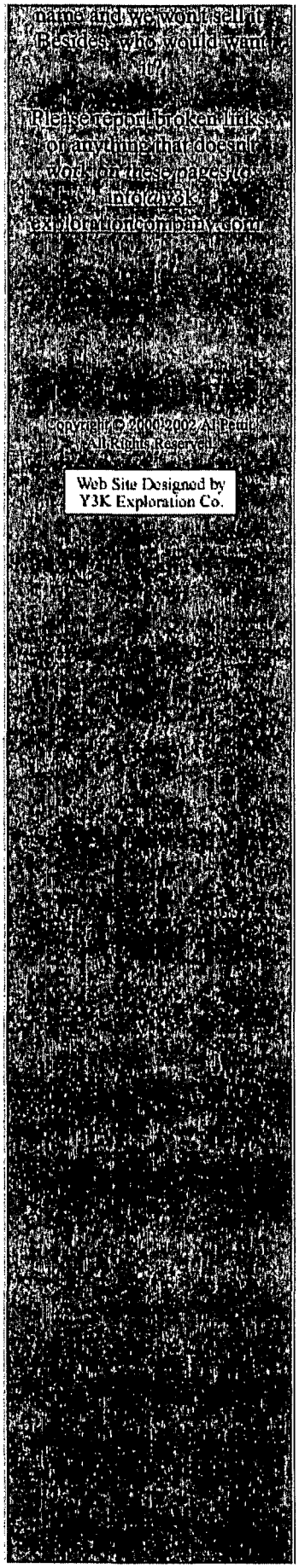

Welcome Back John

Due to the vacancy created by the resignation of Chris Gemmill from the Alpine Planning Commission, the Board of Supervisors has appointed John L. Cassidy of District 2 to fill the unexpired term ending June 30, 2003. Cassidy was previously on the commission but had to resign due to a districting issue.

Is West Fork Of Carson River "Polluted"?

Due to pressure from the Fed EPA and California EPA to enforce the federal Clean Water Act, the Lahontan Regional Water Control Board is scrutinizing a number of rivers in its jurisdiction for possible listing under section 303(d) of the act as polluted due to TMDL's (Total Maximum Daily Loads) of compounds of nitrogen, phosphorous, and other element compounds, and bacteria. In Alpine County, the listing of West Fork Carson could also include Indian Creek Reservoir, a popular recreation spot for fishing and camping at the BLM campgrounds.

Two possible extreme outcomes could be the banning of all or some septic systems close to West Fork Carson and the dredging of Indian Creek Reservoir, which in the past received treated effluent sewage water from South Lake Tahoe PUD (STPUD). It is now being 'flushed' with 'fresh' river water, but since it is now designated as a fresh water fishery, it conceivably could require more stringent standards than drinking water.

Written comment on this listing ended December 28, 2001. Below is the comment letter from the Alpine Board of Supervisors. The Lahontan Board will conduct a regular public meeting at 4:00 PM, adjourn for dinner, and will consider this issue at 7:00 pm, or soon thereafter, on January 9th, 2002, South Lake Tahoe City Council Chambers, 1900 Lake Tahoe Blvd., South Lake Tahoe, CA.

December 20, 2001
Harold Singer, Executive Officer
California Regional Water Quality Control Board, Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150

RE: Alpine County Comments regarding *Draft Recommendations for Changes in Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies*

Dear Mr. Singer:

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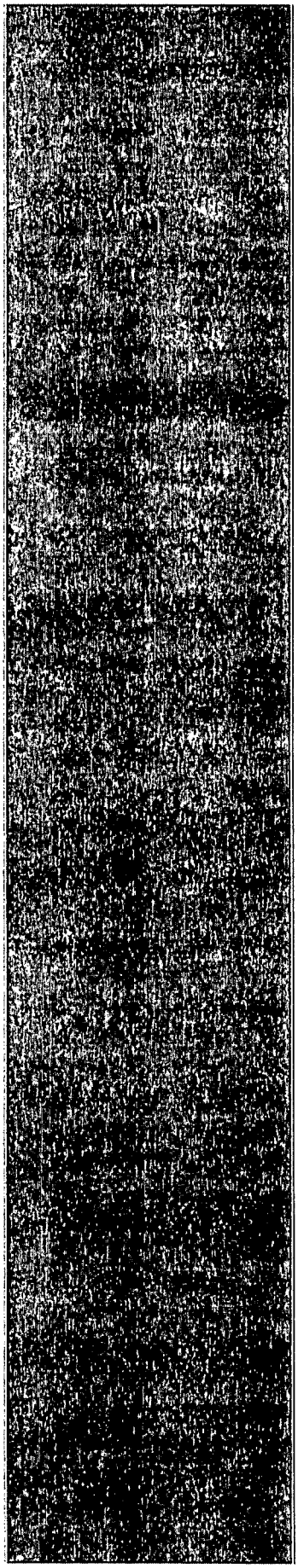

At its meeting December 18, 2001, the Alpine County Board of Supervisors voted to submit the following written comments in response to the summary list of recommended changes provided in the November 2001 *Staff Report on Recommended Changes to Lahontan Region's Section 303(d) List of Impaired Surface Water Bodies.* The limited review time available to County staff did not allow time to evaluate/review data quality for outliers, confidence intervals, rigorous statistical review or evaluation. With this in mind, Alpine County respectfully reserves its right to submit further oral and/or written comment before the District takes action to transmit the "final" administrative record to the State Board.

Alpine County objects to the listing of two primary water bodies in the County: Indian Creek Reservoir and the West Fork of the Carson River. Comments with respect to Indian Creek Reservoir have repeatedly been submitted to the District, but after cursory review of the Staff Report dated November 2001, are not addressed. Although these technical comments were submitted prior to the March 2001 (formal) solicitation, Alpine County requests that its letter dated May 2000 be added to the administrative record.

With respect to the West Fork of the Carson River, Alpine County would like to call attention to a number of quotes in the report and review comments addressing concerns, as follows:

Page 4: "Staff resources and time available for the update were limited. Monitoring data for surface waters within the Lahontan Region are limited due to past and present resource constraints on baseline/trend monitoring and the fact that the Lahontan Region has few discharges to surface water and thus few sets of discharger monitoring data." Alpine County contends that no data was provided or reference material cited providing Regional Board staff evaluation of waters for inclusion in the proposed Watch List. Alpine County requests that the decision to add water bodies to the list be performed only when compelling reasons to place a well defined water body reach thresholds based on current data.

Page 5: "There is currently no formal statewide listing/delisting guidance, although the State Board plans to develop and adopt formal guidance before the next (2004) listing cycle." Placing water bodies on the Watch List suspected of being potentially impaired would not be inappropriate while formal guidance is being adopted.

Page 6: "Impairment will be determined by 'qualitative assessment,' physical/chemical monitoring, bioassay tests, and other biological monitoring.... A qualitative assessment includes

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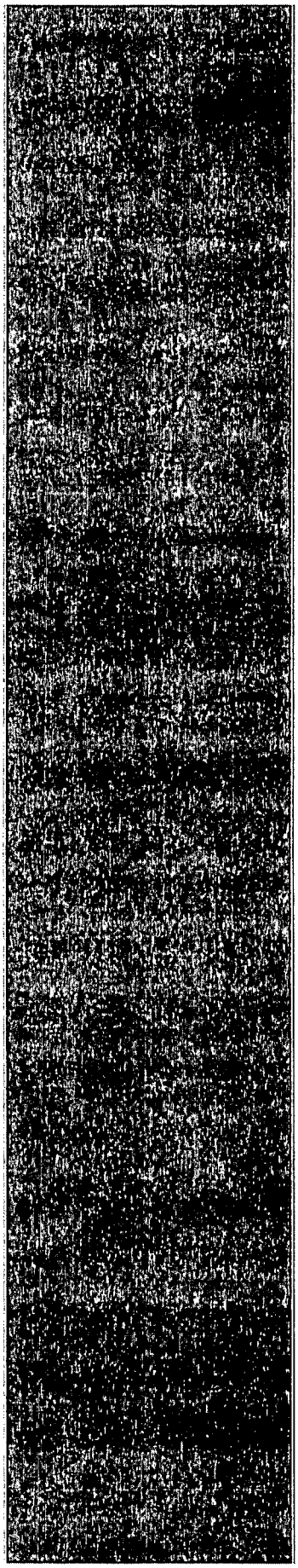

an assessment based on factors other than ambient monitoring data (for example, predictive monitoring, professional judgment, or public comments)."

Clearly the future socioeconomic implications and repercussions of placing the West Fork of the Carson River on the Section 303(d) list of impaired water bodies are not fully known at this time. The negative stigma and publicity associated with a recreational resource being placed on the Impaired Water Bodies List could negatively impact the limited economy of the County, which is heavily reliant upon tourism and associated recreational value of its watersheds. Alpine County recommends placement of the reaches being proposed on the Watch List to allow rigorous verification of the impairment hypothesis prior to placement on the Impaired Water Body List. Alpine County also recommends that Lahontan Staff work with the Alpine County Watershed group in terms of identifying data gaps and impairment hypothesis, as part of the upcoming condition assessment project/ State Water Resources Control Board Grant.

Page 8: "The Lahontan Basin Plan recognizes that not all factors affecting water quality may be controllable.....No Lahontan Region waters impaired only by natural sources are recommended for addition to the section 303(d) list."

Page 8: In the discussion under the section "Need for Changes in Water Quality Standards," the County concurs that standards and objectives need to be reviewed. However, the County's position is that these standards, objectives and beneficial uses should be reviewed prior to adding waters to the 303(d), rather than after the fact. Although the report indicates that Lahontan Regional Board staff has developed more specific listing and delisting considerations, the process has not been clearly articulated. Please provide a schedule for this standard review process, or provide information to the County Board of Supervisors outlining how this process may be pursued. Of particular interest to Alpine County would be a review of the Indian Creek Reservoir designated beneficial uses.

Page 9: "Listing based on only one or a few samples, or on qualitative analysis was not ruled out." It has not been feasible to develop data quantity/quality thresholds for the Lahontan Region given the limited time and resources available. Data quality should be reviewed and confidence intervals should be provided that clearly demonstrate impairment/ objective violation.

Alleged violation of water quality objectives on the West Carson River had characteristics which dispute including the water body/pollutant listing in the 303(d) update, as follows:

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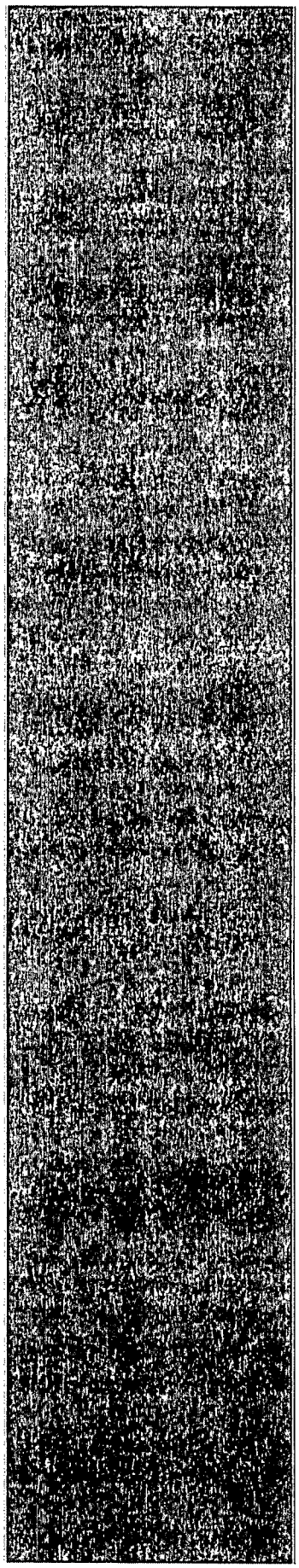


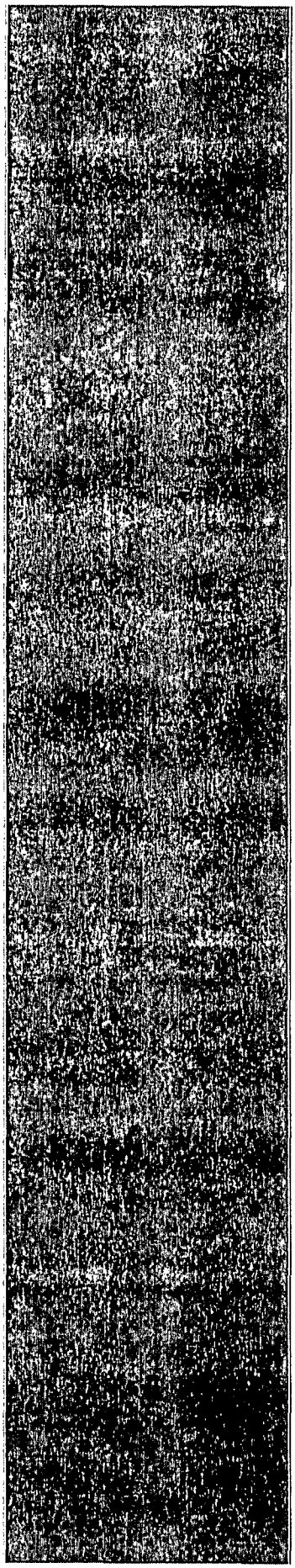
- Some violations noted were barely over the objective (sodium, phosphorus, nitrogen);
- Water quality is potentially affected by natural perturbations (phosphorus-fire, flood, and erosive bank impacts, nitrogen-flood impacts);
- Insignificant frequency of data gathering(pathogens-West Carson River and Indian Creek);
- Data was not reviewed for data quality (all);
- The Fact Sheet indicates that admittedly inappropriate standards over protecting the beneficial use (sodium) have been applied, and standard revisions are being recommended.

Water quality objectives utilized by Lahontan are similar to those applied in the Tahoe watershed rather than other eastern Sierra standards (i.e., California West Fork Carson River Nitrogen Objectives as compared to Carson River Downstream Nevada standards, Walker River standards). As well, much of the data used for listing of the West Fork of the Carson River was from the South Tahoe Public Utility District's (STPUD) monthly monitoring report, a monitoring plan with different objectives from those of the TMDL.

One very significant issue with Lahontan's proposed additions to the State Board's Section 303(d) list is the inclusion of long sections of streams as one unit. An example is the West Fork of the Carson River from the headwaters to Woodfords. This section includes approximately 21 miles of stream traveling through very different environments. The headwaters, and the headwater tributaries, are sure to behave differently under the stress of snowmelt (for example) than is the reach through Hope Valley. Similarly, one could argue that the reach near Woodfords is geomorphically dissimilar to the headwaters.

It is understandable that the lack of detailed spatial data led to the listing of long stretches of river. However, the lack of current data could equally lead to a call for more data acquisitions through monitoring.

In the interest of making scientifically-sound decisions while still maintaining the quality of public resources, Alpine County proposes that an additional two years of monitoring and study occur on the streams in Alpine County. The Alpine County Watershed Group recently received a grant in excess of $200,000 to perform monitoring and study of the watersheds in Alpine County. As well, the Alpine County Board of Supervisors and the Alpine County Water Agency is committed to furthering studies of the watershed that provide scientific basis for future decision-making, rather than relying on outdated or inappropriate data collection. For these reasons, the Alpine County Board of



Supervisors request that the streams and tributaries of West Fork of the Carson River be placed on the Watch List until completion of the study.

Your attention to Alpine County's comments is appreciated.

Very truly yours,
DONALD M. JARDINE
Chair, Board of Supervisors

Cc: Rep. J. Doolittle, U. S. Congress
Rep. D. Ose, US Congress
D. Feinstein, US Senate
B. Boxer, US Senate
California EPA

FOR MORE INFORMATION ABOUT THIS ISSUE, THE FOLLOWING WEB PAGES ARE SUGGESTED:

http://www.epa.gov/ow/states/CA/. California Environmental Protection Agency
http://www.swrcb.ca.gov. State Water Resources Control Board

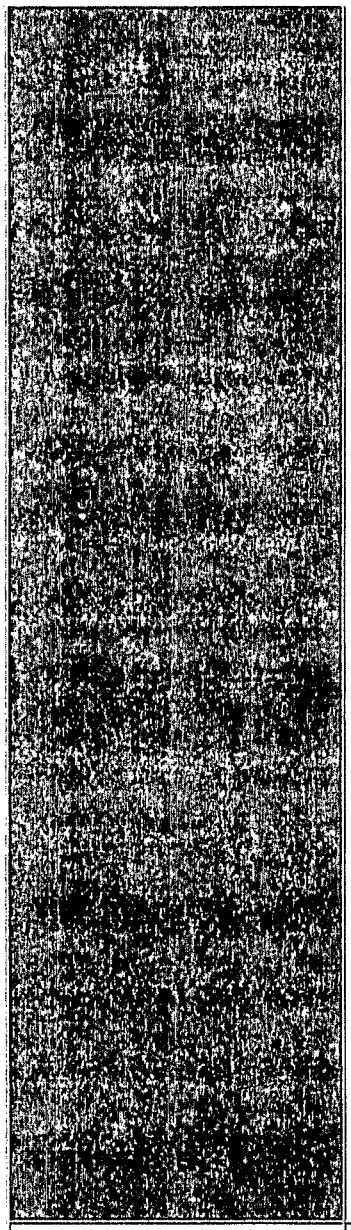
(Press Release)

New Executive Director Joins Sierra Nevada Alliance

South Lake Tahoe, CA – Joan Clayburgh began work this month as the new Executive Director of the Sierra Nevada Alliance, a coalition of organizations working to protect and restore the natural and community values of the Sierra Nevada. Ms. Clayburgh brings a heartfelt commitment to and extensive experience managing community-based coalitions, has a strong history directing non-profit organizations, and a passionate interest in preserving the quality of life for residents and visitors to the Sierra Nevada. The Alliance focuses on clean water, land use, and preserving rural quality of life throughout the Sierra Nevada range.

"There is a balance in which Sierra communities can grow without destroying the human and natural resources that make our range special," said Joan Clayburgh, Executive Director of the Sierra Nevada Alliance. "We can protect our clean water, environment and scenic beauty while ensuring strong local economies and preserving rural quality. I look forward to working with the committed people throughout the range to protect and restore the Sierra Nevada."

Ms. Clayburgh grew up in Truckee and graduated from Tahoe Truckee High School. She holds a B.A in communication from University of California at San Diego and has over 15 years experience in nonprofit leadership. Her most recent position prior



to joining the Alliance was with the Sierra Club, where she worked as a national press secretary challenging sprawl and working to preserve national treasures.

The Sierra Nevada Alliance has 80 grassroots member groups throughout the range from Quincy to Posey (Tulare County). The organization works to improve land use planning in the Sierra, get scientific information into the hands of government, build collaborative decision-making processes in Sierra communities, and assure the viability of family farms and locally owned ranches. Recent campaigns have helped form and support groups to protect 12 watersheds that provide clean water and recreation for thousands of residents and visitors throughout the Sierra Nevada

Bill Center, President of the Sierra Nevada Alliance Board, said "We were hoping to find a person who understands how coalitions works, believes in collaboration, and both knows and loves the Sierra. In Joan we got all that, and a wonderful set of skills and experience to boot."

Ms. Clayburgh will be replacing Laurel Ames who served as the Executive Director of the Sierra Nevada Alliance for more than eight years. Ms. Ames is retiring and will continue to serve the Alliance as a senior advisor.

"My long term dream has been to combine my skills, experience and commitment to environmental sustainability with the location of my heart," continued Clayburgh. "My husband and I were thrilled when the Alliance board offered me the position. To work full time to protect the places I grew up in and have visited all my life is an honor."

Home

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Project

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

RESOLUTION NO. R6T-2002-0002

APPROVING RECOMMENDATIONS TO THE STATE WATER RESOURCES CONTROL BOARD FOR UPDATE OF THE SECTION 303(D) LIST AND TOTAL MAXIMUM DAILY LOADS PRIORITY LIST FOR THE LAHONTAN REGION

WHEREAS, the California Regional Water Quality Control Board, Lahontan Region, Finds:

1. Section 303(d) of the federal Clean Water Act requires states to identify surface waters that are not meeting standards and are not expected to meet standards, even with the application of technology based effluent limitations or other pollution controls such as Best Management Practices, and

2. Section 303(d) also requires states to develop Total Maximum Daily Loads (TMDLs) to ensure attainment of standards, and

3. California's list of impaired waters and its priorities for developing TMDLs are generally updated every two years, and

4. The California State Water Resources Control Board (State Board) has requested that Regional Boards develop recommendations for update of the Section 303(d) list and TMDL priorities in 2002, and

5. The State Board will conduct its own public participation process before adopting a statewide Section 303(d) list and TMDL priorities for submission to the U.S. Environmental Protection Agency, and

6. Lahontan Regional Board staff developed draft recommendations and made them available for public review between November 27 and December 28, 2001. The rationale for proposed changes was discussed in a staff report and water body fact sheets, and

7. The Regional Board heard and considered all public comments made during its January 9 and 10, 2002 meeting in South Lake Tahoe.

NOW THEREFORE BE IT RESOLVED:

1. The Regional Board approves staff's recommendations for changes in the Section 303(d) list and TMDL priorities, summarized in Table 1.

2. Copies of this resolution, and of the administrative record for the Section 303(d) list/TMDL priority update process, shall be transmitted to the State Board.

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Lahontan Region, on January 9, 2002.

