



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

FAX MESSAGE

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Angela Carpenter	CCRWQCB	805-543-0397
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Keri Cole	SDRWQCB	858-571-6972
Stan Martinson	SWRCB	916-341-5463

FROM: David Smith *Dave Smith*
TMDL Team Leader
EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105
415-744-2012
smith.davidw@epa.gov

May 15, 2001

Attached is a copy of a letter from me to Stan Martinson sent in response to the State's request for data and information to be considered in the 2002 Section 303(d) listing process. Because we identified a cross-cutting list of data and information sources which we believed were important to consider, we prepared a single letter to Stan and are sending copies to each of the Regional Boards. We look forward to working with you on the list revision process. Please don't hesitate to call if you have questions, and thanks for your efforts on this difficult process.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

May 15, 2001

Mr. Stan Martinson
Division of Water Quality
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Mr. Martinson:

EPA appreciates the State of California's effort to initiate public solicitation of water quality related information in preparation for the 2002 Section 303(d) submission, pursuant to federal Clean Water Act (CWA) Section 303(d). The purposes of this letter are to (1) identify water quality data and information sources which are required to be or should be considered by the State as part of the listing process and (2) summarize federally required elements of the Section 303(d) list submission due April 1, 2002. We understand that the Regional Board staffs are compiling data and information for use in the listing process and are initiating the assessment process; therefore, copies of this letter will be sent to the listing coordinators for each Regional Board with the expectation that each Regional Board will consider the information in the letter.

Data and Information Sources

Federal regulations require that states "assemble and evaluate all existing and readily available water quality-related data and information" to develop the revised list (40 CFR 130.7(b)(5)). We expect that in the listing submittal, the State will document its efforts to assemble and evaluate data and information for this purpose. At a minimum, "all existing and readily available water quality-related data and information" includes but is not limited to all of the existing and readily available data and information about the following categories of waters:

- Waters identified by the State as "partially meeting" or "not meeting" designated uses or as "threatened" in California's 2000 Section 305(b) Report on Water Quality (State Water Resources Control Board, October 2000);
- Waters for which dilution calculations or predictive models indicate non-attainment of applicable water quality standards;
- Waters for which water quality problems have been reported by local, state, or federal agencies; members of the public; or academic institutions; and
- Waters identified by the State as impaired or threatened in a nonpoint assessment submitted to EPA under section 319 of the CWA or in any updates of the assessment (40 CFR 130.7(b)(5)).

EPA also requests that the State compile and consider water quality data and information from the following sources which we believe may be existing and readily available:

- Drinking water source water assessments where the assessment results demonstrate for one or more pollutants regulated as drinking water contaminants that (i) a water quality standard has been exceeded, or is at risk of being exceeded, or (ii) the concentration of a pollutant has increased since use of the waterbody as a public water supply began;
- Data and information compiled by State and Regional Water Board staff in connection with the Mussel Watch and other monitoring programs, enforcement and surveillance actions, TMDL development, and other programmatic activities;
- Risk assessments or other analyses developed in support of fish consumption or swimming advisories;
- Trend analyses contained in water quality assessment or planning reports which assess the physical, chemical or biological integrity of streams, rivers, lakes, and estuaries;
- Beach and shoreline monitoring performed by State and local Environmental Health Services Departments;
- Sediment and water quality-related testing and analyses conducted by governmental, industrial and academic organizations. For example, readily available data and information may be found in :
 - Clean Water Act Section 404 permit applications and supporting documentation;
 - reports and studies completed by the Army Corps of Engineers;
 - hazardous waste site assessments conducted by the EPA Superfund program and California Department of Toxic Substances Control;
 - plans and studies developed pursuant to the Clean Water Act National Estuary Program;
 - investigative reports and public notices developed by the U.S. Fish and Wildlife Service, National Marine Fisheries Service (NOAA), and State Department of Fish and Game; and
 - data and reports developed by USGS, including reports concerning the four basins addressed in NAWQA projects (Santa Ana, San Joaquin-Tulare, Sacramento, and Nevada Basin and Range).
- Data contained in EPA's STORET database;
- Data collected by California Department of Pesticide Regulation, Department of Water Resources, Department of Forestry and Fire Protection, and other State agencies;
- Ambient water quality data collected and reported pursuant to NPDES permit requirements for traditional point sources as well as stormwater dischargers.

To assist the State in identifying academic studies and reports which contain relevant data and analysis which would assist in the 303(d) assessment process, we also suggest that the State

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should take advantage of available journal abstract data bases. For example, the State should identify the scientific literature abstracted in the Aquatic Sciences and Fisheries Abstracts, Aquatic Pollution & Environmental Quality ("ASFA 3") database within the last two years and indexed with the keyword "California" or any of the State's principal waterbodies; review those abstracts to identify the documents that are reasonably likely to include data relevant to the listing or delisting of the State's waters; and, among those documents, review those that are readily available.

Methodology for Listing and