Harold J. Singer

HAROLD J. SINGER
EXECUTIVE OFFICER

JEU/cgT: 303D Resolution 2002

Table 1. Recommendations for Update of the Section 303(d) List for the Lahontan Region

Waterbody Name	Proposed Action	Pollutant(s)/Stressor(s)	TMDL Priority Ranking[1]	TMDL End Date[2]	Comments
Surprise Valley HU 641.00[3]					
Upper Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Middle Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Lower Alkali Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Mill Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2011	Needs study to verify need for TMDL
Susanville HU 637.00					
Eagle Lake	Retain on 303(d) List[4]	Nitrogen	High	2008	
Eagle Lake	Retain on 303(d) List[4]	Phosphorus	High	2008	
Pine Creek	Retain on 303(d) List	Sedimentation/Siltation [actual problem: Fish Habitat Alterations]	High	2011[5]	TMDL probably not needed[5]
Lassen Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Susan River	Retain on 303(d) List	Unknown Toxicity	High	2007	Listed for toxic bioassay results
Top Spring	Remove from 303(d) List	Radiation	NA	NA	Impairment is natural; no "pollutants"
Amedee Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Wendel Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Honey Lake	Retain on 303(d) List	Arsenic	Medium	2005	Natural sources plus geothermal discharges
Honey Lake	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2005	Natural sources plus geothermal discharges
Honey Lake Area Wetlands	Retain on 303(d) List	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Flow Alterations	Low	2007[5]	TMDL probably not needed[5]
Honey Lake Wildfowl Mgmt Ponds	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Metals	Medium	2007	Natural sources plus geothermal discharges
Honey Lake Wildfowl Mgmt. Ponds	Retain on 303(d) List	Trace Elements	Medium	2007	Natural sources plus geothermal discharges
Skedaddle Creek	Retain on 303(d) List	High Coliform Count	Low	2006	Further study may lead to delisting
Little Truckee River HU 636.00					
Stampede Reservoir	Remove from 303(d) List	Pesticides [Lindane][6]	NA	NA	TSMP- insufficient data for listing[8]
Truckee River HU 635.00					
Donner Lake	Remove from 303(d) List	Priority Organics [PCBs, Chlordane][6]	NA	NA	TSMP- insufficient data for listing[8]
Truckee River	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Bear Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Bronco Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Gray Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
Squaw Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2003	TMDL development in progress
Cinder Cone Springs	Retain on 303(d) List	Nutrients	Medium	2007	Further study may lead to delisting
Cinder Cone Springs	Retain on 303(d) List	Salinity/TDS/Chlorides	Medium	2007	Further study may lead to delisting
Lake Tahoe HU 634.00					
Snow Creek	Remove from 303(d) List	Habitat Alterations	NA	NA	Restoration program implemented
Lake Tahoe	*Retain on 303(d) List*[4]	*Phosphorus*	*High*	*2007*	*TMDL development in progress*
Lake Tahoe	Retain on 303(d) List[4]	Nitrogen	High	2007	TMDL development in progress
Lake Tahoe	Retain on 303(d) List	Sedimentation/Siltation	High	2007	TMDL development in progress
Upper Truckee River	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Upper Truckee River	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL

Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant(s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
Lake Tahoe HU 634.00 continued					
Upper Truckee River above Christmas Valley	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Big Meadow Creek	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Heavenly Valley Creek above USFS property line	Retain on 303(d) List	Sediment	High	2001	TMDL completed 2001, awaiting final approvals
Heavenly Valley Creek below USFS property line	Add to 303(d) List	Sediment	Medium	After 2015	Restoration progam may eliminate need for TMDL
Heavenly Valley Creek	Add to 303(d) list	Chloride	Low	After 2015	Standard needs revision
Heavenly Valley Creek above USFS property line	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Hidden Valley Creek	Add to 303(d) List	Chloride	Low	After 2015	Standard needs revision
Trout Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Trout Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Trout Creek below Hwy 50 in S. Lake Tahoe	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Tallac Creek below Hwy 89	Add to 303(d) List	Pathogens	High	After 2015	Standard for fecal coliform bacteria violated
Ward Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2007	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Ward Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
General Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
General Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
Blackwood Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2007	TMDL development in progress
Blackwood Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with Lake Tahoe TMDL
Blackwood Creek	Add to 303(d) List	Iron	Medium	After 2015	Standard needs revision
West Fork Carson River HU 633.00					
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Phosphorus	High	After 2015	
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., headwaters to Woodfords	Add to 303(d) List	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to Paynesville	Add to 303(d) List	Percent Sodium	Medium	After 2015	Standard needs revision
West Fork Carson R., Woodfords to Paynesville	Add to 303(d) List	Nitrogen	High	After 2015	
West Fork Carson R., Woodfords to State Line	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Fork Carson River HU 632.00					
East Fork Carson River	Remove from 303(d) List	Nutrients	NA	NA	Incorrect assumption led to listing
Indian Creek Reservoir	Retain on 303(d) List	Nutrients	High	2002[7]	
Indian Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Indian Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Monitor Creek	Retain on 303(d) List[4]	Iron	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Silver	High	2011	TMDL to be coordinated with CERCLA remediation

Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant(s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
East Fork Carson River HU 632.00, continued					
Monitor Creek	Retain on 303(d) List[4]	Aluminum	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Retain on 303(d) List[4]	Manganese	High	2011	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Add to 303(d) List	Sulfate	High	After 2015	TMDL to be coordinated with CERCLA remediation
Monitor Creek	Add to 303(d) List	Total Dissolved Solids	High	After 2015	TMDL to be coordinated with CERCLA remediation
Wolf Creek	Retain on 303(d) List	Sedimentation/Siltation	High	2011	
Aspen Creek	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Bryant Creek	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
Leviathan Creek, at and below Leviathan Mine	Retain on 303(d) List	Metals	High	2011	TMDL to be coordinated with CERCLA remediation
West Walker River HU 631.00					
Topaz Lake	Retain on 303(d) list	Sedimentation/Siltation	High	2007	
West Walker River	Retain on 303(d) List	Sedimentation/Siltation	High	2009	
Fales Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Hot Creek	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
East Walker River HU 630.00					
Bridgeport Reservoir	Retain on 303(d) List[4]	Nitrogen	High	2005	TMDL development in progress
Bridgeport Reservoir	Retain on 303(d) List[4]	Phosphorus	High	2005	TMDL development in progress
Bridgeport Reservoir	Retain on 303(d) List	Sedimentation/Siltation	High	2005	TMDL development in progress
East Walker River above Bridgeport Reservoir	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
East Walker River below Bridgeport Reservoir	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
East Walker River below Bridgeport Reservoir	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
East Walker River below Bridgeport Reservoir	Remove from 303(d) List	Metals	NA	NA	TSMP- insufficient data for listing[8]
East Walker River below Bridgeport Reservoir	Retain on 303(d) List	Sedimentation/Siltation	High	2009	
Robinson Creek, Hwy 395 to Bridgeport Res.	Add to 303(d) List	Nitrogen	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Robinson Creek, Twin Lakes to Bridgeport Res.	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Swauger Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Buckeye Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Buckeye Creek	Add to 303(d) List	Phosphorus	High	After 2015	To be coordinated with TMDL for Bridgeport Res.
Virginia Creek	Add to 303(d) List	Pathogens	Medium	After 2015	Standard for fecal coliform bacteria violated
Green Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Rough Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Aurora Canyon Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Hot Springs Canyon Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Clark Canyon Creek	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Clearwater Creek	Retain on 303(d) List	Sedimentation/Siltation	Medium	2005	Needs study to verify need for TMDL
Bodie Creek	Retain on 303(d) List	Metals	High	2004	Impairment probably related to past mining activity

Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant (s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	***Comments***
Mono HU 601.00					
Lee Vining Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Mill Creek	Retain on 303(d) List	Flow Alterations	Low	2011[5]	TMDL probably not needed[5]
Grant Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Mono Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Owens HU 603.00					
Haiwee Reservoir	Retain on 303(d) List	Copper	Low	2003	TMDL development in progress
Mammoth Creek	Retain on 303(d) List	Metals	High	2008	Needs study to verify need for TMDL
Hot Creek	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Little Hot Creek	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Twin Lakes (Mammoth)	Retain on 303(d) List[4]	Nitrogen	Low	2008	Needs study to verify need for TMDL
Twin Lakes (Mammoth)	Retain on 303(d) List[4]	Phosphorus	Low	2008	Needs study to verify need for TMDL
Little Alkali Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Big Springs	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Owens River	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Owens River (Long HA)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens River (Upper)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Owens River (Lower)	Retain on 303(d) List	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Crowley Lake	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Crowley Lake	Retain on 303(d) List[4]	Nitrogen	High	2005	Nutrient loading currently under study
Crowley Lake	Retain on 303(d) List[4]	Phosphorus	High	2005	Nutrient loading currently under study
Keough Hot Springs	Remove from 303(d) List	Metals	NA	NA	Impairment is natural; no "pollutants"
Tinemaha Reservoir	Remove from 303(d) List	Arsenic	NA	NA	Impairment is natural; no "pollutants"
Tinemaha Reservoir	Retain on 303(d) List	Metals [Copper]	Low	2004	Copper from algicide application
Pleasant Valley Reservoir	Retain on 303(d) List	Nitrogen	High	2006	
Pleasant Valley Reservoir	Retain on 303(d) List[4]	Phosphorus	High	2006	
Tuttle Creek	Retain on 303(d) List[4]	Habitat Alterations	Low	2011[5]	TMDL probably not needed[5]
Goodale Creek	Retain on 303(d) List	Sedimentation/Siltation	Low	2009	Further study may lead to delisting
Owens Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Cottonwood Creek below LADWP diversion	Retain on 303(d) List	Water/Flow Variability	Low	2011[5]	TMDL probably not needed[5]
Deep Springs HU 605.00					
Deep Springs Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Deep Springs Lake	Remove from 303(d) List	Trace Elements	NA	NA	Impairment is natural; no "pollutants"

Table 1. Lahontan Region 303(d) List Update, continued					
Waterbody Name	**Proposed Action**	**Pollutant (s)/Stressor(s)**	**TMDL Priority Ranking[1]**	**TMDL End Date[2]**	**Comments**
Amargosa HU 609.00					
Amargosa River	Remove from 303(d) List	Salinity/TDS/chlorides	NA	NA	Impairment is natural; no "pollutants"
Trona HU 621.00					
Searles Lake	Remove from 303(d) List	Salinity/TDS/Chlorides	NA	NA	Impairment is natural; no "pollutants"
Searles Lake	Add to 303(d) List	Petroleum Hydrocarbons	Low	After 2015	Documented bird kills from industrial pollutants
Mojave HU 628.00					
Mojave River near Barstow	Remove from 303(d) List	Priority Organics	NA	NA	Ground water, not surface water impairment
Horseshoe Lake	Retain on 303(d) List	Sedimentation/Siltation	Low	2007	Further study may lead to delisting
Green Valley Lake Creek	Retain on 303(d) List	Priority Organics	Low	2006	Further study may lead to delisting

[1]TMDL priority rankings and end dates are shown only for water bodies recommended for inclusion in the 2002 list. The entry "NA" means "not applicable."

[2] TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments. Plan amendments incorporating TMDLs will not take effect unless and until they receive further approvals from the California State Water Resources Control Board, the California Office of Administrative Law, and the U.S. Environmental Protection Agency.

[3] Water bodies are grouped by watersheds in north-to-south order. Watershed (Hydrologic Unit or HU) numbers are Department of Water Resources numbers used in the maps in the Lahontan Basin Plan, and do not run in north-to-south order.

[4] The entry "Retain on 303(d) List" in the "Proposed Action" column means that this water body/pollutant combination is on the 1998 Section 303(d) list and is proposed to remain on the 2002 list. In some cases the nature of the pollutants or the extent of the impaired segment has been clarified. For example, earlier listings for "nutrients" or "organic enrichment/Low D.O." may now be changed to separate listings for individual pollutants (nitrogen and phosphorus), and an earlier single entry for habitat alterations in the Owens River has been changed to three separate entries to reflect different segments of the river. Changes are recommended in priority rankings and TMDL end dates for many of the water body/pollutant combinations from the 1998 list.

[5] Pending revisions to federal regulations for the implementation of Section 303(d) of the Clean Water Act would clarify that TMDLs are not required for waters impaired by flow alterations, water/flow variability and habitat alterations, unless specific "pollutants" are also involved. (Load calculations are not feasible in cases where there are no pollutants.) Under the proposed new regulations, waters impaired by habitat or flow alterations, or by flow variability, would be placed on a separate list of impaired waters to highlight the need for control strategies other than TMDLs.

[6]Clarification of the nature of the pollutants has been added in brackets for some water bodies recommended for removal from the Section 303(d) list. See the fact sheets for these water bodies for further information.

[7]Regional Board staff completed draft Basin Plan amendments incorporating a phosphorus TMDL for Indian Creek Reservoir in November 2000. The Regional Board has been unable to act on these amendments due to lack of a quorum for a vote.

[8]Some waters were listed based on Toxic Substances Monitoring Program (TSMP) fish tissue data. Because sample numbers were small, TSMP data alone are not considered sufficient grounds for listing.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

January 16, 2002

To: Judith Unsicker
Lahontan Regional Water Board

From: Debra Denton
Environmental Scientist

Thank you for the opportunity to review the draft recommendations for changes in Lahontan Region's Section 303(d) list. USEPA has the following comments regarding the draft dated, November 27, 2001. Below are some specific comments or issues to be considered for further revisions.

1) Many water bodies are proposed for de-listing based on the sole fact that the waters are impaired due to naturally occurring sources of pollutants. EPA's interpretation is that naturally-impaired waters must be listed unless the Regional Board had a natural sources exempted in their approved water quality standards.
2) Numerous water bodies are proposed for the "watch list" and thus requiring additional monitoring to determine the need for possible listing and TMDL development. The staff report must address how the Regional Board will further monitor and assess the water bodies on this watch list. There needs to be a schedule of monitoring and assessment of the water bodies for determining whether development of TMDLs is needed, or removal from the list because the water bodies are meeting water quality standards.
3) The listing criteria needs to specify how the Regional Board assessed attainment with the Basin Plan's narrative criteria, such as "no toxics in toxic amounts". The report states that the Board staff relied mostly on ambient water chemistry data and that no toxicity test data has been collected since 1997. The assessment of meeting the Basin Plan's water quality standards includes both narrative and numeric standards.
4) The report proposed to de-list for 29 water body/pollutant combinations. For example, one rationale used for de-listing was data based only on the State Board's Toxic Substances Monitoring Program (TSMP). The report states "the staff recommend that no new waters be listed solely because of TSMP results and waters previously listed because of TSMP results be delisted unless there is other evidence of impairment." If the TSMP data set is small for the particular water body, however tissue concentrations exceed the maximum tissue residue level (MTRL) criteria derived by the Office of Environmental Health Hazard Assessment, then the water body for that pollutant must be listed.

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5) The report should address how its listing of Nevada border waters (e.g., Lake Tahoe, Walker River, Truckee River) are consistent or inconsistent with the State of Nevada?

We look forward to continued discussions on the 303(d) list. Please call me at 916-341-5520 or David Smith at 415-972-3416.

cc: Dave Smith, USEPA
Craig Wilson, SWRCB

From: deirdreflynn <deirdreflynn@innercite.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 1/16/02 9:52AM
Subject: Second Request for information

Dear Judith - I am again writing to you for answers to the questions outlined below in the email I have copied from the one sent to you on January 9, 2002. I guess a responce is not necessary based on the decision of the USFS to cancel our grazing permit, however I am still requesting information from you.
Thank you
Deirdre Flynn

From: "deirdreflynn" <deirdreflynn@innercite.com>
To: <unsij@rb6s.swrcb.ca.gov>
Subject: Polluted River Status
Date: Wednesday, January 09, 2002 3:49 PM

Judith Unsikcer - I am deeply distressed at the article I just read in the December 14th Capitol Press regarding Polluted River Status in the Lake Tahoe Basin. Once again our cattle are blamed solely for the alleged contamination of waters in Big Meadow Creek. It is disturbing that in the article no mention was given to data showing that fecal coliform levels were as high if not higher on the Big Meadow range without cattle, and that no mention is given to the other potential users of the area (recreation, etc.) are we being targeted again and discriminated against again? Why were the permitees not invited to comment on the proposed listing when you yourself say the "It's more likely to impact ranchers..." ? I would appreciate your comments and sincerely hope that the decision made today and tomorrow will not eliminate the grazing of livestock on the Meiss Meadow Allotment (considering that in 2001 there were again zero cattle on the Big Meadow Creek). As a 4th generation producer I dread having to explain to my nephews why we no longer take cattle to the Sierra Nevada Mountains.

Respectfully,
Deirdre E. Flynn
916-425-3815

From: Judith Unsicker
To: norm.tc@gte.net
Date: Thu, Jan 17, 2002 2:43 PM
Subject: Chris Maxwell's Mojave River Paper

In your December 26 , 2001 email to Jehiel Cass of the Lahontan Regional Board's Victorville office, you requested a copy of a paper cited in our Mojave River waterbody fact sheets, by former Regional Board staffer Chris Maxwell.

The paper, from the 2000 National Water Quality Monitoring Council conference proceedings, is available online at:

http://www.nwqmc.org/2000proceeding/papers/pap_maxwell.pdf

I believe that there is an underline between "pap" and "maxwell." If you want a paper copy, please let me know and I will have one sent to you.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

CC: Chuck Curtis; Jehiel Cass

From: Norm Caouette <norm.tc@gte.net>
To: "Judith Unsicker" <Unsij@rb6s.swrcb.ca.gov>
Date: Thu, Jan 17, 2002 4:02 PM
Subject: Re: Chris Maxwell's Mojave River Paper

The link worked fine. Thank you for your assistance.

Norm Caouette

At 02:43 PM 1/17/02, you wrote:
>In your December 26 , 2001 email to Jehiel Cass of the Lahontan Regional
>Board's Victorville office, you requested a copy of a paper cited in our
>Mojave River waterbody fact sheets, by former Regional Board staffer Chris
>Maxwell.
>
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>Judith Unsicker
>Staff Environmental Scientist
>Lahontan Regional Water Quality Control Board
>2501 Lake Tahoe Boulevard
>South Lake Tahoe CA 96150
>Phone: (530) 542-5462
>Email: unsij@rb6s.swrcb.ca.gov
>
>
>The energy challenge facing California is real. Every Californian needs to
>take immediate action to reduce energy consumption. For a list of simple
>ways you can reduce demand and cut your energy costs, see our web site at
>http://www.swrcb.ca.gov

From: Judith Unsicker
To: Deirdreflynn@innercite.com
Date: 1/22/02 9:40AM
Subject: Re: Polluted River Status

Dear Ms. Flynn:

Thank you for your emails. Your email of January 9 was noted in staff's presentation at the Lahontan Regional Board's Wednesday, January 9, 2002 meeting, and will be made part of the administrative record of the Board's action. (The Board voted in support of staff's draft recommendations except for changes in proposed Section 303(d) listings for the Mojave River.)

The Lahontan Regional Board's action was only advisory; the final decision on statewide recommendations to the U.S. Environmental Protection Agency regarding Section 303(d) listing will be made by the California State Water Resources Control Board later this year. The State Water Board will provide further opportunities for public comments. If you wish to send me a mailing address, I will see that you are added to the State Board' s mailing list for this item. I am also preparing a "response to comments" document to address all written public comments received during the Regional Board's public review period, for inclusion in the administrative records of the Regional and State Board actions. A copy of the response document will be sent to you if you provide an address.

Your January 9 email requests information about the notification process for the Lahontan Regional Board's Section 303(d) list update. In March 2001, Regional Board staff mailed letters on the pending list update process to several of the Board's large mailing lists (water quality assessment, basin planning, and agenda announcement lists), probably about 1,200 addresses. The March 2001 mailing included a form to be returned to be placed on a focused mailing list for the Section 303(d) list update. The letter about the list update process was published in newspapers throughout the Lahontan Region and made available on the Internet. A press release was also sent to the media.

Regional Board staff reviewed information provided by the public in response to the March 2001 solicitation process, and information available in-house, including the data collected in the Regional Board/U.S. Forest Service cooperative monitoring program for fecal coliform bacteria in Lake Tahoe Basin streams. These data were used to formulate draft recommendations for changes in the Section 303(d) list of polluted waters. The availability of draft recommendations for listing of specific waters was noticed to the focused mailing list in November 2001, and another press release was sent to newspapers and other media serving the Lahontan Region.

For more information on the technical rationale for the Regional Board's recommendations regarding Section 303(d) listing of Lake Tahoe Basin streams, please see the online staff report and "Water Body Fact Sheets" at <http://www.swrcb.ca.gov/rwqcb6>. The November 27, 2001 "News" link in the center of the page will take you to an index page with further links to different documents, including a group of fact sheets for the Lake Tahoe watershed. The fact sheets for listings related to "pathogens" include summaries of applicable water quality standards and monitoring data for fecal coliform bacteria. The discussions of potential sources recognize that livestock are not necessarily the only sources of bacteria in the streams, and that recreational users of the watershed and wildlife may be involved. I will have paper copies of the staff report and Lake Tahoe Basin fact sheets sent to you if you wish.

In general, Regional Board staff proposed listing for waters with sufficient data, collected with good Quality Assurance/Quality Control procedures, to show that water quality standards are being violated. The listing process does not require a detailed analysis of sources; rather, source analysis is part of the Total Maximum Daily Load development process.

Please contact me if you have further questions on the listing process.
Dr. Bruce Warden (telephone 530 542 5416, email BWarden@rb6s.swrcb.ca.gov) is the Regional Board's contact person for fecal coliform bacteria monitoring in the Lake Tahoe Basin.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> deirdreflynn <deirdreflynn@innercite.com> 01/09/02 03:49PM >>>
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Respectfully,
Deirdre E. Flynn
916-425-3815

From: deirdreflynn <deirdreflynn@innercite.com>
To: Judith Unsicker <Unsij@rb6s.swrcb.ca.gov>
Date: Tue, Jan 22, 2002 10:01 AM
Subject: Re: Polluted River Status

Judith - thank you for your response and for the attention to detail.
Please forward all pertinent materials to the following address:

Deirdre E. Flynn
8861 Whiskey Slide Road
Mountain Ranch, CA 95246

Thank you again.

----- Original Message -----
From: "Judith Unsicker" <Unsij@rb6s.swrcb.ca.gov>
To: <Deirdreflynn@innercite.com>
Sent: Tuesday, January 22, 2002 9:40 AM
Subject: Re: Polluted River Status

> Dear Ms. Flynn:
>
> Thank you for your emails. Your email of January 9 was noted in staff's presentation at the Lahontan Regional Board's Wednesday, January 9, 2002 meeting, and will be made part of the administrative record of the Board's action. (The Board voted in support of staff's draft recommendations except for changes in proposed Section 303(d) listings for the Mojave River.)
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>
> Please contact me if you have further questions on the listing process.
> Dr. Bruce Warden (telephone 530 542 5416, email BWarden@rb6s.swrcb.ca.gov) is the Regional Board's contact person for fecal coliform bacteria monitoring in the Lake Tahoe Basin.
>
> Judith Unsicker
> Staff Environmental Scientist
> Lahontan Regional Water Quality Control Board
> 2501 Lake Tahoe Boulevard
> South Lake Tahoe CA 96150
> Phone: (530) 542-5462
> Email: unsij@rb6s.swrcb.ca.gov
>
>
> The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov
>
>
>
> >>> deirdreflynn <deirdreflynn@innercite.com> 01/09/02 03:49PM >>>
> Judith Unsikcer - I am deeply distressed at the article I just read in the December 14th Capitol Press regarding Polluted River Status in the Lake Tahoe Basin. Once again our cattle are blamed solely for the alleged contamination of waters in Big Meadow Creek. It is disturbing that in the article no mention was given to data showing that fecal coliform levels were as high if not higher on the Big Meadow range without cattle, and that no mention is given to the other potential users of the area (recreation, etc.) are we being targeted again and discriminated against again? Why were the

permitees not invited to comment on the proposed listing when you yourself say the "It's more likely to impact ranchers..." ? I would appreciate your comments and sincerely hope that the decision made today and tomorrow will not eliminate the grazing of livestock on the Meiss Meadow Allotment (considering that in 2001 there were again zero cattle on the Big Meadow Creek). As a 4th generation producer I dread having to explain to my nephews why we no longer take cattle to the Sierra Nevada Mountains.
>
> Respectfully,
> Deirdre E. Flynn
> 916-425-3815

From: "Ed G Grimly" <egrimly@lycos.com>
To: <unsij@rb6s.swrcb.ca.gov>
Date: 1/24/02 2:11PM
Subject: Hawiee Reservoir-Section 303(d) List

While the source of arsenic at Haiwee is natural, the high aresenic sediment concentration at Haiwee Reservoir is in part due to treatment by LADWP. Why isn't Table 1: Recommendations for Update of the Section 303(d) List for the Lahontan Region updated to include arsenic as a "Pollutant(s)/Stressor(s0 for Haiwee Reservoir?

Link to article on arsenic
http://es.epa.gov/ncer/final/grants/97/sediment/hering.html

NATIONAL CENTER FOR ENVIRONMENTAL RESEARCH
Office of Research and Development
U.S. Environmental Protection Agency

Science to Achieve Results (STAR) Program

Final Report: Assessment and Control of Arsenic Mobility in Contaminated Sediments

EPA Grant Number: R826202
Title: Assessment and Control of Arsenic Mobility in Contaminated Sediments
Investigators: Janet G. Hering
Institution: California Institute of Technology
EPA Project Officer: David Reese
Project Period: October 1, 1997–September 30, 2000 (no-cost extension to March 31, 2001)
Research Category: Contaminated Sediments

Executive Summary

Project Description and Objectives of Research:

This project examined the fate and transport of naturally occurring arsenic in the Los Angeles Aqueduct (LAA) system and its tributaries. Elevated arsenic concentrations in the system are derived from geothermal sources. Because the geothermal input of arsenic is relatively localized, treatment to remove arsenic near the source may be feasible. The effectiveness of this strategy may be limited if arsenic stored in the reservoir sediments downstream of the potential near-source treatment site were to be remobilized. The research objectives were to determine whether:

• Recycling of arsenic from the sediments to the water column is likely to increase in response to a decrease in arsenic concentrations in the overlying water.

• Arsenic mobility in the sediments can be related to the bulk composition (specifically iron and manganese content) and the redox status of the sediments.

• Mobility of arsenic in sediments is correlated with sediment toxicity.

• Sediments in the LAA system store sufficient arsenic that its release could impact the quality of water supplied to the City of Los Angeles.

• Arsenic could be stabilized in sediments by increasing the sediment iron content.

Summary of Findings:

In the 3-year project period, work was conducted at three study sites within the LAA system and its tributaries: Hot Creek, Crowley Lake, and North Haiwee Reservoir. These study sites were chosen to highlight different aspects of the biogeochemical cycling of arsenic and, specifically, to examine the effects

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of arsenic inputs (Hot Creek), of stratification and the potential for uptake and deposition associated with primary production (Crowley Lake), and the impacts of in situ treatment for arsenic removal by ferric chloride addition (Haiwee Reservoir).

Site Descriptions. Hot Creek is a tributary of the Owens River and is subject to geothermal inputs of arsenic through hot springs located along the banks and in the streambed of the creek. Crowley Lake is the first reservoir in the LAA. It is highly productive due to elevated inputs of phosphorus (also derived from geothermal sources) and is stratified during the summer. The outlet of the reservoir is below the depth of the seasonal oxycline. North Haiwee Reservoir is below the Cottonwood Treatment Plant and patterns of sediment and arsenic deposition are dominated by the introduction of ferric chloride into the Aqueduct at Cottonwood.

Crowley Lake Study. Elevated arsenic concentrations in Crowley Lake derive from upstream geothermal inputs. We examined the water column of Crowley Lake under stratified and unstratified conditions, seeking evidence for algal uptake and transformation of arsenic and its deposition to and release from the sediments. Vertical profiles of other elements, which might either influence or track the cycling of arsenic, also were examined. Manganese and phosphorus concentrations increased with depth below the oxycline under stratified conditions, consistent with a sediment source of these elements. However, these elements did not accumulate in the hypolimnion during the period of stratification. This can be explained by accounting for the dynamics of reservoir operation in which water withdrawn from the hypolimnion is replaced from the epilimnion or surface inflows. Depletion of phosphorus in the surface water was incomplete during stratification suggesting that phosphorus is not a limiting nutrient. Vertical profiles of total arsenic during stratification did not provide evidence for release of arsenic from the sediment; concentrations were either uniform with depth or showed a mid-depth minimum at the oxycline attributable to internal recycling within the water column. There was neither depletion of arsenic nor evidence for methylated arsenic species in the productive surface water. Arsenic was present as arsenate in the epilimnion and as a mixture of arsenate and arsenite in the hypolimnion. In the absence of an efficient mechanism to transport arsenic from the water column to the sediments, the substantial mass flux of arsenic through Crowley Lake results in only a moderate accumulation of arsenic in the sediments. Arsenic in the sediments appears to be sequestered by sulfide phases; thus, release of arsenic from Crowley Lake sediments should not constitute a threat to the water quality of the LAA.

Haiwee Reservoir Study. Deposition of arsenic to the sediments of Haiwee Reservoir (Olancha, CA) has dramatically increased since March 1996, as a result of an interim strategy for arsenic management in the LAA water supply. Ferric chloride and cationic polymer are introduced into the Aqueduct at the Cottonwood treatment plant, 27 km north of Haiwee Reservoir. This treatment decreases the average arsenic concentration from 24.8 mg/L above Cottonwood to 8.3 mg/L below Haiwee. Iron- and arsenic-rich flocculated solids are removed by deposition to the reservoir sediments.

Analysis of sediments shows a pronounced signature of this deposition with elevated sediment concentrations of iron, arsenic, and manganese relative to a control site. Sediment concentrations of these elements remain elevated throughout the core length sampled (ca. 4 percent Fe, 600 ppm Mn, and 200 ppm As). A pore water profile revealed a strong redox gradient in the sediment. Manganese in the pore waters increased below 5 cm; iron and arsenic increased below 10 cm and were strongly correlated, consistent with reductive dissolution of iron oxyhydroxides and concurrent release of associated arsenic to solution. X-ray absorption spectroscopy (XAS) revealed an inorganic As(V) phase present only in the uppermost sediment (0-2.5 cm) in addition to an inorganic As(III) phase. In the deeper sediments (to 44 cm), only an As(III) oxide phase was detected. Analysis of the extended x-ray absorption fine structure spectrum indicates that the As(III) at depth remains associated with iron oxyhydroxide. We hypothesize that this phase persists in the recently deposited sediment despite its reducing conditions due to slow dissolution

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kinetics.

Other Findings. In addition to the completed studies on Crowley Lake and Haiwee Reservoir, other work performed as part of the project yielded important insights into the biogeochemical cycling of arsenic. This work is summarized below.

Hot Creek Study. Preliminary sediment and pore water sampling was conducted at Hot Creek (i.e., prior to work at Crowley Lake and Haiwee Reservoir). The advantage of performing this work at Hot Creek was ease of sample collection, but the disadvantage was that sediment deposition and erosion within Hot Creek is very dynamic. In particular, sediments are scoured from Hot Creek during high-flow periods that result from snow-melt. Thus, the sediments do not preserve an interpretable temporal record. Nonetheless, the Hot Creek studies were useful in testing sampling and sample analysis techniques (particularly, the gel probe sampler and XAS studies described below). In addition, accumulation of arsenic in Hot Creek sediments was found to be highly spatially variable and, in general, modest despite the geothermal inputs of arsenic at the site. The highest arsenic concentrations measured in the sediments was 100 ppm (dry-weight basis). There was some indication from XAS that arsenic in Hot Creek sediment was present in an organic form; arsenic content in the sediment of one core from Hot Creek was correlated with organic carbon in the sediment. Mass balance estimates of the transport of arsenic from Hot Creek associated with water and sediment indicated that the contribution of sediment-associated arsenic to the total arsenic transport is minor.

Gel Sampler for Pore Water Profiles. Laboratory testing was performed with a gel probe sampler adapted from the design of Krom, et al. (Limnology and Oceanography 1994;39:1967-1972). The modifications increase the ease of sample handling in the field. Vertical resolution was approximately 0.5 cm even though some resolution of the original design was compromised. Rapid equilibration was demonstrated in the laboratory. The sampler was deployed in the field at Hot Creek and Haiwee Reservoir. Vertical profiles of pore waters were self-consistent and arsenic concentrations determined above the sediment-water interface agreed well with values from grab samples of the overlying water.

X-ray Absorption Spectroscopy. XAS studies were performed at the Stanford Synchrotron Radiation Laboratory in collaboration with Dr. P. O'Day (Arizona State University). Although not part of the original scope of the project, these studies provided important information on the speciation of arsenic in the sediments. In particular, the oxidation state of arsenic could be distinguished from the x-ray absorption near edge (XANES) region, which also provided preliminary evidence for the type of solid present (by comparison with authentic standards). For example, XANES spectra of sediment collected from Hot Creek and Crowley Lake indicated that arsenic in the sediments was associated with an organic phase at Hot Creek and a sulfide phase at Crowley Lake. Further analysis of the extended x-ray absorption fine structure (EXAFS) spectra was used to examine the coordination environment of arsenic in the sediments. This analysis was limited to samples more enriched in arsenic than most collected in this study but, for the sediment collected from Haiwee Reservoir, convincingly demonstrated that As(III) was coordinated with oxygen and not sulfur throughout the sediment core (despite reducing conditions in the sediment).

Sediment Incubation Studies. Incubation studies were conducted with sediment from both Hot Creek and Haiwee Reservoir to examine the potential for either arsenic uptake onto or release from sediments. For the Hot Creek system, arsenic uptake onto low-arsenic sediments obtained above the area of geothermal inputs was examined as well as the equilibration of arsenic between sediments collected in the area of the geothermal inputs and solutions containing varying concentrations of dissolved arsenic. The results of the equilibration studies with the Hot Creek sediments were not straightforward; dynamic exchange between the sediment and water was observed with an apparent capacity for both uptake and release. These studies were not further pursued because mass balance considerations suggested that Hot Creek sediments were

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likely to be only a minor reservoir for arsenic (i.e., compared with the overlying water) in this system. In contrast, storage of arsenic in the sediments of Haiwee Reservoir is important. This storage is the result of the perturbation of the sediment and arsenic-deposition regimes by addition of ferric chloride to the LAA. Release of both arsenic and iron was observed in the sediment incubations. Arsenic release was depressed when the water overlying the sediment was aerated (compared with deaerated systems) but was not markedly affected by the addition of antibiotics.

Microbial Toxicity of Arsenic. One objective of this study was to examine microbial toxicity of sediment-associated arsenic and to determine whether toxicity and mobility were correlated. However, a related study in our laboratory on microbial arsenite oxidation in Hot Creek (Salmassi, et al., submitted to the Geomicrobiology Journal) indicated that at least some of the native microorganisms in Hot Creek are quite resistant to arsenic. The growth of one isolate, Agrobacterium albertimagni strain AOL15, was unaffected by arsenate at concentrations up to 50 mM (3750 mg/L); growth was slowed (but not entirely repressed) in the presence of 1 and 2.5 mM (75 and 188 mg/L) arsenite. Therefore, it seemed unlikely that a survey of microbial toxicity at ambient arsenic levels in Hot Creek would be particularly instructive and this aspect of the project was not pursued.

Conclusions:

The LAA and its tributaries provide an outstanding, large-scale laboratory for the study of arsenic geochemistry. In particular, the Aqueduct system presents distinct contrasts between sites that are subject to concentrated or diffuse inputs of arsenic (i.e., concentrated inputs at Hot Creek vs. diffuse inputs to Crowley Lake) and that are iron-poor (Hot Creek and Crowley Lake) as compared with iron-rich (Haiwee Reservoir) systems. The overwhelming importance of iron in controlling arsenic mobility is illustrated clearly by contrasting the conservative behavior of (total) arsenic in the iron-poor systems with the immobilization of arsenic (by its deposition to the sediments) in the iron-rich system.

Dynamic redox cycling of arsenic was observed along Hot Creek downstream of geothermal inputs, in the water column of Crowley Lake during stratified conditions, and in the sediments of Haiwee Reservoir. Redox speciation of arsenic in Crowley Lake appeared to be influenced by reservoir operations, specifically withdrawal of water from below the oxycline (during stratified conditions). A signal of the replacement of the withdrawn water with surface water (derived either from the epilimnion or surface inflows to the lake) was preserved in the arsenic redox speciation, specifically in the persistence of arsenate in the anoxic hypolimnion during the period of stratification. In the Haiwee reservoir sediments, reduction of As(V) to As(III) in the sediments was observed (by XAS) above the sediment depth at which manganese or iron and arsenic were released into the pore water. The continuing association of As(III) with iron oxyhydroxides throughout the sediment core suggests that reduction of As(III) occurs at the surface of the iron oxyhydroxides in the sediment.

The enhanced deposition of arsenic to the sediments of Haiwee Reservoir is a result of the addition of ferric chloride to the LAA at the Cottonwood Treatment Plant. Although the sediment sampling conducted at Haiwee cannot be considered representative of the reservoir as a whole, it does indicate some potential undesirable consequences of the Interim Arsenic Management Plan. Arsenic concentrations are substantially elevated (up to about 1 mg/L) in the pore waters of the Haiwee sediments. Physical disturbance of the sediments would result in the mixing of the pore water into the overlying water of the reservoir. Diffusive fluxes of arsenic to the overlying water are prevented by an oxic zone in the surficial sediments. If these conditions are maintained by contact between the surficial sediments and the overlying water, diffusion rates and the adsorptive capacity of the surface sediment will determine whether arsenic will be released from the sediment. If rapid deposition of particles helps to keep the surface sediment oxic, slowing sedimentation by halting the in situ treatment may cause migration of the redox boundary to the

sediment-water interface, allowing release of arsenic to the overlying water. Extensive remineralization of organic carbon also could promote such a migration of the redox boundary. Removal of the arsenic-contaminated sediments (which, although a component of the Interim Arsenic Management Plan, has not yet been attempted) should receive immediate and careful consideration.

Publications/Presentations:

Kneebone PE, O'Day PA, Jones N, Hering JG. Rapid evolution of arsenic speciation in arsenic- and iron-enriched reservoir sediments. Environmental Science and Technology (submitted for publication, 2001).

Hering JG, Kneebone PE. Biogeochemical controls on arsenic occurrence and mobility in water supplies. In: Frankenberger W, ed. Environmental Chemistry of Arsenic, Marcel Dekker (in press).

Kneebone PE, Hering JG. The behavior of arsenic and other redox-sensitive elements in Crowley Lake, CA, a reservoir in the Los Angeles aqueduct system. Environmental Science and Technology 2000;34: 4307-4312.

Kneebone PE. Arsenic geochemistry in a geothermally impacted system: the Los Angeles Aqueduct. Ph.D. Dissertation, Environmental Engineering Science, California Institute of Technology, 2000.

Hering JG, Kneebone PE. Evolution of arsenic speciation in sediments deposited by in situ treatment of a surface water supply for arsenic removal. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2000.

Hering JG. Geochemical constraints on the effectiveness and feasibility fo water treatment technologies for arsenic removal. Presented at the 2000 Annual Meeting of the Soil Science Society of America, Minneapolis, MN, November 5-9, 2000.

Kneebone PE, Hering JG, Jones N, O'Day PA. Evolution of arsenic speciation in sediments deposited by in situ treatment of a surface water supply for arsenic removal. Presented at the American Chemical Society 220th National Meeting, Washington, DC, August 20-24, 2000.

Hering JG, Kneebone PE. Redox cycling of arsenic in geothermally-influenced surface waters. Presented at the 1999 Annual Meeting of the Geological Society of America, Denver, CO, October 25-28, 1999.

Kneebone PE, Hering JG. Redox cycling of arsenic in Lake Crowley, CA: implications for water quality in the Los Angeles Aqueduct. Presented at the 1999 Aquatic Sciences Meeting of the American Society of Limnology and Oceanography, Santa Fe, NM, January 1-5, 1999.

Supplemental Keywords: drinking water, water supply, reservoir, watersheds.

Related Web Sites:

http://www.its.caltech.edu/~ees/heringroup/ EXIT EPA

Original Project Abstract

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Last Updated: September 10, 2001

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From: Judith Unsicker
To: "egrimly@lycos.com".mime.Internet
Date: 1/31/02 12:47PM
Subject: Re: Hawiee Reservoir-Section 303(d) List

Thank you for your email. It will be transmitted to State Water Resources Control Board (State Board) staff for their consideration in formulation of recommendations for a statewide Section 303(d) list. The Regional Board's Total Maximum Daily Load (TMDL) unit is aware of Dr. Hering's research, summarized in the online report that you referenced.

The Lahontan Regional Water Quality Control Board (Regional Board) has already acted (on January 9, 2002) on recommendations to the State Board for update of the Section 303(d) list. The Regional Board approved the November 2001 staff recommendations posted on our webpage (<www.swrcb.ca.gov/rwqcb6>), with the exception of proposed new listings for the Mojave River.

The Section 303(d) listing process applies only to surface waters, and there is some debate as to whether sediment pore water should be considered surface or ground water. The State Board is developing formal policy language on listing/delisting criteria for the next (2004) Section 303(d) list update cycle. If that policy includes direction that pore water should be considered surface water for purposes of listing, Regional Board staff will evaluate the latest data and consider whether to recommend that Haiwee Reservoir be listed for arsenic in 2004.

I am preparing a "response to comments" document for inclusion in the Regional Board's administrative record for this year's Section 303(d) list update. If you would like a copy, please send me a mailing address. I can also have you placed on the State Board's mailing list for its 2002 list update action if you wish.

Please note my new email address below, effective January 30, 2002.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
FAX: (530) 542-5470
Email: JUnsicker@rb6s.swrcb.ca.gov

>>> "Ed G Grimly" <egrimly@lycos.com> 01/24/02 02:10PM >>>
While the source of arsenic at Haiwee is natural, the high aresenic sediment concentration at Haiwee Reservoir is in part due to treatment by LADWP. Why isn't Table 1: Recommendations for Update of the Section 303(d) List for the Lahontan Region updated to include arsenic as a "Pollutant(s)/Stressor(s0 for Haiwee Reservoir?

Link to article on arsenic
http://es.epa.gov/ncer/final/grants/97/sediment/hering.html

CC: Chuck Curtis; Diane Beaulaurier

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
RIDGECREST FIELD OFFICE
300 SOUTH RICHMOND ROAD
RIDGECREST, CA 93555-4436
PHONE 760-384-5400

FAX 760-384-5499

FAX TRANSMISSION COVER SHEET

To:	Judith Unsicker	No. of pages: 5
Agency:	CRWQCB Lahontan Region	
Phone:	(530) 542-5462	
Fax:	(530) 542-5470	

From:	Kathleen Cox
Agency:	Bureau of Land Management
Phone:	(760) 384-5451
Fax:	(760) 384-5499

Subject:	Searles Lake Information
Message:	Thank you for the fax of Searles Lake Information. As discussed by phone I am faxing a copy of the letter on recreation dated November 13, 2000 which was submitted to the Regional Water Quality Control Board by the Bureau of Land Management. The following information is provided to clarify the description of land ownership in the 2002 303(d) Fact Sheet Watershed Characteristics. IMC Chemicals has 30 federal mineral leases and one sodium use permit on the lakebed which total about 25,662 acres (about 40 square miles). IMCC also owns 6,647 acres of private land on the lakebed (about 10 square miles). Therefore, IMCC owns or leases about 50 square miles of the lakebed area. IMCC restricts public access to its private land and to the federal mineral leases and permit in accordance with the Code of Federal Regulations (43 CFR 3595.1). We appreciate your evaluating the beneficial uses of Searles Lake. Please let us know if we can be of assistance.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Ridgecrest Field Office
300 South Richmond Road
Ridgecrest, CA 93555-4436

3500 (P)
CALA 087312
CA650.51

November 13, 2000

Eric Sandel, Chair
California Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Blvd.
South Lake Tahoe, California 96150

Dear Mr. Sandel,

We appreciate the opportunity to clarify statements regarding federal mineral leasing operations and recreation in the document prepared by Lahontan staff dated September 2000 titled *ANALYSIS OF THE BENEFICIAL USES REC-1, REC-2, SAL, AND WILD WITH RESPECT TO SEARLES DRY LAKE, IMC CHEMICALS, INC, TRONA, SAN BERNARDINO COUNTY AND RESPONSE TO IMCC COMMENTS MADE DURING THE JULY 2000 REGIONAL BOARD MEETING.*

Although significant mention of the Bureau of Land Management occurs in this document, we did not receive a copy of the document until November 7, 2000 which is less than ten days before the scheduled board meeting. Therefore we were unable to prepare and submit comments ten days prior to the scheduled board meeting as required in the NOTICE Submittal of Written Material for Regional Board Consideration. We request that you give the comments which follow the same consideration as if they had been submitted ten days prior to the board meeting.

IMC Chemicals controls both private lands on the lakebed and thirty federal mineral leases which are owned and operated by IMC Chemicals Inc. The Code of Federal Regulations for solid leasable minerals (43 CFR 3500) gives the lessee/operator the right to restrict public access to federal mineral leases. In order to enter the mining operations, a pass is required from the mine office of IMC Chemicals Inc. and must be shown at the main gate. Such entry is normally for mining-related purposes and appropriate safety gear is required. Other gates are locked and cross country access is restricted by natural physical barriers such as soft sandy and unstable surfaces. The China Lake Naval Weapons Center restricts public access from the east side of the lake. The BLM-administered lands on Searles Lake are permitted as an area of active mineral leasing operations with the hazards associated with mining activities. BLM does not manage the lakebed for recreation and prefers that the public not enter the federal mineral leases on the lakebed.

Comments follow regarding: 1) mineral collection, 2) recreation in the Trona Pinnacles National Natural Landmark, 3) hiking and hunting, 4) boating, 5) physical access limitations on the east side of the lake, 6) drinking water criteria and brine, 7) public access restrictions during the term of the mineral lease, and 8) the Trona Gem and Mineral Show as an existing use.

1. **Mineral Collection**.

Lahontan, page 5 "...The eastern side of the lakebed is public land under U.S. Bureau of Land Management ownership. It is not an area approved for effluent discharge and is not covered by the IMCC wastewater brine ponds. During mineral collection, an access boring is drilled, the brine is pumped to the surface, and begins to crystallize into recognizable minerals. Mineral collectors and geologists plunge their hands into the brine to find the most favorable specimens. This water contact use is similar to recreational gold mining commonly conducted by prospecting while immersed n a stream. Mineral collecting events may be overseen and controlled by IMCC staff on the lands IMCC controls; however, the activity may still include water contact..."

- BLM Comment:

Searles Lake has an annual Gem and Mineral Show for one week end in October during which limited access to both private lands and federal mineral leases is allowed for purposes mineral specimen collection. The events are overseen and controlled by IMCC and Trona Gem & Mineral Club Security on private and federal lands. Brine does not instantly crystallize into minerals as described above. The minerals form over time beneath the surface of the lake. Holes are drilled and a small explosive charge used, loosening the minerals in place. The minerals are jetted onto the surface and the brine soaks into the porous salt, leaving the crystals exposed for easy collection. This is not similar to placer gold mining in a stream.

2. **The Trona Pinnacles**.

Lahontan, page 6. "...Hiking, camping and picnicking occur on the southern edge of the lakebed in the Tufa Towers area..."

- BLM Comment:

The Trona Pinnacles National Natural Landmark is not "on the southern edge of the lakebed". The Pinnacles are a separate area managed by BLM located more than two miles south of Searles Lake. Access to the Pinnacles is from a BLM dirt road (RM143) that leaves State Route 178 about 7.7 miles east of the intersection of SR 178 and the Trona-Red Mountain Road. There is no established public access from the Pinnacles into Searles Lake. Recreation and commercial filming activities occur in the Trona Pinnacles area which is physiographically separate from the mineral leasing operations and managed for entirely different uses. (BLM Surface Management Status Desert Access Guide, Ridgecrest, 1:100,000- Scale topographic map).

3. **Hiking and Hunting**.

Lahontan, page 6. "...Hiking and hunting occur on the eastern side of the lakebed."

- BLM Comment:

Hiking and hunting do not occur on the lakebed.

4. **Boating.**

Lahontan, page 6. "... Some uses such as boating are unusual, but Board staff have personally interviewed individuals who have used shallow draft kayaks on the liquid surface to participate in bird watching."

- BLM Comment:

Since the California Department of Fish and Game began patrolling Searles Lake on a daily basis, boats have been used for bird watching, rescue and hazing. This is a regulatory use, not a recreational use. Hopefully the individual interviewed was a employee or associate of DFG. For reasons of safety and liability the BLM does not want the public boating on the federal mineral leases.

5. **Physical Access Limitations.**

Lahontan, page 9. "... As noted in the discussion of recreational uses above, the public can access from unfenced public lands on the east side of the lake..."

- BLM Comment:

There are no routes from the east perimeter of the lake which go into the central part of the lakebed. Natural barriers such as deep, soft sand, unstable surfaces and salt crusts make such access unsuitable even for four wheel drive and limit or preclude such access. Much of the east side of the lakebed is bounded by the China Lake Naval Weapons Center and designated "No Public Access" by that agency. BLM has no record of any public interest in access to the lake for recreational purposes.

6. **Drinking Water Criteria.**

Lahontan, page 11. "... REC-1 use designation does not require IMCC (or by implication, the U.S. Bureau of Land Management, which owns most of the desert playa lakes in the Lahontan Region) to treat naturally present chemicals to levels which meet drinking water criteria..."

- BLM Comment:

For perspective, Searles Lake is 20.4% sodium chloride and 36.5% TDS; Mono Lake is 2.5% sodium chloride and 6.8% TDS; and drinking water 0.02% sodium chloride and 0.04% TDS (Dodson and Associates, 2000).

7. **Access Restrictions.**

Lahontan, page 11. "...IMCC has the legal ability to restrict public recreational access to the lands that it controls whether or not the waters within these lands are designated for recreational uses. IMCC cannot restrict public access for recreational use on the lakebed lands it does not control."

- BLM Comment:

IMCC has the right to restrict public access to the mine on both private lands and the federal mineral leases according to federal mineral leasing regulations. IMCC can exclude the public from BLM administered lands during the term of the mineral lease or permit.

8. Existing Use.

Lahontan, page 12. "... Under federal water quality standards regulations, uses which have existed at any time since November 28, 1975 cannot be removed."

- BLM Comment:

The Trona Gem and Mineral Show has existed as a major event for the community of Trona and surrounding areas for over 50 years. It serves as an annual "open house" when the public are allowed on the lakebed under carefully controlled and safe conditions. However, the federal government cannot compel IMC Chemicals to continue this historic, existing use. The show is very popular with the local community, universities, and mineral collectors, and it would be a regrettable loss if the show had to be discontinued.

BLM manages Searles Lake as an area of active sodium and potassium mineral leasing operations in accordance with the California Desert Conservation Act Plan of 1980 and the approved BLM and SMARA mining plan for IMC Chemicals Inc. An annual gem and mineral show (similar to an open house) once a year at an active, producing mine does not make the mine into a recreation area. The mining at Searles Lake is a commercial, industrial use which: 1) produces about 1.4 million tons of borax, soda ash and salt annually; 2) provides local employment (the second largest employer after the Navy base); and 3) generates more than $3 million per year mineral royalties half of which go to the Trona Unified School District and Cerro Coso Community College in Ridgecrest.

As the surface management agency, it is our opinion that recreation is not an existing use on Searles Lake. If you have any questions regarding our comments please contact me by correspondence to the letterhead address, by phone at (760) 384-5405, or my staff at (760) 384-5451.

Sincerely,

/s/ Hector A. Villalobos

Hector A. Villalobos
Field Manager

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
RIDGECREST FIELD OFFICE
300 SOUTH RICHMOND ROAD
RIDGECREST, CA 93555-4436
PHONE 760-384-5400

FAX 760-384-5499

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Agency:	Bureau of Land Management
Phone:	(760) 384-5451
Fax:	(760) 384-5499

Subject:	Searles Lake Information
Message:	Thank you for the fax of Searles Lake Information. As discussed by phone I am faxing a copy of the letter on recreation dated November 13, 2000 which was submitted to the Regional Water Quality Control Board by the Bureau of Land Management. The following information is provided to clarify the description of land ownership in the 2002 303(d) Fact Sheet Watershed Characteristics. IMC Chemicals has 30 federal mineral leases and one sodium use permit on the lakebed which total about 25,662 acres (about 40 square miles). IMCC also owns 6,647 acres of private land on the lakebed (about 10 square miles). Therefore, IMCC owns or leases about 50 square miles of the lakebed area. IMCC restricts public access to its private land and to the federal mineral leases and permit for public safety in accordance with the Code of Federal Regulations (43 CFR 3595.1). We appreciate your evaluating the beneficial uses of Searles Lake. Please let us know if we can be of assistance.

Response to Written Public Comments on the Lahontan Regional Board's Recommendations for Update of the Section 303(d) List and Priorities for Developing TMDLs

February 2002

California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150

Contact Person:

Judith Unsicker
Staff Environmental Scientist
Phone: (530) 542-5462
FAX: (530) 542-5470
Email: JUnsicker@rb6s.swrcb.ca.gov

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Introduction

On January 9, 2002, the California Regional Water Quality Control Board, Lahontan Region (Regional Board) adopted recommendations to the California State Water Resources Control Board (State Board) for update of California's Clean Water Act Section 303(d) list of impaired surface waters needing Total Maximum Daily Loads (TMDLs). TMDLs are strategies required by the Clean Water Act to ensure attainment of standards. The Regional Board's action also included recommendations on priority ranking of water bodies for development of TMDLs. The list update process included opportunities for public participation. A number of written comments were received before and after the Board meeting.

Regional Board staff summarized and responded to the issues raised in written public comments at the January Board meeting. This written responsiveness summary has been prepared for inclusion in the record of the State Board's final recommendations to the U.S. Environmental Protection Agency (USEPA) for the statewide Section 303(d) list update.

Summary of Public Participation Process

Regional Board staff began the list update process by formally soliciting information and data from other agencies and the public. A solicitation letter dated March 13, 2001 was sent to the Regional Board's Section 303(d), basin planning and agenda announcement mailing lists, and to other parties including environmental and watershed groups. The solicitation process was also noticed through legal advertising in newspapers throughout the Lahontan Region, and through a press release. The letter and press release were posted on the Regional Board's internet webpage. The solicitation letter included a form to be returned in order to be placed on a focused Section 303(d) mailing list. The final mailing list included about 400 addresses.

Nine written responses were received to the solicitation letter. Two responses provided data of the type requested in the letter; the rest included qualitative information. These responses are included in the administrative record of the Regional Board's action and summarized in the November 2001 staff report.

Regional Board staff reviewed information and data provided by the public, and other readily available information and data, and then formulated recommendations for update of the Section 303(d) list and TMDL priorities. The recommendations were made available for public review between November 27 and December 28, 2001. The availability of the recommendations was noticed in writing to the Section 303(d) mailing list, and a press release was sent to newspapers throughout the region. Several newspaper stories on the list update process were published. The staff recommendations and supporting documents (a staff report and water body fact sheets) were posted on the Regional Board's webpage. Staff also provided information on the TMDL process and list update recommendations by telephone and email, and attended meetings to answer

questions at the request of specific groups of stakeholders. The Board's January 2002 agenda announcement, including the list update item, was mailed in late December. (The agenda announcement mailing list includes several hundred names.) The Section 303(d) list update item was not noticed as a public hearing, but public testimony was heard at the meeting before the Board took action. An audiotape of this agenda item will be included in the administrative record of the list update process.

Comments and Responses

Table 1 lists written public comments received after the November 27, 2001 release date for draft staff recommendations. Individual responses were provided for some of these comments, particularly comments requesting information on the list update or TMDL development processes. Copies of the responses are included in the appendix to this document. Available staff time did not permit the preparation of individual responses to all comment letters and emails.

The Southern California Alliance of Publicly Owned Treatment Works (SCAP) sent comments to the Lahontan Regional Board (and other Regional Boards) including proposals for listing and delisting criteria. These comments arrived before the start of the public review period for the Lahontan Regional Board's recommendations. They will be included in the administrative record. The Regional Board's listing/delisting considerations are discussed in the November 2001 staff report.

Following are summaries of and responses to written public comments. Because many comments addressed the same issues, some comments and responses are combined. Copies of comment letters and emails will be included the administrative record.

Responses to USEPA Comments

Note: All written comments from the USEPA, Region IX concerned recommended revisions to the November 2001 staff report. The Lahontan Regional Board does not plan to produce a revised staff report. The responses below will become part of the record of the State Board's Section 303(d) list update process.

Comment: The USEPA stated that "naturally impaired" waters must be listed unless the Regional Board has exempted natural sources exempted in its approved water quality standards.

Response: Regional Board staff's rationale for recommending delisting for "naturally impaired" waters is outlined in the staff report. The requirement to develop TMDLs applies to water bodies impaired by "pollutants," and the definition of pollutants in the Clean Water Act references constituents *discharged* to water. (The USEPA's "California Toxics Rule" also applies specifically to toxic *pollutants* rather than all ambient toxic chemicals.) A discharge implies a human, rather than a natural cause. Regional Board staff believe that salts and trace elements coming entirely from natural sources are not pollutants requiring listing and TMDL development under Section 303(d). It may be

Table 1. List of Written Public Comments

DATE	PARTY SUBMITTING COMMENTS	SUBJECT	R*
12/5/01	U.S. Fish and Wildlife Service	Information request, mercury in Walker River watershed.	Yes
12/6/01	Susanville Consolidated Sanitary District	Jensen Slough, Susan River	Yes
12/11/01	Caltrans District 3	Tahoe Basin streams, Susanville HU	Yes
12/12/01	Eastern Sierra Advocates Network	Information request and address change	Yes
12/12/01	David Senesac	Upper Silver Creek watershed, Carson River Basin	Yes
12/15/01	Sue Burak	Mammoth Creek	Yes
12/18/01	Surprise Valley Watershed Group and Surprise Valley Resource Conservation District	Upper, Middle, and Lower Alkali Lakes; Mill Creek	No
12/19/01	IMC Chemicals, Inc.	Searles Lake	No
12/19/01	Dennis Cron, Town of Apple Valley	Request for Extension of Comment Period	Yes
12/20/01	Alpine County Board of Supervisors	Carson River watershed	No
12/21/01	City of Hesperia	Mojave River	No
12/21/01	Carson Water Subconservancy District	Carson River watershed	No
12/21/01	Los Angeles City Attorney (for Department of Water and Power)	Haiwee and Tinemaha Reservoirs	No
12/21/01	James Swinehart	Streams draining Warner Mountains	No
12/26/01	Mojave Water Agency	Request for information	Yes
12/26/01	Victor Valley Wastewater Reclamation Authority	Mojave River	No
12/27/01	South Tahoe Public Utility District	Carson River watershed	No
12/27/01	Tahoe Regional Planning Agency (TRPA)	Lake Tahoe Basin streams	No
12/27/01	Los Angeles County Sanitation Districts	Littlerock Reservoir, etc.	No
12/28/01	Mojave Water Agency	Mojave River	No
12/28/01**	Owens Valley Indian Water Commission	Keough Hot Springs	No
12/31/01	Nevada Division of Environmental Protection	Clarification of statement in TRPA comments	No
1/9/02, 1/16/02	Deirdre Flynn	Pathogens, Lake Tahoe Basin streams	Yes
1/16/02	U.S. Environmental Protection Agency, Region IX	Listing/delisting criteria and other comments on staff report	No
1/24/02	Ed G. Grimly	Haiwee Reservoir	Yes

* This column indicates whether a given set of written comments received a separate written response. Copies of separate responses are included in the appendix to this document.

**The January 28, 2001 date in this letter was apparently a typographical error.

appropriate to consider these chemicals "stressors" for purposes of Section 305(b) assessment.

The *Water Quality Control Plan for the Lahontan Region* (Basin Plan) recognizes that the natural water quality of some surface waters may exceed the narrative water quality objectives contained in Chapter 3. The following quotations from the Basin Plan apply to naturally impaired waters:

Page 3-2, under "prohibited discharge" heading:

"After application of reasonable control measures, ambient water quality shall conform to the narrative and numerical water quality objectives included in this basin plan. When other factors result in the degradation of water quality beyond the limits established in these water quality objectives, controllable human activities shall not cause further degradation in either surface or ground waters."

Page 3-13, under "General Direction Regarding Compliance with Objectives" heading:

"It is not feasible to cover all circumstances and conditions which would be created by all discharges. Therefore, it is within the discretion of the Regional Board to establish other, or additional direction on compliance with objectives of the Plan."

Page 3-14, second paragraph under "Nondegradation" heading:

"...background water quality concentrations (the concentrations of substances in natural waters which are unaffected by waste management practices or contamination incidents) are appropriate water quality goals to be maintained."

Page: 3-17, under "Application of Narrative and Numerical Water Quality Objectives to Wetlands" heading: *"However, the Regional Board recognizes, as with other types of surface waters such as saline or alkaline lakes, that natural water quality characteristics of some wetlands may not be within the range for which the narrative objectives were developed. ...As with other types of surface waters, such as saline or alkaline lakes, natural water quality characteristics of some wetlands may not be within the range for which the criteria [freshwater aquatic life criteria in the USEPA's Quality Criteria for Water-1986] were developed."*

The USEPA's 1997 guidance for establishing site specific aquatic life criteria equal to natural background levels provides that: *"For aquatic life uses, where the natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans."* Under this interpretation, waters with natural high salinity and trace element concentrations should not be considered impaired for aquatic life uses, even if these constituents exceed the levels of aquatic life criteria.

Nine of the "naturally impaired" water bodies in question are proposed for delisting because the Regional Board has adopted Basin Plan amendments to remove potential Municipal and Domestic Supply (MUN) beneficial uses, and to remove the conflicts with drinking water standards on which the initial listings were based. These amendments have received state agency approvals and are currently under review by the USEPA. They may be approved and in effect before a final decision is made on California's 2002 Section 303(d) list.

During FY 1999-2000, the Lahontan Regional Board had funding to develop TMDLs for an additional nine "naturally impaired" waters. The goals were to document that salts and trace elements in these waters come entirely from natural sources and to adopt Basin Plan amendments allocating all constituent "loads" to natural sources. (It would be difficult or impossible to reduce natural loads from volcanic, geothermal, or evaporative sources to ensure attainment of drinking water standards *within* these water bodies, although domestic supplies taken from waters such as Hot Creek at Mammoth can be treated before use.) In discussions on the format for the Basin Plan amendments, USEPA staff subsequently expressed the opinion that TMDLs were not appropriate for these waters. The USEPA later withdrew federal funding for development of these TMDLs.

If the USEPA decides to retain "naturally impaired" waters on the Section 303(d) list, Regional Board staff will recommend that they be assigned very low priorities for TMDL development. Additional clarifying language may be inserted into the Basin Plan to allow delisting of these waters during a later list update cycle.

Comment: The USEPA comments requested that the staff report be revised to show how the Regional Board will monitor and assess the water bodies on the "watch list" and to provide a schedule for monitoring and assessment.

Response: Regional Board "watch lists" are <u>not</u> currently official components of California's Section 303(d) submittal to the USEPA. They are unofficial lists designed to focus state and federal attention on the need for additional resources for monitoring and assessment. (Current resources are extremely limited, and it will not be possible to monitor all waters on the watch list by 2004.) The Lahontan Region's watch list will be considered in preparation of annual workplans for the region's "SWAMP" monitoring program, and annual updates of the Watershed Management Initiative (WMI) Chapter. The list may also be brought to the attention of watershed stakeholders interested in monitoring and assessment. Based on the availability of resources and the nature of monitoring results, Regional Board staff will evaluate the watch list and consider 303(d) listing or removal from the watch list for specific waters as appropriate during the next list update cycle in 2004.

Comment: The USEPA asked that the staff report's discussion of listing criteria be revised to show how Regional Board staff assessed attainment of narrative water quality objectives such as "no toxics in toxic amounts."

Response: Some waters *were* recommended for listing based on violations of narrative objectives (e.g., Searles Lake for violations of objectives related to petroleum hydrocarbon discharges and various streams for violations of the regionwide narrative objective for fecal coliform bacteria). Many of the narrative water quality objectives in the Lahontan Basin Plan are related to protection of human health and aquatic life uses. Staff's experience with interpretation of narrative objectives in relation to TMDL development confirms that it can be a very difficult process. There was insufficient staff time available for an exhaustive literature review on criteria for protection of aquatic life uses during the development of the recommendations of update of the Section 303(d) list. Available numerical data for waters of the Lahontan Region were evaluated against the human health and aquatic life criteria summarized in the Central Valley Regional Board's *A Compilation of Water Quality Goals* and other summary criteria documents such as the California Office of Environmental Health Hazard Assessment's (OEHHA's) *Public Health Goals for Chemicals in Drinking Water* for specific chemicals. These criteria are largely concerned with toxic substances. Most waters in the Lahontan Region with recent ambient monitoring data for toxic substances (e.g., streams receiving acid drainage from the Leviathan Mine) are already Section 303(d) listed.

The Regional Board is sponsoring ongoing benthic macroinvertebrate studies by the University of California Sierra Nevada Aquatic Research Laboratory to define reference conditions in central Sierra streams and provide the basis for development of "biocriteria" objectives. Until these data and similar data for other surface waters of the region become available, assessment of aquatic life use support will remain a difficult process.

Comment: The USEPA notes the recommendation that water bodies not be listed based only on fish tissue concentrations of toxic substances from the Toxic Substances Monitoring Program (TSMP). The comment states that water bodies must be listed if TSMP tissue concentrations exceed the Maximum Tissue Residue Level (MTRL) criteria derived by the California Office of Health Hazard Assessment (OEHHA).

Response: Regional Board staff continue to believe that TSMP sample numbers for waters of the Lahontan Region are too small to support the conclusion that human fish consumption uses are impaired. Because sampled game fish may be hatchery plants, it is also possible that toxics in fish tissue come from the hatchery environment rather than from ambient waters. In staff's opinion, unless sample numbers are large, TSMP data exceeding MTRLs should be viewed as alerts that further monitoring is needed, rather than conclusive evidence of impairment.

The introduction to the State Board's 1982 annual report on TSMP results (pages 1-2) states:

"The reader is cautioned that there is no known definitive relationship between concentrations of toxic substances observed in tissue samples of fish and actual concentrations in the water itself.

... The reader is further cautioned that, because of limited program funding the numbers of samples obtained and analyzed at each station are generally too small to provide a statistically sound basis for making definitive statements on toxic substance concentrations. The values reported herein should be accepted as indicators of relative levels of toxic pollution in water, not as absolute values. In this sense, trends over time and comparison to statewide mean values of a toxic substance in a particular species provide an indication of areas where fish are evidently accumulating concentrations which are above "normal" based on past years' data."

Although statewide mean tissue concentrations for individual species could be computed from TSMP data, the State Board has concentrated on reporting "elevated data levels," the 85th and 95th percentiles of all samples collected statewide for freshwater and marine fish categories, within which data for multiple species are lumped. Because Regional Boards tend to locate TMSP sampling stations in areas with suspected problems, species-specific means based on statewide TSMP data would not necessarily define "normal" conditions.

The OEHHA is the state agency with responsibility to determine whether fish tissue concentrations of toxic substances are so high that advisories regarding fish consumption should be issued. The OEHHA has not, to Regional Board staff's knowledge, issued any fishing advisories in the Lahontan Region, even for waters where tissue samples exceeded MTRLs. Current advisories are available online at http://www.oehha.ca.gov/fish/general/99fish.html. The OEHHA's report on the use of TSMP data to develop fishing advisories for largemouth bass in Lake Pillsbury in Lake County repeats the assertion in TSMP annual reports that "Because the intent of the program is to evaluate water quality trends, the sampling design is not planned to provide data for human health evaluation." However, in the case of Lake Pillsbury, the OEHHA used TSMP data because repeated samples over a number of years were available. The report emphasizes the need for sufficient sample sizes for a particular species. In the case of Lake Pillsbury, OEHHA used 6 composite samples (of 3-4 individuals each) collected between 1991 and 1993, and 12 individual large mouth bass collected between 1993 and 1995. The Lake Pillsbury study is online at: http://www.oehha.ca.gov/fish/pdf/adv4lkpill.pdf.

There has not been sufficient time for an intensive scientific literature review on acceptable sample numbers for statistical significance in fish tissue studies. However, one paper (Anderson *et al.*, 2001) used tissue from 20 individuals of a given species from each of two reservoirs to draw conclusions about statistically significant tissue concentration differences related to treatment with the algicide copper sulfate.

Inspection of sample numbers in the TSMP database shows that samples collected in the Lahontan Region are on the low end of the spectrum (about 1-7 adult fish per composite sample). In some other regions, samples have included more than 50 individuals. Donner Lake and Stampede Reservoir are being proposed for delisting. The available data for Donner Lake are single composite samples of 7 Kokanee salmon and 6 lake trout in different years. Stampede Reservoir was listed on the basis of one composite sample of 7

Kokanee salmon. A few other TSMP samples with similar small sample numbers exceed OEHHA's recently revised mercury MTRL (0.37 ppb). For example, *one* Sacramento perch caught in June Lake in the Mono Basin had a mercury concentration of 0.84 ppb. Regional Board staff did not recommend listing for these waters; however, they have been placed on the watch list for further sampling.

As indicated in the November 2001 staff report, Lahontan Regional Board staff did not establish data quantity thresholds for listing to be considered. However, in its January 9, 2002 action, the Regional Board agreed with staff's amended proposal not to list a segment of the Mojave River based upon 5 samples. Listing based on one or two composite TSMP samples does not appear to be warranted.

Comment: The USEPA states that the staff report should address whether listing for border waters such as Lake Tahoe, the Walker River, and the Truckee River, is consistent with listing by the State of Nevada.

Response: During development of recommendations for border waters, Regional Board staff reviewed Nevada's online monitoring data for stations at or near the state line. Nevada has not yet released its 2002 recommendations for Section 303(d) listing and is still developing listing criteria. (See http://ndep.state.nv.us/bwqp/303notice.pdf.) The Nevada Division of Environmental Protection (NDEP) was sent a notice of the availability of Lahontan Regional Board staff's draft recommendations. No written comments from Nevada were received, other than an email clarification of Nevada's iron standard in response to a comment by the Tahoe Regional Planning Agency.

Nevada's 1998 Section 303(d) list is available on the Internet at the following address: http://ndep.state.nv.us/bwqp/nv303d98.pdf). Notes in this document for many border waters indicate that exceedance of standards was probably due to high flows in 1996-1997 (particularly the January 1997 flood) and that additional monitoring is desirable to confirm impairment. Numerical water quality standards and historic listing criteria in California and Nevada are different. Nevada has historically listed waters if more than 25% of all measurements for a given parameter exceed Nevada standards. California's standards are generally expressed as annual means, and exceedance of the mean value in 25% of the samples would not necessarily result in exceedance of the standard. Nevada's "state line" stations are not necessarily located at the state line or representative of California conditions; the East Fork Carson River "state line" monitoring station is 12-13 miles downstream. Regional Board staff do not believe that inclusion of a water body on Nevada's 1998 Section 303(d) list should be grounds for listing in California in 2002 unless recent data are available to confirm the existence of impairment at the state line.

Discussions regarding listings and water quality standards with NDEP staff and the NDEP Administrator are ongoing. NDEP has indicated its intention to list Lake Tahoe as impaired for clarity. This proposed listing will bring consistency to the two states' listing of Lake Tahoe.

Responses to General Issues in Public Comments

Comment: Several comment letters and emails were received after the December 28, 2001 deadline for written comments or after the Regional Board's action on draft recommendations (Los Angeles County Sanitation Districts, Deirdre Flynn, USEPA, Ed G. Grimly).

Response: These written comments will be transmitted to the State Board as part of the administrative record of the list update process. Issues in these comments are summarized and responded to below.

Comment: Several parties stated that they (or other stakeholders) had not been given adequate notice of the review process for the Section 303(d) list update, or adequate time for review and comment, and some requested that the deadline for comments be extended (City of Hesperia; Town of Apple Valley; Alpine County Board of Supervisors; Carson Water Subconservancy District; Deirdre Flynn; Victor Valley Wastewater Reclamation Authority).

Response: Regional Board staff's efforts to provide widespread notice of the list update process are described in the "Summary of Public Participation Process" section above. Some of these comments were from local governments and utilities included on one or more of the larger mailing lists used in the March 2001 mailing list update. Apparently these parties did not return forms to be included in the focused Section 303(d) mailing list.

It was not possible to extend the public review period before Regional Board action because of the State Board's then-proposed schedule for the statewide list update process. The Regional Board's mailing list and copies of comments are being provided to State Board staff, and all parties will have the opportunity to submit written comments directly to the State Board.

Comment: Some comments questioned whether specific water bodies are jurisdictional "waters of the United States," and, therefore, whether they are subject to the Clean Water Act and appropriate for inclusion on the Section 303(d) list (Legal Division, Los Angeles Department of Water and Power; Los Angeles County Sanitation Districts; IMC Chemicals, Inc.).

Response: Following the U.S. Supreme Court's "SWANNC" decision (*Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.* [2001] 531 U.S. 159, 121 S. Ct. 675), the status of a number of internally drained or isolated intrastate water bodies in the Lahontan Region as waters of the U.S. has yet to be determined. The SWANCC decision was concerned primarily with the "migratory bird rule." Under the decision, isolated waters can no longer be considered waters of the U.S. on the sole basis of use by migratory birds. However, some isolated waters can be

considered waters of the U.S. on the basis of other criteria such as navigability and/or another connection with interstate commerce. The Lahontan Regional Board has recommended that the waters in question be included on the 2002 Section 303(d) list. If, in the future, a determination is made by an appropriate legal authority that any of these waters is not a water of the U.S., it will be removed from the list.

Comment: A number of comments were received on the potential adverse socioeconomic impacts of listing. Examples include concerns about impacts on the use of imported water to support new development in the Mojave River watershed, impacts on the livestock grazing industry in the Lake Tahoe Basin, impacts on tourism in the Carson River watershed, and impacts on use of iron compounds in stormwater treatment in the Lake Tahoe Basin (City of Hesperia; Deirdre Flynn, Alpine County Board of Supervisors, Caltrans District 3).

Response: Section 303(d) listing may have indirect socioeconomic impacts by affecting conditions in permits for discharges to listed waters and by leading to new pollution control requirements in TMDL implementation programs. However, the Section 303(d) list update process is a federally-mandated priority-setting exercise that does not currently require formal environmental or socioeconomic impact analysis at either the state or federal level. The purposes of the list update process are assessment of technical information and data to determine whether water quality standards are being attained and priority setting for TMDL development. The appropriate forums for consideration of socioeconomic impacts are the permitting processes for specific discharges to listed waters and the development and public review of TMDLs and TMDL implementation programs. Socioeconomic analysis is required under the California Water Code and the California Environmental Quality Act (CEQA) for Basin Plan amendments to incorporate TMDLs. The State Board is developing formal policy language on criteria to be used in the 2004 list update process; that policy will also undergo review under CEQA.

Comment: Several comments recommended that additional monitoring or assessment be conducted before listing is considered for specific waters (Alpine County Board of Supervisors, South Tahoe Public Utility District, Carson Water Subconservancy District, City of Hesperia, Mojave Water Agency).

Response: Regional Board staff's listing considerations related to data quality and quantity are summarized in the November 2001 staff report. Further information on data quantity is presented in fact sheets for specific water body pollutant combinations. As indicated in the staff report, recommendations were based on case by case evaluations. After review of public comments on the Mojave River, Regional Board staff decided to withdraw recommendations for new listings because sample numbers were relatively small. In staff's opinion, sample numbers for other water bodies proposed for listing are adequate to support the recommendations. Additional monitoring may be done before or during TMDL development.

Comments: A number of comments supported revisions of water quality standards for specific water bodies (Tahoe Regional Planning Agency, Caltrans District 3, Alpine County, South Tahoe Public Utility District, Carson Water Subconservancy, Legal Division of Los Angeles Department of Water and Power, IMC Chemicals, Inc., Los Angeles County Sanitation Districts).

Response: The fact sheets and tables in the staff report identify waters where revisions in water quality standards may be pursued as an alternative to developing TMDLs. Some of the other changes in standards advocated in written public comments may not necessarily be appropriate, or may not be permissible under federal regulations. However, the Section 303(d) list update process is not the best forum for a detailed debate on the adequacy of existing standards.

The Regional Board periodically conducts a formal review process to consider needs for revisions of water quality standards. (The process also affirms those standards that are appropriate and require no revision.) Information on continuing or new water quality problems may come from monitoring data, compliance inspections, discharger reports, and public suggestions. Changes in state or federal laws and regulations may also dictate the need for Basin Plan amendments. In formulating draft recommendations, Regional Board staff will estimate the time and staff resources required to investigate and prepare Basin Plan amendments to deal with each water quality issue. The priority-setting process involves circulation of staff recommendations for plan changes for public review, staff responses to written comments, a noticed public hearing, and Regional Board adoption of an updated priority list of Basin Plan amendment topics, and workplans for specific topics. The Regional Board's priority list and workplan(s), and the administrative record of the process are transmitted to the State Board, and made available to the USEPA. (This priority-setting process is not a regulatory action.)

Schedules for development of specific Basin Plan amendments depend on factors such as the availability of planning staff time and the need to collect additional monitoring data. The parties who requested changes in standards during the 2002 Section 303(d) list update process will be notified of the next scheduled Basin Plan review/priority setting process.

Comment: Some letters and emails requested further information on a specific watershed, the listing process, or the TMDL development process, or provided information, but did not include comments on staff's recommendations for specific water bodies (U.S. Fish and Wildlife Service; Eastern Sierra Advocates Network; Mojave Water Agency).

Response: Individual written responses, containing the requested information, were sent. Copies of these responses are included in the appendix to this document.

Responses to Public Comments Related to Specific Waters

Note: The summaries of comments and responses below are grouped by watersheds in north-to-south order.

Surprise Valley Watershed

Comment: An email from James Swinehart summarized personal observations that Mill Creek, a currently-listed stream in the eastern Warner Mountains (Modoc County), does not appear to be different condition with respect to sedimentation/siltation than neighboring Warner Mountains streams. Mr. Swinehart suggested that either Mill Creek should be delisted, or that most if not all of the other creeks on the east side of the Warner Mountains should be listed.

Response: Mill Creek was listed for sedimentation based on qualitative information from the U.S. Forest Service, Modoc National Forest, on stream conditions in the late 1980s. To Regional Board staff's knowledge, no recent quantitative monitoring data on Mill Creek or other Warner Mountains streams are available to facilitate listing or delisting. A number of these streams are known to have experienced severe erosion during the January 1997 flood incident. When monitoring data become available, listing may be considered for other Warner Mountains streams, or Mill Creek may be delisted.

Comment: An email from Matt Brown, facilitator for the Surprise Valley Watershed Group and watershed coordinator for the Surprise Valley Resource Conservation District expressed support from both groups for staff's recommendations for Upper, Middle and Lower Alkali Lakes, and Mill Creek. The email noted that the District is seeking funds to study and address any water quality problems in Mill Creek.

Response: The comments are noted; the Regional Board's January 9, 2002 action approved staff's recommendations regarding these water bodies. Regional Board staff expect to work with the District through the Board's nonpoint source, monitoring, and TMDL programs to evaluate and address water quality problems in Mill Creek.

Comment: See the comment from Sean Penders of Caltrans District 3 regarding naturally impaired waters under "Susan River Watershed" below.

Response: See the response below and the separate email response in the appendix.

Susan River Watershed

Comment: A letter from the Susanville Consolidated Sanitary District noted that the Susan River is currently Section 303(d) listed and offered the District's bioassay data for its outfall for use in TMDL development. The outfall is tributary to an agricultural ditch; the ditch is tributary to Jensen Slough, a tributary of the Susan River.

Response: TMDL development for the Susan River is tentatively scheduled to begin in 2004. A separate response was sent stating that Regional Board staff will contact the District for the latest bioassay data when TMDL development begins (see the appendix).

Comment: Sean Penders of Caltrans District 3 questioned why the "naturally impaired" waters in the Surprise Valley and Susan River watersheds, now recommended for delisting, had been listed at all. He also asked why some apparently "naturally impaired" waters have TMDL end dates.

Response: As explained in the staff report and in a separate email reply to Mr. Penders, previous state and federal guidance directed the listing of all surface waters in violation of standards regardless of the source of impairment. This guidance led to listing of waters with high levels of salinity and/or trace elements (e.g., arsenic) from natural sources such as geothermal and volcanic activity, or evaporative concentration over geologic time. Regional Board staff are recommending delisting for waters where the "impairment" is entirely natural; see the response to the USEPA's comments above. Some currently listed waters in the Honey Lake watershed are affected primarily by natural geothermal sources of trace elements; however, the situation is complicated because they are also affected by discharges from geothermal power plants. These waters are recommended for retention on the Section 303(d) list, with tentative end dates for TMDL development, pending further study.

Lake Tahoe Watershed

Comment: Comments were received from the Tahoe Regional Planning Agency (TRPA) and Sean Penders of Caltrans District 3 regarding the proposed listing of several streams in the Lake Tahoe Basin for violations of the iron standard. TRPA supported the development of a uniform protective iron standard for all Lake Tahoe tributaries in California and Nevada. TRPA also noted that chloride standards might need revision but that potential sources might be anthropogenic and subject to decrease over time. Sean Penders of Caltrans expressed concern about the impacts of listing in relation to the use of iron in several stormwater treatment methods and the hope that revision of standards would permit delisting. Randy Pahl of the Nevada Division of Environmental Protection provided clarification on Nevada's iron standard in response to TRPA's comments..

Response: (A separate email response, dated 12/12/01, was sent to Sean Penders of Caltrans.) As stated in the water body fact sheets for the stream in question, Regional

Board staff intend to pursue revision of water quality objectives for iron and chloride in tributaries of Lake Tahoe. The current California standards are based on data collected during the early 1970s for tributaries with disturbed and undisturbed watersheds and summarized in TRPA's 1977 draft "Section 208" water quality plan (California State Water Resources Control Board, 1980. Regarding impacts of listing on stormwater treatment, see the response regarding socioeconomic impacts in the "General Issues" section above. No technical response to the clarification of Nevada's standard is necessary.

Comment: Sean Penders of Caltrans District 3 requested information on the potential sources of bacteria loading to the Lake Tahoe Basin streams proposed to be listed for "pathogens", and asked whether the pathogens were natural. Deirdre Flynn asked why cattle were being blamed as the source of the pathogens when monitoring showed high levels of coliform bacteria in Big Meadow Creek when cattle were not present.

Response: As indicated in the water body fact sheets, monitoring shows the highest numbers of bacteria at times and locations when livestock are present. However, other sources including humans, dogs, pack animals, and wildlife (including beavers) may contribute to total bacteria loading. (In the Lake Tahoe Basin, there is debate as to whether beavers are natural or introduced wildlife.) Ms. Flynn's January 9 comments were based on a media report, rather than on review of the fact sheets. Staff sent separate email responses to both parties and copies of the staff report and relevant fact sheets to Ms. Flynn.

Comment: Deirdre Flynn's comments expressed concern about the impacts of listing Tahoe Basin streams for pathogens on the Meiss Grazing Allotment permit.

Response: See the discussion of socioeconomic impacts of listing in the "General Issues" section, above.

Carson River Watershed

Note: Most of the comments from Carson River watershed stakeholders centered on the proposed listing of three different segments of the West Fork Carson River for several different pollutants.

Comment: Comments from the Alpine County Board of Supervisors oppose the continued listing of Indian Creek Reservoir, note that it was not discussed in the November 2001 staff report, and ask that Alpine County's May 2000 letter be incorporated into the record.

Response: At the direction of State Board staff, Regional Boards did not prepare fact sheets or other detailed justification for retaining currently listed water bodies on the Section 303(d) list. If review of available information and data showed that these waters

are still violating standards, or if no recent data were available, listed waters were generally recommended for retention. (Exceptions include the "naturally impaired" waters discussed above.)

Copies of Alpine County's May 8 and May 10, 2000 letters (in response to a revised Notice of Preparation of an environmental document for the Indian Creek Reservoir TMDL), will be included in the record. The May 8, 2000 letter from the Board of Supervisors was concerned with socioeconomic impacts of TMDL development. The May 10, 2000 letter from the Alpine County Department of Public Works questioned whether the reservoir should be listed and whether TMDL implementation would be technically and economically feasible. It also recommended that a technical advisory team sensitive to the interests of the various stakeholders be developed.

Regarding socioeconomic impacts, see the response under "General Issues" above. The basis for listing and the technical feasibility of implementation were addressed in Regional Board technical staff reports for the Indian Creek Reservoir TMDL. The first preliminary draft of the TMDL was reviewed by an outside scientific peer reviewer, and Regional Board staff have held meetings with stakeholders and their technical staff and consultants throughout the TMDL development process.

Throughout the TMDL development process, Alpine County has argued that Indian Creek Reservoir should not be listed because it supports a recreational fishery based on annual trout planting, even though it is eutrophic. However, there is clear evidence of impairment. Ambient concentrations of total phosphorus in the reservoir are about twice the numerical water quality objective in the Lahontan Basin Plan. That objective (0.04 milligrams per liter total phosphorus) dating from 1975 and based on the quality of tertiary wastewater effluent) is, in turn, about twice as high as the current scientific literature threshold between mesotrophic and eutrophic conditions and the U.S. Environmental Protection Agency's currently recommended phosphorus criterion (8.75 micrograms per liter or 0.00875 milligrams per liter) for lakes and reservoirs in the "ecoregion" that includes the Sierra Nevada. (Nutrient criteria are discussed at http://www.epa.gov/waterscience/criteria/nutrient/ecoregions/index.html.) The current water quality objective for phosphorus is clearly inadequate to protect aquatic life and recreational uses of the reservoir. A number of other water quality standards (including the objective for dissolved oxygen) are being violated, and continued listing is obviously justified. Revised draft Basin Plan amendments to incorporate a TMDL and TMDL implementation plan for Indian Creek Reservoir are currently expected to come before the Lahontan Regional Board in July 2002. Once the standards have been attained, the reservoir may be delisted.

Comment: "Alpine County contends that no data was provided or reference material cited providing Regional Board staff evaluation of water for inclusion in the proposed Watch List. Alpine County requests that the decision to add water bodies to the list be performed only when compelling reasons to place a well defined water body reach thresholds based on current data." The county also contends that water bodies should not

be placed on the watch list until formal guidance for the listing/delisting process is available.

Response: Alpine County may be confusing the watch list with the Section 303(d) list. References for the watch list are included in the November 2001 staff report; see the note in italics under the "References" heading on page 13. The watch list is comprised of waters having some evidence of impairment but requiring further study to determine whether Section 303(d) listing is justified. The "watch" list includes waters identified as "threatened" or "partially supporting" beneficial uses in earlier Section 305(b) water quality assessment updates. (The Clean Water Act Section 305(b) reporting process has historically been coordinated with Section 303(d) list updates in California.) The technical references used in earlier Section 303(d)/Section 305(b) assessments are summarized in earlier Regional Board staff reports (from 1989,1991, 1994 and 1997). The "watch list" is not currently a formal part of California's required Section 303(d) list submittal to the USEPA and does not trigger TMDL development or have other regulatory consequences. It will serve primarily to identify needs for further monitoring and assessment. Identification of such needs is not dependent on the development of formal listing/delisting criteria.

Comment: Alpine County expresses concern about the potential impacts of Section 303(d) listing of the West Fork Carson River on its tourism-based economy.

Response: See the discussion of the socioeconomic impacts of listing under the "General Issues" heading above. Other Lahontan Region waters that support tourist economies (including Indian Creek Reservoir in Alpine County and Lake Tahoe, the Truckee River, and Crowley Lake) have been Section 303(d)-listed for years, with no known adverse impacts on tourism.

Comment: Several comments recommended increased cooperation between the Regional Board and other stakeholders, including the Alpine County watershed group, in assessment, monitoring, and standards setting (Alpine County Board of Supervisors, South Tahoe Public Utility District, Carson Water Subconservancy District).

Response: The Carson River watershed is one of the Regional Board's five currently designated "Watershed Management Initiative" watersheds, and staff are committed to work with stakeholders in all of the activities above.

Comment: The Alpine County Board of Supervisors and the South Tahoe Public Utility District criticized the data (and staff's evaluation of the data) used in recommendations for listing in the West Fork Carson River watershed. Alpine County pointed out that some violations "were barely over the objective" and stated that data were not reviewed for data quality.

Response: The data in question have been collected by the South Tahoe Public Utility District (STPUD) at approximately monthly intervals, for most parameters, beginning in 1980. (See the separate response below on frequency of pathogen samples.) STPUD's

field collections and laboratory analyses are done using Quality Assurance/Quality Control procedures acceptable to the Regional Board. The purpose of STPUD's data collection (discharger self monitoring) has no bearing on its use in the listing process. Federal regulations direct states to use all "existing and readily available" information in listing decisions. STPUD's long term, quality-assured dataset is probably one of the better sets available for use in Section 303(d) assessments statewide. Sampling more often than monthly would of course be useful; however, some Regional Boards are currently planning to adopt or revise standards based on the results of *quarterly* water quality monitoring.

Staff's analysis of the data for chemical parameters is explained in the staff report, fact sheets, and in a June 2001 Regional Board internal memo (cited in the fact sheets) containing calculations of compliance with water quality objectives expressed as "means of monthly means." Staff recognized that some of the violations of standards were relatively slight; however, they are violations.

If funding becomes available, more precise monitoring will be done as the basis for TMDL development and/or update of water quality standards in the West Fork Carson River watershed. This monitoring would be used to determine the extent of impairment in each listed reach, to quantify the range of natural variability in water quality, and to identify sources of pollutants, including natural sources.

Comment: Alpine County requested that the West Fork Carson River and its tributaries be placed on the watch list and that a decision on listing be deferred for two years until completion of a recently funded study by the Alpine County Watershed Group.

Response: The watershed group's grant is for watershed assessment, including a fluvial geomorphological assessment, a riparian corridor survey, and setup of a Geographic Information System (GIS) database. This project will help to assess watershed health and may serve as a foundation for future planning and watershed projects. However, it will not include any ambient water quality monitoring and will, thus, not provide any additional information for use in evaluating compliance with numerical water quality objectives. As outlined above, currently available data are considered adequate to demonstrate that water quality objectives for some parameters are being violated and that the West Fork Carson River should be listed for these parameters during the 2002 cycle. If additional data become available by 2004 to show that the water quality objectives are in attainment by that time, delisting will be recommended.

Comment: Several stakeholders (Alpine County Board of Supervisors, Carson Water Subconservancy District, STPUD) supported Regional Board staff's intent to consider revision of standards as an alternative to development of TMDLs for some of the water body-pollutant combinations recommended for listing in the Carson River watershed. They also commented that standards should be reviewed and/or revised before listing is done. Alpine County requested information or a schedule for the standards review process, and expressed interest in review of the designated beneficial uses for Indian Creek Reservoir. The County also implied that the existing water quality objectives for

the West Fork Carson River are too stringent because they "*are similar to those applied in the Tahoe watershed rather than other eastern Sierra standards (i.e., California West Fork Carson River Nitrogen Objectives as compared to Carson River Downstream Nevada standards, Walker River standards).*" The STPUD also commented that revised standards should be based on more precise monitoring data.

Response: Decisions to list or delist water bodies must be based on violations of existing water quality standards, even if those standards are believed to be in need of revision. See the discussion of priority setting for revision of standards under "General Issues" above. If resources are available, more precise monitoring data may be collected as the basis for revisions of standards. It is unlikely that the currently designated aquatic life and recreational uses of Indian Creek Reservoir can be removed, since they have been "existing" uses of the reservoir since 1975, the effective date of the federal water quality standards regulation. Federal regulations do not permit removal of existing uses. Regarding the comparability of water quality objectives for the West Fork Carson River with water quality standards in Nevada and in the Walker River watershed, some of the latter standards may reflect degradation due to agricultural runoff and may not be protective of beneficial uses. See the introduction to the group of fact sheets for the East and West Walker River Hydrologic Units entitled "Notes on Numerical Water Quality Objectives for Nitrogen and Phosphorus in the East Walker River Watershed." The eastern Sierra Nevada and the Great Basin are also different nutrient "ecoregions," and differences in natural nutrient concentrations and ecosystem processes may occur for this reason.

Comment: The STPUD commented that the Regional Board should specifically evaluate whether the application of technology-based effluent limitations, Best Management Practices (BMPs), and other existing pollution controls is likely to bring waters of the Carson River watershed into compliance with standards within the next two years and therefore, void the need for listing.

Response: Regional Board staff are not aware of any specific "new" control measures recently implemented, or proposed for implementation within the next two years, that would lead to attainment of standards within the near future and, thus, justify delisting. Measures implemented under STPUD's pending Alpine County facilities plan, ongoing watershed planning efforts, the CERCLA remediation programs for Monitor Creek and the Leviathan Mine, and the California Nonpoint Source Management Plan may lead to attainment of some standards *after* 2004, and delisting may be possible during a later update cycle.

Comment: The STPUD believes that the extent to which natural background conditions and atmospheric deposition contribute to impairment should be documented *before* listing is considered. "Alpine County pointed out that water quality is potentially affected by natural perturbations such as fire, flood, and erosive bank impacts." The Carson Water Subconservancy District commented that the phosphorus standards for the West Fork Carson river are based on a limited dataset and that sources of phosphorus may be largely natural.

Response: Based on staff's knowledge of past and present land uses, and of other potential sources of pollutant loading in the Carson River watershed, it is not possible to conclude that violations of water quality objectives are due entirely to natural sources and that affected waters should not be listed for that reason. The contribution of natural sources and atmospheric deposition to violations of standards will be estimated during the development of TMDLs and/or the revision of water quality standards.

Comment: STPUD's comment letter asks that the water body fact sheets be revised to document which of the six listing considerations on page 6 of the November 2001 staff report were used to justify additions to the list.

Response: In all cases, new listings for the Carson River watershed were proposed based on violations of water quality objectives (Listing Consideration # 1 on page 6 of the staff report). The "Evaluation Approach" section of the staff report, beginning on page 9, explains the general procedures used in evaluating data to determine whether standards were being violated. The "Water Quality Standards Not Attained" sections of the fact sheets cite or summarize the applicable water quality standards, and the "Evidence of Impairment" sections summarize the data showing violation of standards.

Comment: Both the STPUD and Alpine County commented that the reaches of the West Fork Carson River proposed for listing are too long and should be subdivided.

Response: The reaches proposed for listing are based on the locations of monitoring stations providing long term data. Water quality measured at Woodfords is not necessarily representative of water quality at the headwaters of the river; however, no recent data are available above Woodfords to facilitate definition of smaller reaches. When better data become available to refine the extent of impairment, Regional Board staff will recommend revision of the Section 303(d) list to include smaller reaches. Monitoring to define pollutant loading in smaller reaches may also be necessary for source analysis during TMDL development.

Comment: The STPUD requested that the analysis of compliance with pathogen objectives be done using all historical data. The Alpine County Board of supervisors stated that the frequency of data collection for listing for pathogens was "insignificant" for purposes of listing.

Response: As noted on page 9 of the staff report, the Section 303(d) assessment, as a whole, focused on data collected since the last assessment cycle began in 1997, and the fact sheets for pathogen listings emphasize data from 2000 and 2001. However, STPUD has collected pathogen data for the West Fork Carson River and Indian Creek since 1980. Inspection of STPUD's data from 1980-1998 (from a printout used in development of the Indian Creek Reservoir TMDL) shows violations of the current narrative water quality objective for fecal coliform bacteria in both streams throughout the historical period. Copies of these data will be included in the reference material transmitted to the State Water Resources Control Board.

Regarding sampling frequency, the water quality objective for fecal coliform bacteria is based on violations within a 30-day period, not on an annual mean or long-term "mean of monthly means." For the Carson River watershed, the most important part of the objective is the provision that no more than 10 percent of all samples collected during any 30-day period shall exceed 40 bacterial colonies per 100 milliliters. If only one sample is collected during a given month and there are more than 40 colonies, this sample is in violation of the objective. The objective does *not* specify that a minimum number of samples (or monthly violations) per year are needed to determine compliance.

Comment: The STPUD requested that the phosphorus content of the West Fork Carson River be considered when developing the TMDL for Indian Creek Reservoir.

Response: Assumptions about phosphorus loading from the West Fork Carson River are included in the current (November 2000) draft TMDL for Indian Creek Reservoir, based on monitoring data from 1999. The justification for the use of data from this year is discussed in the May 2001 "Response to Comments" document for the TMDL and in subsequent correspondence with the Carson Water Subconservancy District. Because of concerns expressed in public comments on the November 2000 draft TMDL, the numeric target for total P concentration in the tributary inflow ditch will be dropped from the revised 2002 draft. The TMDL load allocations (including the allocation to the tributary inflow) are proposed to be expressed as 10 year rolling averages to account for seasonal and annual variability. The TMDL implementation program will involve periodic review of monitoring data and refinement of TMDL numbers, if appropriate.

Comment: The STPUD supports the development of better listing/delisting criteria by the State Board.

Response: Regional Board staff are participating in a statewide workgroup for development of draft policy language on listing/delisting criteria. If approved, this policy will be used in the next (2004) list update cycle. While the new policy may have more specific requirements concerning data quality and quantity, it will probably still require listing when there is clear evidence of standards violations such as those outlined in fact sheets for the West Fork Carson River.

Comment: An email from David Senesac expressed concern, based on personal observations, about the impacts of cattle on water quality and riparian areas in the upper watershed of Silver Creek, a tributary of the East Fork Carson River. (Affected tributaries of upper Silver Creek include Raymond Meadows Creek, Eagle Creek, and Pennsylvania Creek.)

Response: Regional Board staff sent a separate email response, mentioning the Regional Board's authority to regulate livestock grazing to control impacts on water quality and beneficial uses, and its work with the U.S. Forest Service and other stakeholders under the Carson River Watershed Management Initiative. (See the appendix.) Because the

Regional Board currently lacks quantitative monitoring data on the streams mentioned in Mr. Senesac's email, their listing is not being recommended at this time. Listing may be considered in 2004 if supporting data become available.

Walker River Watershed

Comment: Stanley Wiemeyer of the U.S. Fish and Wildlife Service requested information about past mining activity and metals sampling in the Walker River watershed in connection with a USFWS study of mercury.

Response: A separate email response was sent; see the appendix to this response document.

Owens River Watershed

Comment: Sue Burak, leader of a citizen's monitoring group in the Mammoth Lakes area, requested information on "what is required to get Mammoth Creek into the TMDL program" for use in preparation of a grant application for a study on turbidity in the creek.

Response: A separate email response was sent, explaining the Regional Board's turbidity standard and the need for additional monitoring to define natural background turbidity conditions and/or reference aquatic life conditions. See the appendix to this document.

Comment: The Legal Division of the Los Angeles Department of Water and Power (LADWP) submitted comments contending that Haiwee Reservoir should not be considered a water of the United States and, therefore, should be delisted.

Response: See the discussion of the "waters of the United States" issue and the U.S. Supreme Court "SWANNC" decision in relation to listing under "General Issues" above. Regional Board staff believe that Haiwee Reservoir *is* a water of the United States under criteria (e.g., navigability, interstate commerce nexus related to fishery use) not affected by the SWANCC decision.

Comment: The LADWP stated that Haiwee Reservoir should be delisted on the grounds of "faulty data" and summarized its criticisms of data collected by the California Department of Fish and Game and used as the basis for the Regional Board's (now rescinded) Cleanup and Abatement Order.

Response: Regardless of the quality of the fish tissue data, the LADWP's monitoring data show that total recoverable copper levels in Haiwee Reservoir exceed California Toxics Rule criteria. The reservoir is also in violation of the Regional Board's narrative water quality objective for pesticides, which provides that pesticides shall not be present in

detectable amounts. (While the State Board's emergency, short term NPDES permit for aquatic herbicide use allows discharges in violation of Regional Board objectives and prohibitions, the permit did not repeal these Basin Plan provisions.) The violations of standards are sufficient to warrant continued listing for Haiwee Reservoir until the standards are changed or herbicide applications are modified to ensure attainment.

Comment: The LADWP commented that Haiwee Reservoir should be delisted because there is adequate regulatory oversight of the current copper sulfate application program, because state and federal standards are attained in the drinking water obtained from Haiwee Reservoir, and because there is no "reliable" evidence of impairment of other beneficial uses.

Response: As noted above, the reservoir is in violation of the Regional Board's "no detectable pesticides" water quality objective for ambient surface waters. A control program sufficient to ensure attainment of drinking water standards, but not attainment of the objective, is not grounds for delisting. Regional Board staff are currently drafting revisions to the pesticide objective to specify conditions under which the use of algicides (including copper sulfate) may be permissible in drinking water reservoirs, providing that aquatic life uses are adequately protected.

Comment: The LADWP urged that the Lahontan Basin Plan be amended to revise the beneficial use designations for Haiwee Reservoir, and cited case law indicating that municipal use is a "higher" use than the "right to fish."

Response: See the discussion of priority setting for standards revisions in the "General Issues" section above. The Lahontan Basin Plan does assign not priorities to different beneficial uses *per se*, although protection of the most sensitive use is a consideration in establishing numerical water quality objectives. Criteria for protection of aquatic life uses may be more stringent than drinking water standards. Because Haiwee Reservoir does support aquatic life and has supported a recreational fishery since the mid-1990s, it is unlikely that beneficial uses can be changed to make municipal and domestic supply the *only* designated beneficial use for Haiwee Reservoir.

Comment: The LAWDP concurs with staff's recommendation to delist water bodies in the Mono and Owens Hydrologic Units because the arsenic impairment is natural and there are no "pollutants." The comment states that this decision is supported by case law under the Clean Water Act.

Response: The comment is noted: no technical response is required.

Comment: The LADWP commented that there is inadequate evidence to retain Tinemaha Reservoir on the Section 303(d) list for copper and that it should be placed on the watch list until such evidence is available. The comment also cites Tinemaha

Reservoir's "priority of beneficial uses," implying that municipal use should be considered the highest use for purposes of listing.

Response: The LADWP's routine monitoring data for Tinemaha Reservoir show that total copper levels consistently exceed the California Toxics Rule criteria (established for aquatic life protection). The presence of detectable copper is a violation of the Regional Board's narrative "no detectable pesticides" water quality objective. Both of these violations warrant continued listing. Regional Board staff are currently drafting revisions to the pesticide objective to specify conditions under which the use of algicides (including copper sulfate) may be permissible in drinking water reservoirs, providing that aquatic life uses are adequately protected. Regarding priority of uses, see the response to a similar LADWP comment about Haiwee Reservoir, above.

Comment: The LADWP recommends that waters listed for impairment by flow and habitat alterations should be removed from rather than retained on the Section 303(d) list.

Response: Regional Board staff considered recommending delisting for these waters. However, legal counsel advised that, under the current federal regulations for implementation of Section 303(d), they should be retained.

Comment: The LADWP recommends that listed waters, including Mammoth Creek, having the notation in the summary table of staff recommendations "Needs further study to verify need for TMDL," should be placed on the watch list and that 303(d) listing should take place in a uniform fashion.

Response: Although Regional Board staff agree that uniform criteria for listing and delisting would be desirable, state and federal guidance has changed over time. Currently, more rigorous justification may be required for delisting than for listing. No recent data are available for most of the water bodies with the note cited in the comment. Mammoth Creek was originally listed for elevated metals levels in fish tissue, and the most significant sources of metals are probably the natural volcanic/geothermal sources in the Long Valley Caldera. However, Mammoth Creek is also affected by urban stormwater and is recommended for continued listing until the relative contribution of natural and man-made sources can be ascertained or until monitoring shows lack of impairment by metals.

Comment: A January 24, 2002 email from Ed G. Grimly provided a reference to an online summary of scientific research on arsenic in the Owens River system and questioned why Haiwee Reservoir was not recommended for listing due to increased accumulation of arsenic in the sediment as a result of treatment by the Los Angeles Department of Water and Power (LADWP). (Mr. Grimly sent a similar email to the Regional Board's webmaster on November 15, 2001, shortly before the staff recommendations were released for public review.)

Response: Copies of the comments, and the referenced Internet paper, will be transmitted to State Board staff for consideration in formulation of statewide recommendations for listing. A separate email response to the January 24, 2002 email was sent.

Comment: The Owens Valley Indian Water Commission opposed the proposed delisting of Keough Hot Springs that is based on the grounds that it is naturally impaired. They note that the developed resort pool is chlorinated and may affect the quality of downstream waters. The Commission also asked to be placed on the Regional Board's mailing list.

Response: Regional Board water quality assessment staff have no quantitative data on chlorine or other chemcial applications to the resort pool and no information that they affect the water quality and beneficial uses of downstream waters. (Chlorine compounds used as swimming pool disinfectants are unstable at high temperatures, and bromine compounds may be used in hot pools instead.)

In July 2000, the Regional Board adopted Basin Plan amendments to remove the potential beneficial use designation for "Municipal and Domestic Supply" from Keough Hot Springs. These amendments are currently awaiting final USEPA approval. If they take effect, the conflict with drinking water standards that led to listing of the springs will be removed.

The Commission will be placed on the Regional Board's Section 303(d), Basin Plan, and agenda announcement mailing lists.

Searles Lake Watershed

Comment: IMC Chemicals, Inc. (IMCC) states its assumption that listing applies to waters of the state.

Response: As outlined in the staff report, listing is a requirement of the federal Clean Water Act, and applies to waters of the United States. IMCC has contended in other contexts that Searles Lake is not a water of the United States. See the discussion of this matter in the "General Issues" section, above.

Comment: IMCC commented that the data on which staff's recommendations are based "supports the recommended removal of Searles Lake from the Section 303(d) list for salinity, Total Dissolved Solids (TDS) and chlorides."

Response: The comment is noted. No technical response is necessary.

Comment: IMCC's comment letter summarizes its efforts to study and rescue distressed waterfowl at Searles Lake and encloses copies of recent necropsy results, indicating that bird deaths were not due to petroleum hydrocarbons. On the basis of these results, IMCC

opposes the recommended addition of Searles Lake to the Section 303(d) list for petroleum hydrocarbons.

Response: After reviewing the necropsy results, staff deleted references to bird deaths from petroleum hydrocarbons from the Searles Lake fact sheet. However, Searles Lake is still recommended to be listed for petroleum hydrocarbons based on violations of several narrative water quality objectives (chemical constituents, floating material, oil and grease, and toxicity).

Comment: IMCC comments on a statement in the fact sheet that "Regional Board staff are proposing Basin Plan amendments to define beneficial uses for the brine ponds separate from the natural ephemeral waters of the lake as a whole," and states that it is more appropriate to consider the larger area of the Searles Lake bed rather than only the brine ponds.

Response: The scope of the Basin Plan amendments is a separate issue from Section 303(d) listing and will be addressed during development of the amendments.

Mojave River Watershed

Note: The Lahontan Regional Board voted on January 9, 2002 not to recommend listing for the segment of the Mojave River addressed in the public comments summarized below. The three water body-pollutant combinations involved were placed on the Region's informal "watch list" for further study.

Comment: The City of Hesperia opposed listing for the Mojave River and recommended that it be placed on the watch list. The City expressed concern that a TMDL implementation plan could "stymie groundwater recharge efforts in the channel" using imported State Water Project water, "stifle growth in the Victor Valley," and affect implementation of the stipulated water rights judgment overseen by the Mojave Water Agency. The City stated that "the development of TMDL's for the Mojave River Narrows would have a disparate impact on the City of Hesperia and cause undue economic hardship relevant to mitigation measures." The Victor Valley Wastewater Reclamation Authority (VVWRA) also opposed listing and noted potentially significant economic impacts to the Authority and its customers, particularly impacts on VVWRA's ability to recycle and reuse fully treated wastewater and on potential recharge of the river aquifer system using State Water Project water.

Response: The Regional Board voted not to recommend listing for the Mojave River and to place it on the watch list. See the discussion of the socioeconomic impacts of listing under "General Issues" above.

Comment: The VVWRA stated that the proposed listing of the Mojave River was inconsistent with findings of the 1997 Mojave River Upstream Discharge study.

Response: The results of this study were not readily available to water quality assessment staff in the Regional Board's South Lake Tahoe office. The November 2001 recommendation for listing was based on sampling results from the "Mojave River –D Street Study" provided by the Regional Board's Victorville office staff. Most of the samples in the latter study were of ground water.

Comment: The VVWRA opposed listing for the Mojave River and asked for more intensive public participation (stakeholder meetings and public hearings) before listing is considered.

Response: See the discussion of scheduling constraints for the 2002 list update process in the "General Issues" section above. The format and extent of public participation for the next (2004) list update process will probably be addressed in the State Board's forthcoming policy direction.

Antelope Valley Watershed

Comment: The Los Angeles County Sanitation Districts (LACSD) expressed support for the Regional Board's "documented procedural basis" for its recommendations on listing and delisting, and also expressed support for the use of a "watch list."

Response: These comments are noted; no technical response is necessary.

Comment: The LACSD criticized the proposed placement of Littlerock Reservoir on the Regional Board's informal "watch list," contending that it is not a water of the United States and, therefore, not subject to Section 303(d), and requested clarification of the rationale for inclusion of the reservoir on the watch list.

Response: Littlerock Reservoir was placed on the recommended "watch list" for sediment, iron, and manganese on the basis of online reports by the Palmdale Water District (see the references on page 15 of the staff report). The reports indicated that violations of standards for iron and manganese occur in the District's source water, but not in its treated water, and that a large project to remove sediment from the reservoir was proposed. (The project has not yet been implemented.) In the case of the reported standards violations, the reservoir was recommended for the watch list rather than for Section 303(d) listing because Regional Board staff did not have access to the original data within the limited time available to formulate recommendations. Regarding Littlerock Reservoir's status as a water of the United States, an internet search indicates that the reservoir supports recreational boating to the extent that there is a speed limit. (For example, see http://www.wrightwood.homestead.com/pg8_fishingAreas.html.) The reservoir can, therefore, be considered navigable and a water of the U.S. Also see the discussion of waters of the U.S. under the "General Issues" heading above.

Comment: LACSD also expressed concern about Section 303(d) assessments based on the application of beneficial uses and water quality objectives from "blanket" categories to specific waterbodies and urged the Board to "pursue refinements of beneficial uses and

water quality objectives based on the presence of effluent-dominated waters (EDW), site specific objectives or other site specific conditions."

Response: Ideally, all water bodies should have site-specific standards. However, due to resource constraints and the large number of water bodies in the Lahontan Region, it is likely that "blanket" beneficial use designations and narrative water quality objectives will continue to apply to many waters. Lahontan Regional Board staff are currently attempting to address LACSD's concerns with respect to effluent dominated waters within its jurisdiction by drafting Basin Plan amendments to define site-specific beneficial uses for Paiute Ponds. Also see the discussion of priority setting for standards changes in the "General Issues" section above.

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APPENDIX

Copies of Separate Written Responses

(See Table 1)

From: Judith Unsicker
To: "Stanley_Wiemeyer@r1.fws.gov".mime.Internet
Date: Thu, Dec 6, 2001 8:59 AM
Subject: Re: Water body fact sheets - Walker River

Thanks for your email. I have responded to some of your questions below in bold type, and I am copying this response to Alan Miller, the chief of our Carson/Walker Watersheds Unit, with the hope that he and his staff can answer the others or amplify on my responses. We would appreciate a copy of your report when it is available.

On mercury in general, the Toxic Substances Monitoring Program has found high mercury levels in fish from several areas in the Lahontan Region with volcanic geology/soils but without significant known mining activity (e.g.,June Lake, Susan River). The California Department of Water Resources is monitoring mercury in water, sediment and tissue from Eagle Lake in Lassen County, and has found fairly high levels. The Eagle Lake watershed is relatively undisturbed, and I'm not aware of any significant mining history. The U.C. Davis Tahoe Research Group has documented increased mercury in sediment cores from Lake Tahoe since the mid 19th Century, probably from atmospheric deposition. Also possibly relevant is a recent news item on a study of mercury volatilization in wildfires:

http://www.enn.com/direct/display-release.asp?id=5159

I have also come across an anecdotal report that early ornithologists in the Mono Basin shot birds with 22 shells filled with mercury so that the resulting "mist" would kill them without damaging their skins. See http://www.monobasinresearch.org/historical/interviews/mcphersonint.htm

and use your browser's "Edit >Find" feature to search for "mercury". I don't know how widespread this practice was, but it might account for some mercury loading to streams and riparian areas away from mines.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
Phone: (530) 542-5462
FAX: (530) 542-5470
Email: unsij@rb6s.swrcb.ca.gov

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>>> <Stanley_Wiemeyer@r1.fws.gov> 12/04/01 05:00PM >>>
I have reviewed the fact sheets for this basin because of our recent interest in possible mercury source areas in the basin related to past mining. This came about as the result of finding (by others) elevated concentrations of mercury in blood of common loons that use Walker Lake as a migratory stop over during both spring and fall. We have collected samples of macroinvertebrates and some fish from various sites throughout the Walker River basin, including sites in California, and have had the samples analyzed for total mercury. The field work was conducted primarily in the Fall of 2000. We will provide you with a copy of the report upon its completion. In the interim I have a few questions in relation to the fact sheets and other information you may be aware of for this basin.

1. In reviewing USGS topographic maps of the basin, I noted the presence of tailings along Dog Creek which flows into Virginia Creek, south of Bridgeport, CA. Do you have any information as to their source, including type of mining that may have been involved as well as when the mining may have occurred?

Placer gold was discovered at Dog Creek in 1857, and there was a settlement called Dogtown that lasted only a few years. The tailings are probably from a dredge mining operation in the 1930s. A Google Internet search for the keywords "Dogtown" and "Mono" will take you to several sites with additional historical information.

We found slightly elevated (above background) mercury concentrations in stonefly larvae and juvenile crayfish from Virginia Creek. We also found an even higher mercury concentration in a sample of stonefly larvae from Green Creek, south of Bridgeport. However, I saw little evidence of mining activity in Green Creek's watershed from examination of topographic maps. Are you aware of any mining inputs into this watershed?

I'm not aware of anything specific- there may have been small scale prospecting that didn't result in mines large enough to show on a topo map.

2. Do you have additional information on the Superfund site on Aurora Canyon Creek where you indicated that a mercury ore mill was present. Is active cleanup ongoing at this site or is it just on the CERCLA list and not an active Superfund site? Who in EPA is the project manager for this site if it is active? **As far as I know it is an inactive site; the report I cited was the latest detailed information in our files. The Regional Board's watershed unit may have more information. I can send you a copy of the report if you wish.**

3. I was aware of the mining activity in the Bodie area, the Aurora area to the east of Bodie in Nevada, mining on the east side of the Sweetwater Range, and also the Masonic Gulch area (to the east or NW of Bridgeport). Do you have information on mining in any other areas of the basin, especially where mercury may have been involved, either involving its use in precious metal recovery (as was the case in the Carson River basin in Nevada during the 1860s to 1900) or in mercury mining?

Around 1998 Toiyabe National Forest conducted a survey of inactive mines in the upper Carson and Walker River watersheds in California to identify potential acid mine drainage problems. Maureen Joplin of the USFS was the contact person. I believe that she is now with their Reno headquarters office. There may be additional information in some of the mineral resources publications of the California Division of Mines and Geology; see:

http://www.consrv.ca.gov/dmg/pubs/pub_idx/mno.htm

USGS has also collected water and sediment samples in relation to the concern regarding mercury source areas in the Walker River basin. Many of their sampling sites correspond with those where we collected biota. Their field work was conducted in both 2000 and 2001. EPA REMAP also collected water and sediment throughout the basin in the fall of 2000 for various metal and trace element analyses.

Is Toxic Substance Monitoring Program data available on the web? How recent have samples been collected in the Walker River Basin? I noted the mercury results for fish from the Bridgeport area for samples collected in the 1980s in the fact sheet. Have there been more recent collections? If so, how can I obtain access to the data?

There have been a few more recent TSMP samples in this area.
In addition to the East Walker River, we have had sampling done at Twin Lakes, Virginia Creek, Dog Creek, Robinson Creek, and Bodie Creek. All had "elevated" levels of one or more metals; I don't remember whether mercury was analyzed in all of them. There were also elevated metals in trout from Slinkard Creek in the West Walker River watershed; there is a large inactive mine on the

saddle between the Slinkard Creek and Mill Creek watersheds.

Here is the address for TSMP results through 1996. They are in Lotus or dBase format but can be opened in Excel.

http://www.swrcb.ca.gov/programs/smw/index.html

These are statewide files; they are very large and it's time consuming to find the Lahontan Region data. (Identification numbers for our sites start with "6"). You might want to call the database administrator, Del Rasmussen of the California State Water Resources Control Board, at (916) 341-5545 to see whether he can provide you with a file or printout of data (through 2000) for the Walker River watershed only.

Thanks for your help. I look forward to hearing from you.

Stan Wiemeyer
Resource Contaminants Specialist
U.S. Fish and Wildlife Service
Nevada Fish and Wildlife Office
1340 Financial Blvd., Ste. 234
Reno, NV 89502-7147
Phone: (775) 861-6326
stanley_wiemeyer@fws.gov

CC: Curtis, Chuck; Miller, Alan; Suk, Thomas

From: Judith Unsicker
To: "Sean_Penders@dot.ca.gov".mime.Internet
Date: Wed, Dec 12, 2001 2:05 PM
Subject: Re: TMDL's

Thank you for your comments. I have responded to specific questions and comments in bold type within the text of your comments below. Copies of your comments and this response will be placed in the administrative record of the Section 303(d) list update process.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

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>>> <Sean_Penders@dot.ca.gov> 12/11/01 11:03AM >>>

Ms. Unsicker,

I received the Notice of Availability of and Request for Comments on Draft Recommendations for Changes in Lahontan Region's Section 303-D list. In regards to the Lake Tahoe HU 634.00, many of the tributary streams are listed for Iron. The Comments line mentions the standard needs revision. I hope this means that Iron will be removed from the list of impairments because most of the iron is generated from background sources and the levels do not cause impairment to any beneficial uses. In fact many of the possible stormwater treatment BMP's use Iron media to remove phosphorous. It would be very helpful to the regulated community if Iron was removed from the list 303-D pollutant list, because it would allow the use of Iron media as one possible stormwater treatment device.

A number of water bodies in the Lake Tahoe watershed are proposed to be listed for iron because the current water quality objectives are consistently being violated. The iron is believed to come largely from natural sources, since violations occur even in General Creek, with a relatively undisturbed watershed. Once the iron standards are revised, it should be possible to remove these waters from the Section 303(d) list.

I am also curious on the listing of pathogens in some of the streams in the Lake Tahoe Unit and I am wondering if the sources have been identified and if so are they naturally occurring pathogens?

As indicated in the water body fact sheets for these waters, monitoring by Regional Board and U. S. Forest Service staff shows the highest bacteria numbers at times when livestock grazing occurs. (Most sites involve cattle grazing; Tallac Creek is affected by horses and mules.) Human backcountry users or transients, dogs, pack animals, and wildlife are possible sources of the bacteria observed in much lower numbers when intensive grazing is not a factor.

In some of the Northern Units (Surprise Valley, Susanville), why are water bodies with naturally occurring pollutants listed at all? and some of these have TMDL end dates, which does not seem logical?

State and federal guidance for listing has varied over time since the Regional Boards first became involved in the listing process in the 1980s. At one time, listing was mandated for all water

bodies where violations of standards occurred, even if the sources were entirely natural. During this list update cycle, Regional Board staff's position is that, because the Clean Water Act defines "pollutants" in terms of human sources, previously listed "naturally impaired" waters can be delisted. (See the staff report on the Regional Board's webpage at <http://www.swrcb.ca.gov/rwqcb6> for additional discussion.)

Honey Lake and several associated water bodies in Lassen County are impaired largely by natural sources of salts and trace elements. However, the situation is complicated because these waters are also affected by discharges from geothermal power plants. We are recommending that they continue to be listed with tentative TMDL end dates, pending further study.

Thanks, Sean Penders
Caltrans Dist 3, NPDES

From: Judith Unsicker
To: "tenney@qnet.com".mime.Internet
Date: Fri, Dec 14, 2001 12:21 PM
Subject: 1) query re: impaired waters / 2) PLEASE FORWARD - mailing list update

Thank you for your email. Our mailing list will be updated as you requested.

Total Maximum Daily Loads (TMDLs) are a complex subject. Basically, they are strategies required by the Clean Water Act to ensure the attainment of water quality standards in significantly impaired surface waters. The most important components of a TMDL involve: (1) calculating the amount of existing pollutant loading from all point and nonpoint sources; (2) determining the maximum amount of pollutant loading which can be permitted if standards are to be attained; (3) dividing the allowable maximum load among all sources, with a margin of safety to account for uncertainty in the analysis; and (4) providing "reasonable assurance" that existing pollutant loads will be reduced over time to ensure attainment of standards. Federal regulations do not currently require TMDL implementation plans, but California law requires that they be included in Regional Board TMDLs. These plans summarize control actions and schedules, and include monitoring programs.

More detailed background information on TMDLs is available on the California State Water Resources Control Board's webpage at:

http://www.swrcb.ca.gov/tmdl/tmdl.html

In particular, see the "Background" and "Total Maximum Daily Loads Questions and Answers" links.

The links to Lahontan Region TMDL documents on the State Water Board's "TMDL Documents" page are currently not functioning. You can view the November 2000 drafts of two of our "in progress" TMDLs on the Regional Board's webpage at:

http://www.swrcb.ca.gov/rwqcb6/files/BPA2000.pdf

The Heavenly Valley Creek TMDL has been approved by the Lahontan Regional Board and State Water Resources Control Board (with several changes from the November 2000 draft) and is awaiting final approvals from other agencies. Regional Board consideration of the Indian Creek Reservoir TMDL was postponed due to lack of a quorum. This TMDL may come before the Board in 2002.

Please contact me if you have further questions.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
FAX: (530) 542-5470
Email: unsij@rb6s.swrcb.ca.gov

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>>> "Elizabeth Tenney" <tenney@qnet.com> 12/12/01 06:33PM >>>
Dear Ms. Unsicker:

1) We have received the Draft Recommendations for Changes in Lahontan Region's Section 303(D) List. Could you please tell us what TMDL refers to? Not knowing that makes the list of recommendations difficult to interpret.

2) Would you also please forward this message to your mailing list person? Our Board of Directors voted in November to change our name from P.E.S.T.E.R. (Preserving the Eastern Sierra Tradition of Environmental Responsibility) to ESAN (Eastern Sierra Advocates Network). Please update your records as follows:

ESAN
PO Box 3511
Mammoth Lakes, CA 93546-3511
Ph/FAX: 760-924-8475
Web: www.easternsierraadvocates.org
Email: et@easternsierraadvocates.org
or tenney@qnet.com

The Website is under construction. The new email address will be activated shortly.

Thank you.

Elizabeth Tenney

CC: Chuck Curtis

From: Judith Unsicker
To: "dsenesac@cisco.com".mime.Internet
Date: Mon, Dec 17, 2001 11:35 AM
Subject: Re: public comments for Clean Water Act

Thank you for your comments, recommending Section 303(d) listing for the headwaters of Silver Creek in the Carson River watershed, due to the impacts of cattle grazing on water quality and riparian habitat. I have forwarded your message to Alan Miller, the head of the Lahontan Regional Board's Carson/Walker Watersheds Unit, and to Thomas Suk, the coordinator of the Regional Board's monitoring programs. Your message will also be sent to California State Water Resources Control Board staff for consideration in the statewide Section 303(d) list update.

Whether or not TMDLs are developed, the Lahontan Regional Board has the authority and responsibility to ensure that Best Management Practices to control the impacts of livestock grazing in the Carson River watershed are implemented under the statewide California Nonpoint Source Management Plan. Regional Board staff are also working with U.S. Forest Service staff and other stakeholders in a Carson River watershed planning effort, the "Watershed Management Initiative".

During this Section 303(d) list update cycle, we are recommending listing only on the basis of quantitative data showing violations of water quality standards, such as chemical/physical monitoring, fecal coliform bacteria monitoring, invertebrate biomonitoring, or scientific indices of riparian/wetland impairment (e.g., the "Properly Functioning Condition" method). Listing is recommended for a number of waters affected by livestock grazing (in the Lake Tahoe, Carson River, and Walker River watersheds) on the basis of such data. Unfortunately, we do not currently have equivalent data for the upper Silver Creek watershed. If additional data become available before the next Section 303(d) list update cycle in 2004, Regional Board staff will consider recommending listing at that time. Meanwhile, our watershed staff will continue to investigate and deal with the water quality impacts of livestock grazing under the nonpoint source plan and Carson River Watershed Management Initiative.

Please contact me if you have any questions about the Regional Board's water quality assessment program.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

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>>> David Senesac <dsenesac@cisco.com> 12/12/01 02:41PM >>>
Lahontan Regional Water Quality Control Board
Judith Unsicker,

Hello,

I have a few comments per the public comments for the federal Clean Water Act under Section 303(d) as shown on your web site. After looking at the current list I noticed an area I am concerned about which is not so
included. My concern is with some of the headwater areas of Silver Creek
which probably have water that has been measured as clean but which has grazing which is degrading the

area and which will eventually end up
effecting water quality. Currently cattle are allowed to graze the
headwaters of Silver Creek. This includes Raymond Meadows Creek, Eagle Creek, Pennsylvania Creek, and Silver Creek itself. Each summer cattle are allowed to range freely in this Mokelumne Wilderness zone which does not have fences and they trample wet riparian zones next to streams and in meadows, particularly Raymond Meadow. And of course they being the animals they are, pollute the streams where ever they stand. Now my reason for bringing up this particularly area versus the many other lower national forest areas where they also graze is that it is an absolutely spectacular scenic treasure though little known. For example the volcanic formations of Eagle Ridge. Additionally there are areas of considerable wildflower displays and the trampling hooves of cattle make an absolute ruined mess of some of them. Some of the streams contain trout.

I would like to see grazing eliminated from both sides of the Sierra Crest
in that area and realize it is a Toyabe National Forest Issue and not one
involving your agency. However I am bringing this up as impacts to water
quality in these streams is in fact impacted by grazing. If cattle people
wish to graze their live stock in lower areas that is fine with me but they
ought to prevent cattle from entering these higher areas whether that might require fencing or whatever.
-David Senesac davesenesac@msn.com (408) 8666094

CC: Alan Miller; Chuck Curtis; Thomas Suk

From: Judith Unsicker
To: "sburak@qnet.com".mime.Internet
Date: Wed, Dec 19, 2001 9:38 AM
Subject: Re: TMDL for Mammoth Creek

Thank you for your email. You requested information on how Mammoth Creek can be made part of the Total Maximum Daily Loads (TMDL) program.

To be made part of the TMDL program, a water body must first be placed on the Clean Water Act Section 303(d) list of impaired water bodies. Mammoth Creek is already on the Section 303(d) list for metals, with TMDL development tentatively scheduled between 2005 and 2008. If there is evidence to show that the turbidity standard for Mammoth Creek is being violated, the Creek could also be listed for turbidity, with TMDL development scheduled at a later date. (Because of resource constraints and a backlog of waters needing TMDLs, TMDL development for water body-pollutant combinations added to the Lahontan Region's Section 303(d) list in 2002 will probably not begin until after 2011.) Because turbidity units are not concentration units, it would be difficult to calculate loads for turbidity per se. The TMDL would probably need to be developed for suspended sediment concentration or some other sediment- related parameter.

The applicable water quality objective for turbidity in Mammoth Creek is the regionwide narrative objective, as follows:

"Waters shall be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity shall not exceed natural levels by more than 10 percent".

To assess compliance with this objective, it would be necessary to collect enough monitoring data at a reference station to define natural turbidity levels (including seasonal and annual variations) and/or reference aquatic life conditions (e.g., benthic invertebrate, periphyton and fish communities) for Mammoth Creek. The Regional Board is sponsoring a study of eastern Sierra benthic invertebrate communities by Dr. David Herbst of the University of California to define reference conditions and aid the development of "biocriteria" water quality standards that define desirable aquatic life conditions, but it will be several years until we can consider adopting such standards. Very high turbidity could affect other beneficial uses, including the drinking water use and the "aesthetic enjoyment" component of the Non-Contact Water Recreation use.

Your email references large increases in turbidity over background levels during storm events. Such variation can occur naturally. In order to separate the impacts of natural stormwater runoff from those of stormwater from disturbed areas, it would be desirable to collect samples above and below disturbed areas during the same storm event.

As part of the Lahontan Regional Board's Surface Water Ambient Monitoring Program (SWAMP), the U.S. Geological Survey is sampling suspended sediment and turbidity quarterly at two stations above and below the town of Mammoth Lakes (Twin Lakes and Highway 395). You may want to coordinate your proposed in-depth turbidity study with the SWAMP program. The Regional Board's regionwide monitoring/SWAMP coordinator is Tom Suk; his telephone number is (530) 542-5419, and his email address is Sukt@rb6s.swrcb.ca.gov .

Please contact me if you have further questions about the Regional Board's Section 303(d) list update process. I will be on vacation from December 20-January 1, and will be back at work on January 2.

Judith Unsicker
Staff Environmental Scientist
Lahontan RWQCB
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96158
Phone: (530) 542-5462

Email: unsij@rb6s.swrcb.ca.gov

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>>> "Sue Burak" <sburak@qnet.com> 12/15/01 12:34PM >>>
Hello Judith;
I am in charge of the citizen's water quality monitoring group in Mammoth Lakes. I am thinking of applying for some grant money to do an in depth study of turbidity in Mammoth Creek. Our WQ monitoring shows turbidity levels spike to 10-24 times background levels whenever there is a summer rainstorm event, or as happened over Thanksgiving, a rain on snow event. I am very interested in learning about what is required to get Mammoth Creek into the TMDL program.

Thank you very much,
Sue burak

Sue Burak
Snow Survey Associates
P.O. Box 8544
Mammoth Lakes, CA 93546
760.934.1707

CC: Chuck Curtis; Cindi Mitton; Thomas Suk

From: Judith Unsicker
To: dcron@applevalley.org
Date: Wed, Dec 19, 2001 12:57 PM
Subject: Your Request for Time Extension on Section 303(d) Comments

Jay Cass of the Regional Board's Victorville office has forwarded your request to me. We cannot postpone consideration of Regional Board action on the recommendations for update of the Section 303(d) list to our February meeting because of the schedule set by California State Water Resources Control Board staff. The Regional Board's action is only advisory, and State Water Board action on a statewide Section 303(d) list is currently planned for early 2002. There will be a separate public participation process for the State Water Board's action, and you will have the opportunity to submit written comments then. The contact person for the list update process at the State Board is Diane Beaulaurier, at (916) 341-5549.

I will be attending a meeting this afternoon and will be on vacation from December 20 until January 1. Please contact me on or after January 2 if you have further questions about our list update recommendations or the listing process.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

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CC: Chuck Curtis; Diane Beaulaurier; Jehiel Cass

California Regional Water Quality Control Board
Lahontan Region

Vinston H. Hickox
Secretary for
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[illegible]ion

Internet Address: http://www.swrcb.ca.gov/rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

December 20, 2001

Logan Olds, General Manager
Susanville Consolidated Sanitary District
P.O. Box 152
Susanville, CA 96130

RESPONSE TO COMMENTS ON DRAFT RECOMMENDATIONS FOR LAHONTAN SECTION 303(D) LIST

Thank you for your letter of December 6, 2001, mentioning the availability of bioassay data for Jensen Slough for possible use in a Total Maximum Daily Load (TMDL) for the Susan River. The Susan River is one of many water bodies recommended for high priority ranking. However, the Regional Board's schedule for development of TMDLs depends on the availability of staff and contract resources. Work on the Susan River TMDL is tentatively planned to begin in 2004. Your letter will be placed in our files for future reference, and Regional Board staff will contact your office to obtain the latest bioassay data once TMDL development begins.

Please contact me at (530) 542-5462 or unsij@rb6s.swrcb.ca.gov, if you have any questions on the Lahontan Regional Board's Section 303(d) list recommendations or the list update process.

Sincerely,

Judith Unsicker
Staff Environmental Scientist

JEU/cgT: 303d/scsdresp

From: Jehiel Cass
To: "norm.tc@gte.net".nonmime.Internet
Date: 12/30/01 4:20PM
Subject: Re: Mojave River 303(d) Possible Listing

Norm - I have been on vacation and will return to the office on January 2, 2002. Very good questions. I will give a brief answer in bold, below. Jay

****

Jehiel (Jay) Cass
CA Regional Water Quality Control Board
15428 Civic Dr. Ste 100
Victorville CA 92392
phone (760) 241-2434
fax (760) 241-7308
email jcass@rb6v.swrcb.ca.gov
****

>>> norm.tc@gte.net 12/26/01 11:06AM >>>
From: Norm Caouette <norm.tc@gte.net>
Subject: 303(d) Listing Questions
Cc: unsij@rb6s.swrcb.ca.gov;, kirbyb@mojavewater.org
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Hello Jay and Hisam:

I attempted to contact Judith Unsicker as recommended on the Board's web page regarding the recommended 303(d) listings, but according to her voice mail she is out of the office until January 2, which is after the December 28 deadline to respond. I have a couple of questions and a request regarding the proposed listing of the Mojave River from the Upper to Lower Narrows.

1. What are the practical implications to the Mojave Water Agency of listing the Upper to Lower Narrows for TDS, Chlorides and Sulfates, particularly since the recommendations identify imported State Water Project water as a source for each of these constituents. Will this prohibit or place limits upon recharge with State Project Water upstream of or within the Narrows?

Listing a water body on the Clean Water Act's Section 303(d) list is required if State Water Quality Standards are being violated. Listing alone will have no immediate impact but will begin a series of actions to determine what the probable causes are and development of a Total Maximum Daily Load or TMDL. One component of the TMDL is an Implementation Plant to assess a load reduction plan between Point sources, Non-Point sources, Natural sources, and a Safety Factor to restore the Water Quality Standards. It may also trigger a review of the standards in question. Staff here have appreciated the stakeholder support during the Mojave Watershed data collection program. So - the long term results range between the two extremes of 1) the water body is delisted and 2) a very stringent implementation plant to restore the water body. PS - the recent Daily Press article illustrates that the reduced flow between the narrows may be reflected in the data we have.

2. The staff report indicates that the "Update of the Section 303(d) list is not a regulatory or policy action, but an administrative procedure to prioritize water bodies for action." The staff report identifies the "TMDL

End Date" as "After 2015" which is footnoted to explain that TMDL end dates are the estimated years for Regional Board adoption of Basin Plan amendments incorporating TMDLs. Should I interpret this to mean that whatever the practical implications of the listing, they will not be in effect until sometime after 2015, or are there interim implications by virtue of being listed?

We need to verify this with Judith, but the answer is there would be no real implications for some time. I believe the listing is appropriate if 1) the data support it and 2) the listing criteria are met. This will drive the debate on issues because as you know the Mojave River system is under a great deal of stress. Staff would not be working on this for some time and have a long list of TMDLs to go through first.

3. One of the data references identified as supporting the listing includes "Maxwell, C.R., A Watershed Management Approach to Assessment of Water Quality and Development of Revised Water Quality Standards for the Ground Waters of the Mojave River Floodplain. Paper presented at the National Water Quality Monitoring Council Conferences, April 25-27, 2000, Austin TX." We do not have that document available to us and would appreciate a copy sent to the MWA.

I have not seen this paper either so I would have to defer to Judith if she has a copy.

Please note that this inquiry is not in-lieu of an Agency comment letter to the Regional Board, which will be transmitted by 12/28.

Thank you for your assistance.

Norm Caouette

CC: Baqai, Hisam; Unsicker, Judith

From: Judith Unsicker
To: norm.tc@gte.net
Date: Thu, Jan 17, 2002 2:43 PM
Subject: Chris Maxwell's Mojave River Paper

In your December 26 , 2001 email to Jehiel Cass of the Lahontan Regional Board's Victorville office, you requested a copy of a paper cited in our Mojave River waterbody fact sheets, by former Regional Board staffer Chris Maxwell.

The paper, from the 2000 National Water Quality Monitoring Council conference proceedings, is available online at:

http://www.nwqmc.org/2000proceeding/papers/pap_maxwell.pdf

I believe that there is an underline between "pap" and "maxwell." If you want a paper copy, please let me know and I will have one sent to you.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

CC: Chuck Curtis; Jehiel Cass

From: Judith Unsicker
To: Deirdreflynn@innercite.com
Date: 1/22/02 9:40AM
Subject: Re: Polluted River Status

Dear Ms. Flynn:

Thank you for your emails. Your email of January 9 was noted in staff's presentation at the Lahontan Regional Board's Wednesday, January 9, 2002 meeting, and will be made part of the administrative record of the Board's action. (The Board voted in support of staff's draft recommendations except for changes in proposed Section 303(d) listings for the Mojave River.)

The Lahontan Regional Board's action was only advisory; the final decision on statewide recommendations to the U.S. Environmental Protection Agency regarding Section 303(d) listing will be made by the California State Water Resources Control Board later this year. The State Water Board will provide further opportunities for public comments. If you wish to send me a mailing address, I will see that you are added to the State Board' s mailing list for this item. I am also preparing a "response to comments" document to address all written public comments received during the Regional Board's public review period, for inclusion in the administrative records of the Regional and State Board actions. A copy of the response document will be sent to you if you provide an address.

Your January 9 email requests information about the notification process for the Lahontan Regional Board's Section 303(d) list update. In March 2001, Regional Board staff mailed letters on the pending list update process to several of the Board's large mailing lists (water quality assessment, basin planning, and agenda announcement lists), probably about 1,200 addresses. The March 2001 mailing included a form to be returned to be placed on a focused mailing list for the Section 303(d) list update. The letter about the list update process was published in newspapers throughout the Lahontan Region and made available on the Internet. A press release was also sent to the media.

Regional Board staff reviewed information provided by the public in response to the March 2001 solicitation process, and information available in-house, including the data collected in the Regional Board/U.S. Forest Service cooperative monitoring program for fecal coliform bacteria in Lake Tahoe Basin streams. These data were used to formulate draft recommendations for changes in the Section 303(d) list of polluted waters. The availability of draft recommendations for listing of specific waters was noticed to the focused mailing list in November 2001, and another press release was sent to newspapers and other media serving the Lahontan Region.

For more information on the technical rationale for the Regional Board's recommendations regarding Section 303(d) listing of Lake Tahoe Basin streams, please see the online staff report and "Water Body Fact Sheets" at <http://www.swrcb.ca.gov/rwqcb6>. The November 27, 2001 "News" link in the center of the page will take you to an index page with further links to different documents, including a group of fact sheets for the Lake Tahoe watershed. The fact sheets for listings related to "pathogens" include summaries of applicable water quality standards and monitoring data for fecal coliform bacteria. The discussions of potential sources recognize that livestock are not necessarily the only sources of bacteria in the streams, and that recreational users of the watershed and wildlife may be involved. I will have paper copies of the staff report and Lake Tahoe Basin fact sheets sent to you if you wish.

In general, Regional Board staff proposed listing for waters with sufficient data, collected with good Quality Assurance/Quality Control procedures, to show that water quality standards are being violated. The listing process does not require a detailed analysis of sources; rather, source analysis is part of the Total Maximum Daily Load development process.

Please contact me if you have further questions on the listing process.
Dr. Bruce Warden (telephone 530 542 5416, email BWarden@rb6s.swrcb.ca.gov) is the Regional Board's contact person for fecal coliform bacteria monitoring in the Lake Tahoe Basin.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
Email: unsij@rb6s.swrcb.ca.gov

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web site at http://www.swrcb.ca.gov

>>> deirdreflynn <deirdreflynn@innercite.com> 01/09/02 03:49PM >>>
Judith Unsikcer - I am deeply distressed at the article I just read in the December 14th Capitol Press regarding Polluted River Status in the Lake Tahoe Basin. Once again our cattle are blamed solely for the alleged contamination of waters in Big Meadow Creek. It is disturbing that in the article no mention was given to data showing that fecal coliform levels were as high if not higher on the Big Meadow range without cattle, and that no mention is given to the other potential users of the area (recreation, etc.) are we being targeted again and discriminated against again? Why were the permitees not invited to comment on the proposed listing when you yourself say the "It's more likely to impact ranchers..." ? I would appreciate your comments and sincerely hope that the decision made today and tomorrow will not eliminate the grazing of livestock on the Meiss Meadow Allotment (considering that in 2001 there were again zero cattle on the Big Meadow Creek). As a 4th generation producer I dread having to explain to my nephews why we no longer take cattle to the Sierra Nevada Mountains.

Respectfully,
Deirdre E. Flynn
916-425-3815

From: Judith Unsicker
To: "egrimly@lycos.com".mime.Internet
Date: 1/31/02 12:47PM
Subject: Re: Hawiee Reservoir-Section 303(d) List

Thank you for your email. It will be transmitted to State Water Resources Control Board (State Board) staff for their consideration in formulation of recommendations for a statewide Section 303(d) list. The Regional Board's Total Maximum Daily Load (TMDL) unit is aware of Dr. Hering's research, summarized in the online report that you referenced.

The Lahontan Regional Water Quality Control Board (Regional Board) has already acted (on January 9, 2002) on recommendations to the State Board for update of the Section 303(d) list. The Regional Board approved the November 2001 staff recommendations posted on our webpage (<www.swrcb.ca.gov/rwqcb6>), with the exception of proposed new listings for the Mojave River.

The Section 303(d) listing process applies only to surface waters, and there is some debate as to whether sediment pore water should be considered surface or ground water. The State Board is developing formal policy language on listing/delisting criteria for the next (2004) Section 303(d) list update cycle. If that policy includes direction that pore water should be considered surface water for purposes of listing, Regional Board staff will evaluate the latest data and consider whether to recommend that Haiwee Reservoir be listed for arsenic in 2004.

I am preparing a "response to comments" document for inclusion in the Regional Board's administrative record for this year's Section 303(d) list update. If you would like a copy, please send me a mailing address. I can also have you placed on the State Board's mailing list for its 2002 list update action if you wish.

Please note my new email address below, effective January 30, 2002.

Judith Unsicker
Staff Environmental Scientist
Lahontan Regional Water Quality Control Board
2501 Lake Tahoe Boulevard
South Lake Tahoe CA 96150
Phone: (530) 542-5462
FAX: (530) 542-5470
Email: JUnsicker@rb6s.swrcb.ca.gov

>>> "Ed G Grimly" <egrimly@lycos.com> 01/24/02 02:10PM >>>
While the source of arsenic at Haiwee is natural, the high aresenic sediment concentration at Haiwee Reservoir is in part due to treatment by LADWP. Why isn't Table 1: Recommendations for Update of the Section 303(d) List for the Lahontan Region updated to include arsenic as a "Pollutant(s)/Stressor(s0 for Haiwee Reservoir?

Link to article on arsenic
http://es.epa.gov/ncer/final/grants/97/sediment/hering.html

CC: Chuck Curtis; Diane Beaulaurier

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MAILING LIST FOR FEBRUARY 2002 SECTION 303(D) RESPONSE TO COMMENTS DOCUMENT

DIANE BEAULAURIER
DIV. WATER QUALITY, SWRCB
1001 I STREET
SACRAMENTO CA 95814

DEBRA DENTON
c/o DIV. WATER QUALITY, SWRCB
1001 I STREET
SACRAMENTO CA 94814

RAYMOND C. MILLER
SCAP
30200 RANCHO VIEJO RD, STE B
SAN JUAN CAPISTRAN0 CA 92675

STAN WIEMEYER
USFWS
1340 FINANCIAL BLVD, STE 234
RENO NV 89502-7147

LOGAN OLDS
SUSANVILLE CSD
P.O. BOX 152
SUSANVILLE CA 96130

SEAN PENDERS
CALTRANS DIST 3
P.O. BOX 911
MARYSVILLE CA 95901

SUE BURAK
SNOW SURVEY ASSOCIATES
P.O. BOX 8544
MAMMOTH LAKES CA 93546

MATT BROWN
SURPRISE VALLEY RCD
P.O. BOX B
CEDARVILLE CA 96104

LARRY TROWSDALE
IMC CHEMICALS, INC
P.O. BOX 367
TRONA CA 93592-0367

DENNIS CRON
TOWN OF APPLE VALLEY
P.O. BOX 429
APPLE VALLEY CA 92307

ELIZABETH TENNEY
ESAN
P.O. BOX 3511
MAMMOTH LAKES CA 93546-3511

ALPINE CO BD OF SUPERVISORS
P.O. BOX 387
MARKLEEVILLE CA 96120

MIKE PODEGRACZ
CITY OF HESPERIA
15776 MAIN STREET
HESPERIA CA 92345

EDWIN D. JAMES
CARSON WATER SUBCONSERVANCY DIST
777 E. WILLIAM ST., STE 110A
CARSON CITY NV 89701

S. DAVID HOTCHKISS
LADWP, LEGAL DIVISION
P.O. BOX 51111
LOS ANGELES CA 90051-0100

JAMES H. SWINEHART
P.O. BOX 431
CEDARVILLE CA 96104

KIRBY BRILL
MOJAVE WATER AGENCY
P.O. BOX 1089
APPLE VALLEY CA 92307-0019

DANIEL P. GALLAGHER
VVWRA
20111 SHAY RD
VICTORVILLE CA 92394

RICHARD SOLBRIG
SOUTH TAHOE PUD
1275 MEADOW CREST DRIVE
SOUTH LAKE TAHOE CA 96150-7401

LARRY F. BENOIT
TRPA
P.O. BOX 1038
ZEPHYR COVE NV 89448-1038

VICTORIA O. CONWAY
LACSD
P.O. BOX 4998
WHITTIER CA 90607-4998

TERI CAWELTI
OWENS VALLEY INDIAN WATER COMMISSION
169 SHORT STREET, SUITE A
BISHOP CA 93514

RANDY PAHL
NEVADA DIV. ENVIRONMENTAL PROTECTION
333 W. NYE LANE
CARSON CITY NV 89706

DEIRDRE FLYNN
8861 WHISKEY SLIDE ROAD
MOUNTAIN RANCH CA 95246

SMK

OFFICE OF
CITY ATTORNEY
ROCKARD J. DELGADILLO
CITY ATTORNEY

PHILIP SHINER
CHIEF ASSISTANT CITY ATTORNEY
FOR WATER AND POWER

DEPARTMENT OF WATER AND POWER
LEGAL DIVISION
P.O. BOX 51111 • SUITE 340
LOS ANGELES, CALIFORNIA 90051-0100

TELEPHONE (213) 367-4500
FAX (213) 367-4588

February 4, 2002

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Harold Singer, Executive Director
California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150
VIA FACSIMILE: 530-544-2271

Re: January 9, 2002 Action Re. Haiwee Reservoir

Dear Mr. Singer:

I am interested in obtaining a copy of the Administrative Record relating to the Lahontan Board's action on January 9, 2002 to include Haiwee Reservoir on the state's List of Impaired Waters of the United States under Section 303(d) of the Clean Water Act. In addition, please send me a copy of the list of persons interested in this matter.

I received a telephone call from Susan Marie, of your office, yesterday. She advised me that the Resolution of the Board's action was being prepared and I should receive that in the mail in the next week. If there are any fees associated with the preparation or transmission of the documents, please advise me of the amount.

Thank you in advance for your cooperation. As soon as that document is available, please send me a copy through the U.S. mail or via facsimile. I can be reached at: jconboy@legal.ladwp.com. My mailing address is: 111 North Hope Street, Room 340, Post Office Box 51111, Los Angeles, CA 90051-0100.
If I can be of any assistance in clarifying the documents I seek, please do not hesitate to contact me at (213) 367-4591.

Sincerely,

JULIE A. CONBOY
Deputy City Attorney

#82494

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California Regional Water Quality Control Board
Lahontan Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.mscomm.com/~rwqcb6
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Gray Davis
Governor

DRAFT MINUTES

JANUARY 9-10, 2002

Regular Meeting

Lahontan Regional Water Quality Control Board
City of South Lake Tahoe, City Council Chambers
1900 Lake Tahoe Boulevard
South Lake Tahoe

Dr. Cooley, Chairperson, called the meeting to order at 4:14 p.m. on January 9, 2002. Roll call of Board members and staff introductions. All Board members present.

BOARD MEMBERS PRESENT	BOARD MEMBERS ABSENT
William Betterley, Hesperia	
John Brissenden, Hope Valley	
Jack Clarke, Apple Valley	
Beatrice Cooley, Ph.D., Bishop	None
Neil Eskind, Tahoe City	
Eugene B. Nebeker, Ph.D., Lancaster	
Claudette Roberts, Palmdale	
Eric Sandel, P.E., Truckee	

LEGAL COUNSEL

Lori Okun, State Water Resources Control Board

STAFF PRESENT

Harold J. Singer, Executive Officer
Robert S. Dodds, Assistant Executive Officer
Hisam Baqai, Supervising WRCE, South Lahontan Watersheds Division
Lauri Kemper, Supervising WRCE, North Lahontan Watersheds Division
Chuck Curtis, Supervising WRCE, Planning and Toxics Division
Lisa Dernbach, Senior Engineering Geologist, MTBE, UST Cleanups
Alan Miller, Senior WRCE, Carson/Walker Watershed Unit
Scott Ferguson, Senior WRCE, Northern Watersheds Unit
Eric Taxer, WRCE, Northern Watersheds Unit
Anne Sutherland, Engineering Geologist, TMDL Unit

Doug Smith, Associate Engineering Geologist,UST/DoD Unit
Chris Stetler, Senior WRCE, Leviathan Mine Unit
Bud Amorfini, Environmental Scientist, Carson Walker Watershed Unit
Jason Churchill, Environmental Scientist, Carson/Walker Watershed Unit
Robert Erlich, Environmental Scientist, Lake Tahoe Watershed Unit
Mary Fiore Wagner, Environmental Scientist, Lake Tahoe Watershed Unit
Robert Larsen, Environmental Scientist, Lake Tahoe Watershed Unit
Judith Unsicker, Staff Environmental Scientist, CEQA & TMDLs
Kara Russell, WRCE, Lake Tahoe Watershed Unit
Laurie Scribe, Environmental Scientist, Leviathan Mine Unit
Jeremy Sokulsky, WRCE, TMDL Unit
Bruce Warden, Environmental Scientist, Lake Tahoe Watershed Unit
Dave Roberts, Environmental Scientist, TMDL Unit
Marietta Christoffersen, Office Technican
Susan-Marie Hagen, Executive Assistant

ADDRESSING THE BOARD

Jeffory Scharff, Attorney
Kenn Rieders, Prosser Lakeview Estates, Truckee
Tom Dithridge, Department of Finance
Rebecca Bond, Public Works, Placer County
Dick Young, Lake Tahoe Hi-Lo's
Leonard Turnbeaugh, Public Works Director, Alpine County
Chris Gansberg, Board of Supervisors, Alpine County
Edwin James, Carson Water Subconservancy
Robert Baer, General Manager, So. Tahoe Public Utility District
Hal Bird, South Tahoe Public Utility District
Darlene Ruiz, Hunter Ruiz, IMC Chemicals
Julie Conboy, Department of Water and Power, City of Los Angeles
Lars Anderson, Lead Scientist, Exotic Weeds, USDA Agricultural. Research Service
Dan Sussman, League to Save Lake Tahoe
Jan Brisco, Sunnyside Marina
Jody Lonergan, Director, District 3, Caltrans
Dick Melim, Deputy Director, District 3, Caltrans
Mike Lambott, Malcolm Drilling
Terry Harvey, Malcolm Drilling
Tom Walbom, Granite Construction

Regular Meeting
4:00 p.m. January 9, 2002

1. **Executive Officer's Report** (Harold Singer)

Mr. Singer highlighted several items from the written report:

- Status of 2000-2001 Basin Plan Amendments
- Prosser Lakeview Estates Septic System Update (deferred to Public Forum section)
- Survey from the November 2001 Water Quality Coordinating Committee meeting
- Sampling in the Hinkley vicinity and nitrates related to a nearby dairy.
- Water Code Section 13269 and policies regarding waivers of discharge requirements and Assembly Bill 885 regarding septic systems and statewide guidelines.
- Basin Plan Amendments being considered by the State Water Resources Control Board (Robert Dodds)
- Mr. Singer handed out a news article from the Tahoe Daily Tribune (December 28, 2001) referring to a new well water treatment facility for treating water in South Lake Tahoe. The South Tahoe Public Utilities District will bring this well into operation in the spring of 2002.

The afternoon Board meeting session adjourned at 5:18 p.m.

Regular Meeting, Continued
to 7:20 p.m., January 9, 2002

Chair Dr.Cooley convened the evening Board meeting session at 7:20 p.m.. She introduced the Lahontan Board members and Mr. Arthur Baggett, Jr., Chairperson of the California Regional Water Quality Control Board. All Board members were present including: Mr. John Brissenden; Mr. Jack Clarke; Dr.Eugene Nebeker; Mr. Eric Sandel, and the three new Lahontan Board members: Mr. William Betterley; Mr. Neil Eskind; and Ms. Claudette Roberts.

Mr. Arthur Baggett Jr, addressed the Board and welcomed the new and returning Board members. He updated the Lahontan Board on the State Water Resources Control Board's budget, petitions, enforcement, and water quality and water rights issues.

Mr. Singer introduced the staff members present from the Lahontan Regional Board, and Ms. Lori Okun, representing the Lahontan Regional Board as legal counsel.

2. **PUBLIC FORUM**

Chair Dr.Cooley opened the Public Forum portion of the meeting.

Mr. Jeffory Scharff, attorney for Tahoe Tom's, deferred his comments at this time.

Mr. Kenn Rieders, private property owner in the Prosser Lake Estates subdivision,

Truckee area, addressed the Board on the progress of his work with Lahontan Board staff to address leach field and septic issues in his subdivision since he addressed the Board initially at the November14-15, 2001, Board meeting in Truckee.

3. **MINUTES**

The Minutes of the Regular Meeting of November 14-15, 2001, in Truckee were approved.

> **Motion:** Moved by Mr. Clarke, seconded by Mr. Sandel, **and unanimously carried** to adopt the November 14-15, 2001, Minutes as proposed.

ENFORCEMENT ACTION

4. ***Public Hearing* – Consideration of a Rescission of a Cease and Desist Order No. 6-94-20 Against Placer County for Discharging and Threatening to Discharge Waste (Earthen Materials) from the McKinney-Rubicon Springs Road to McKinney Creek in Violation of Basin Plan Prohibitions, Placer County**

Chair Dr. Cooley opened the Public Hearing and administered the oath.

Kara Russell, Lahontan Regional Board staff, gave the staff presentation explaining the history and background of discharges in the area. She gave the staff's recommendation that the Board rescind the Cease and Desist Order against Placer County.

Ms. Rebecca Bond, Associate Engineer, Placer County Department of Public Works, gave her presentation highlighting the history of Placer County's work on the road and the current efforts to implement a successful restoration project. She noted the formation of the "Friends of the Rubicon Trail" and the success of the Rubicon Trail Work Days.

Mr. Dick Young of the Lake Tahoe Hi-Lo's Club, addressed the Board citing his club's commitment to the ongoing maintenance, monitoring and preservation of the trail area. As an example, he noted signs along the road provided by the club advising users that it is a sensitive area and to keep all vehicles on the road. Mr. Young asked the Board to consider rescinding the Cease and Desist Order.

Mr. Singer and Lahontan Regional Board staff responded to questions from Board members. The Board commended the efforts of Placer County and the volunteer and user groups that have been working to restore and monitor the area.

There being no further comments or questions from the Board, Chair Dr. Cooley closed the hearing and called for a motion.

Motion: Moved by Mr. Clarke, seconded by Mr. Sandel, to approve the staff recommendation on Item # 4 to rescind the Cease and Desist Order against Placer County. A **Roll Call Vote** was taken. The Board **voted unanimously to rescind** the Order.

PLANS AND POLICIES

5. Recommendations to the State Water Resources Control Board for the Update of the Lahontan Region's Section 303(d) List and Priorities for Total Maximum Daily Loads

Chuck Curtis, Lahontan Regional Board staff, gave the staff presentation, noting the changes staff recommended to the proposed 303(d) list that was sent to the Board earlier with the staff report. He also distributed the following two letters and one email received after the close of the comment period: a letter from Board member Mr Betterley, a letter from the Sanitation Districts of Los Angeles County; and an email from Deirdre E. Flynn.

Mr. Curtis, Mr. Singer, and Mr. Baqai responded to comments and questions from Board members. Ms. Lori Okun commented on the issue of Waters of the United States.

Mr. Chris Gansberg, Alpine County Board of Supervisors, requested that the West Fork of the Carson River be put on the "Watch List" and not be included on the 303(d) List.

Mr.Leonard Turnbeaugh, Alpine County Director of Public Works and member of the Alpine County Resource Conservation District, addressed the Board with the same request as Mr. Gansberg.

Mr. Edward James, General Manager of the Carson Water Subconservancy District, addressed the Board and mentioned the lack of outside funding for data gathering if background sources of phosphate have not yet been identified. The groups he represents have offered to assist with funding if other local and regional agencies were ready to collaborate and work with each other along with the U.S. Geological Survey and the U.S. Environmental Protection Agency.

Mr. Hal Bird and Mr. Robert Baer, General Manager, of the South Tahoe Public Utilities District, also asked that the West Fork of the Carson River not be added to the 303(d) list. They also requested that, in the event that it is listed, that funding be considered a high priority.

Darlene Ruiz of Hunter-Ruiz Associates, representing IMC Chemicals, addressed the Board and asked that Searles be placed on the "4th list" under Section 148.27, Subsection A, in the Federal Regulations.

Julie Conboy, deputy attorney with the City of Los Angeles, Department of Water and Power, addressed the Board regarding Haiwee Reservoir, currently listed on the 303(d) list, and asked that it not be listed.

Chair Dr. Cooley called a short recess at 9:55 p.m. The Board meeting reconvened at 10:10 p.m.

Mr. Singer addressed procedural questions posed by the Board.

Mr. Curtis and staff recommended that the Board adopt a resolution:
1) accepting the proposed designations for the 303(d) list, including the late revision to the Proposed Recommended Table which removed the addition of the Mojave River from the attached list;
2) that the Mojave River be added to the "Watch List".

The Board discussed the possibility of adding language relating to the Waters of the United States. Staff and Ms. Okun responded to questions from the Board and the additional wording was dropped from consideration.

Chair Dr. Cooley asked the Board if there were any more questions and then called for a motion.

> **Motion:** Moved by Mr. Clarke, seconded by Mr. Sandel, to accept staff's recommendation for Item # 5 as amended and adopt a resolution recommending to the State Water Resources Control Board that it update the Lahontan Region's 303(d) List according to the revised recommendations in the Table, including the late revision to the Proposed Recommended Table, which removed the Mojave River from the updated 303(d) List. The Mojave River was added to the "Watch List".

The Board members considered the resolution. Chair Dr. Cooley said she would agree to accept, but with relunctance. Mr. Nebeker asked the Board to vote on the motion.

Chair Dr. Cooley called for a **voice vote**. The following Board members **voted in favor** of the motion: Mr. Brissenden: Mr. Clarke; Chair Dr. Cooley; Mr. Eskind; Dr. Nebeker; Ms. Roberts; Mr. Sandel. **Voting against** the motion: Mr. Betterley, who stated that he could agree to adopt all recommendations except the addition of the West Fork of the Carson River to the 303(d) list. Chair Dr. Cooley stated that the **motion carried** with one opposing vote.

STATUS REPORT

6. Status Report on Caltrans Lake Tahoe Environmental Improvement Program (EIP) Master Plan

Robert Erlich, Lahontan Regional Board staff, made brief introductory comments and highlighted background information on this item. He then introduced Dick Melim, Deputy Director, Caltrans, District 3.

Mr. Melim gave a presentation to the Board members, titled "A Progress Report on Caltrans' Environmental Improvement Program at Lake Tahoe", which addressed erosion and storm water

runoff issues in the Lake Tahoe Basin. He also introduced from her seat in the audience, Jody Lonergan, Director, District 3, Caltrans.

Mr. Singer commended Caltrans on changing its specification to acquire higher quality sand with lower phosphorus content for use as road sanding during snow events in the Tahoe Basin. Board members Mr. Clarke, Mr. Sandel and Mr. Brissenden concurred and applauded Caltrans for its efforts. Mr. Melim responded to questions from the Board. Mr. Brissenden asked that Mr. Singer forward this information to District 10, Caltrans, to use with its projects along the Carson River.

The evening Board meeting session adjourned at 10:55 p.m.

Regular Meeting, Continued to 8:30 a.m., January 10, 2002

Chair Dr. Cooley called the morning session of the Board meeting to order at 8:40 a.m. All Board members were present including: Mr. Betterley; Mr. Brissenden; Mr. Clarke; Dr. Cooley; Mr. Eskind Dr. Nebeker; Ms. Roberts; and Mr. Sandel.

OTHER BUSINESS

7. **Proposed Application of Aquatic Herbicides to Control the Invasive Weed, Eruasian Water-Milfoil, in Lake Tahoe – Consideration of a Notice of Exclusion Denying Coverage Under the Statewide Aquatic Pesticides General Permit to the Tahoe Keys Property Owner's Association (TKPOA)**

Mr. Singer introduced the issue of Aquatic Herbicides and Lake Tahoe, and directed the following question to the Board for consideration: "Is it appropriate to allow the use of herbicides in Lake Tahoe using the State Board's General NPDES Permit?"

Jason Churchill, Lahontan Regional Board staff, gave the staff presentation and background information on the aquatic plant, Eruasian watermilfoil, *myrlophyllum spicatum*. He addressed the history of the invasive weed and its current status in the waterways of the Tahoe Keys and other sites and marinas at Lake Tahoe, and described various management tools. Mr. Churchill explained the General NPDES Permit and Notice of Exclusion (NOE), and the Basin Plan Prohibitions.

Mr. Singer, and Ms. Okun answered questions from Board members.

Mr. Churchill introduced Dr. Lars Anderson, Lead Scientist with the Exotic & Invasive Weed Research Center, U.S.D.A. Agricultural Research Service, Weed Science Program at UC Davis.

Mr. Anderson gave a presentation on Eurasian watermilfoil and its potential water quality and ecological impacts. He described the concern caused by the spread of watermilfoil to numerous sites around Lake Tahoe. He noted similar problems in other parts of the nation. He stressed the

urgent need for eradication through the use of one or more management tools. Mr. Anderson mentioned that he had spoken to the Lahontan Regional Board five years earlier on this topic.

The Board asked Mr. Anderson if he could recommend an eradication and monitoring project for this invasive aquatic weed that would be effective in Lake Tahoe. He said that he could, but only for small scale use.

Ms. Jan Briscoe of Sunnyside Marina located on the west shore of Lake Tahoe, addressed the Board noting that the marina would be interested in being part of a pilot project at Lake Tahoe. She expressed concern about the watermilfoil infestation at Sunnyside Marina and urged that appropriate action being taken to control this weed where it exists in Lake Tahoe.

Mr. Dan Sussman of the League to Save Lake Tahoe, addressed the Board and shared the concerns of his organization with Board members in terms of overuse and potential toxicity from repeated applications of aquatic herbicides.

Mr. Singer and staff responded to questions from the Board. Mr. Singer stated his intent to issue a Notice of Exclusion to TKPOA and to use his discretion in responding to any future proposals unless directed otherwise by the Board.

Lauri Kemper mentioned that staff would be participating in the upcoming kickoff meeting for the Lake Tahoe Noxious Weed Coordinating Group, an inter-agency effort scheduled for January 16th. She noted that watermilfoil management would be on the agenda.

Regional Board staff will report to the Board on the progress of this issue at the February Board meeting.

Chair Dr. Cooley closed the discussion.

A short recess was called at 10:35 a.m. The Board meeting reconvened at 10:45 a.m.

ENFORCEMENT ACTION

11. ***Public Hearing*** **– Consideration of an Administrative Civil Liability (ACL) Order Against Pacific Bell Telephone Company for the Unauthorized Discharge of Earthen Materials to a Storm Water Conveyance and Thence to Lake Tahoe, El Dorado County, in Violation of Waste Discharge Requirements and Basin Plan Prohibitions**

Public Hearing of the ACL for Pacific Bell Telephone Company was waived and Item # 11 was removed from the agenda.

12. *Public Hearing* – **Consideration of an Administrative Civil Liability (ACL) Order for the California Department of Transportation, District 3, for Violation of Waste Discharge Prohibitions Prescribed in the Water Quality Control Plan for the Lahontan Region, Violation of State Water Resources Control Board Order No. 99-06-DWQ, and Violation of Waste Discharge Requirement Waiver Conditions for Discharge of Earthen Materials to Waters of the Truckee River Hydrologic Unit, on August 1, 2001, Interstate 80 Rehabilitation Boca/Floristan Project, Nevada County – WDID No. 6A03CT3A1U**

The complaint for Item # 12 was withdrawn from the agenda by Mr. Singer.

13. *Public Hearing* – **Consideration of an Administrative Civil Liability (ACL) Order for the California Department of Transportation, District 3, for Violation of Waste Discharge Prohibitions Prescribed in the Water Quality Control Plan for the Lahontan Region, Violation of State Water Resources Control Board Order No. 99-06-DWQ, and Violation of Waste Discharge Requirement Waiver Conditions, for Discharge of Earthen Materials to Waters of the Truckee River Hydrologic Unit, on August 2, 2001, Interstate 80 Rehabilitation Boca/Floristan Project, Nevada County – WDID No.6A03CT3A21U**

Chair Dr. Cooley opened the Public Hearing and administered the oath.

Eric Taxer, Lahontan Regional Board staff, made the staff presentation and recommendation that the ACL complaint amount be reduced from $10,000 to $4,000.

Ms. Jody Lonergan, Director, District 3, Caltrans, introduced herself and two other Caltrans project personnel in the audience: Mr. John Rodriguez, Deputy for Caltrans Project Construction; and Mr. John Hancock, Senior Resident Engineer for Caltrans. Ms. Lonergan began the presentation for her agency with some general comments on the three agenda items dealing with Caltrans: Items # 13, 14 and 15. She informed the Board that all complaints being heard today were related to a major construction project to rehabilitate eleven miles of highway and associated bridges on Interstate 80 from just east of Truckee to Floristan. Ms. Lonergan stated that the work is being performed under an $86 million-dollar, multi-year contract with Granite Construction Company. The contract between Caltrans and Granite Construction requires the project be built while adhering to all water quality permits. She noted that Caltrans may hold Granite Construction Company responsible for any fines imposed by the Board and wanted to provide its contractors and subcontractors with an opportunity to make presentations to the Board at this time.

Regarding Item # 13, Ms. Lonergan stated that Caltrans remains neutral on the Lahontan Regional Board staff's recommendation, but wanted to address and correct several facts as they are stated in the complaint. She said that these "facts" were related to the allegation that the subcontractor, Malcolm Drilling, had washed earthen materials off a drill casing

directly into the Truckee River on August 2, 2001. Ms. Lonergran included the following information: that Malcom Drilling staff were allegedly washing the drill casing over the diversion area, however if in fact any discharge had occurred to the Truckee River, it was restricted to a very small amount of overspray from that washing operation and did not include earthen materials. When Caltrans staff observed this activity, it was immediately stopped, and the activity was relocated to a more appropriate location.

Ms. Lonergan introduced Mr. Tom Walbom of Granite Construction, the major contractor for the I-80 highway rehabilitation project, and Mr. Mike Lambott and Mr. Terry Harvey of Malcolm Drilling, subcontractors with Granite Construction.

Mr. Mike Lambott, of Malcolm Drilling, next addressed the Board, stating that he was the Supervisor in charge of the drilling project that day. He disagreed with some of the details listed in the report of the incident. He contended that the alleged discharge problem was due to an optical illusion, evident from the distance and angle of the viewing location where the Caltrans inspector was standing on the other side of the Truckee River. Mr. Lambott presented the Board with some black and white photocopies of the scene.

Mr. Lambott and Regional Board staff responded to questions from Board members.

Chair Dr. Cooley closed the hearing and the Board discussed the incident. She called for a motion from the Board.

> **Motion**: Moved by Dr. Nebeker, seconded by Mr. Sandel, to reject the ACL Order against Caltrans regarding Item # 13. Chair Dr. Cooley called for a **Voice Vote**. The Board members **voted unanimously in favor** of the motion:

14. ***Public Hearing*** **– Consideration of an Administrative Civil Liability Order(ACL) for the California Department of Transportation District 3, for Violation of Waste Discharge Prohibitions Prescribed in the Water Quality Control Board Order No. 99-06-DWQ, Violation of Waste Discharge Requirement Waiver Conditions, for Discharge of Earthen Materials to Waters of the Truckee Hydrologic Unit, on July 10 and on September 12, 2001, Interstate 80 Rehabilitation Boca/Floriston Project, Nevada County – WDID No 6A03CT3A21U.**

Chair Dr. Cooley opened the hearing and administered the oath.

Eric Taxer, Lahontan Regional Board staff, made the staff presentation regarding discharges of sediment-laden stormwater into the Truckee River. The staff recommended that the Board adopt the ACL for Caltrans.

Ms. Lonergan disputed the second incidence listed in the complaint regarding discharge into the Truckee River. She again introduced Mr. Tom Walbom of Granite Construction. Mr. Walbom's presentation refuted the two discharge incidents noted in the ACL regarding the stockpiled earthen

materials. Mr. Walbom introduced Mr. Brian Roll, Caltrans engineer and manager for this project, who a presented a video showing the earthen stockpiles along the section of Interstate 80 currently under construction near Truckee.

Mr. Ferguson and Mr. Taxer responded to questions from the Board. Mr Ferguson displayed a photo show a storm event on that section of highway during construction and substantiating that Best Management Practices were not adequate for the storm event and were not to specifications. Mr. Ferguson summarized and answered questions from Board members.

Chair Dr. Cooley asked for any last comments. There were none and she closed the public hearing. The Board summarized its findings. Ms. Okun stated that the legal basis justifies the staff's recommendations.

Chair Dr. Cooley called for a motion.

> **Motion**: Moved by Mr. Brissenden, seconded by Mr. Sandel, to accept the staff recommendation on Item # 14 and adopt as proposed the ACL confirming the ACL Complaint.

Chair Dr. Cooley asked for a **voice vote**. The following Board members **voted in favor** of the motion: Mr. Betterley; Mr. Brissenden; Mr. Clarke; Chair Dr. Cooley; Mr. Eskind; Ms. Roberts; and Mr. Sandel. **Voted against**: Dr. Nebeker. **Motion carried** with one opposing vote.

15. ***Public Hearing*** **– Consideration of an Administrative Civil Liability (ACL) Order for the California Department of Transportation, District 3, for Violation of Waste Discharge Prohibitions Prescribed in the Water Quality Control Plan for the Lahontan Region, Violation of State Water Resources Control Board Order No. 99-06-DWQ, and Violation of Waste Discharge Requirement Waiver Conditions, for Discharge of Earthen Materials to Waters of the Truckee Riber Hydrologic Unit, on September 19, 2001, Interstate 80 Rehabilitation Boca/Floristan Project, Nevada County – WDID No. 6A03CTA21U**

Chair Dr. Cooley opened the Public Hearing on Item # 15 and continued it to the March Board meeting.

8. **Reports by Chair and Board Members**

Mr. Clarke asked Lahontan staff if any new information on classified injection wells could be reported to the Board. The Board thanked Governor Gray Davis for the appointment of the new Board members to the Lahontan Regional Board. Dr. Nebeker mentioned an article appearing recently in the Los Angeles Times about the Tahoe Regional Planning Agency and an upcoming Supreme Court decision. Dr. Nebeker and Ms. Roberts recommended the availability of the Palmdale Water District office as a future Board meeting site.

9. Election of Chair and Vice Chair for 2002

Chair Dr. Cooley began by thanking Mr. Singer and the Lahontan Regional Board staff for their excellent responsiveness, helpfulness and dependability in preparing information for the Board members and for Board meetings. She also commended Mr. Singer and the staff for their efforts in conveying the Board's sincere desire to hear from the public so that public comment can be considered when the Board makes its decisions. The Board thanked and congratulated Chair Dr. Cooley for her leadership of the Lahontan Regional Board in 2001. Dr. Nebeker made special note of her concern and compassion for water quality issues and for the people of California exercising their right to be heard.

As Chair, Dr. Cooley approved the nomination of Mr. Clarke for Board Chairperson made by Dr. Nebeker, and the nomination of Dr. Nebeker for Vice Chair made by Mr. Brissenden.

Motion: Moved by Dr. Nebeker, seconded by Mr. Brissenden, **and unanimously carried** to elect Mr. Clarke as 2002 Chairperson of the Lahontan Regional Board.

Motion: Moved by Mr. Brissenden, seconded by Mr. Sandel, **and unanimously carried** to elect Dr. Nebeker as 2002 Vice Chair of the Lahontan Regional Board

10. CLOSED SESSION

The Board members met in closed session on January 10, 2002 from 12:05 p.m. to 12:10 p.m. in the City of South Lake Tahoe, City Council Chambers, to discuss Item # 10 (m).

The Board reconvened in open session at 12:11 p.m

There being no further business to come before the Board, the January 9-10, 2002 meeting of the Lahontan Regional Board adjourned at 12:12 p.m.

Prepared by: Susan-Marie Hagen, Executive Assistant Adopted: January 10,2002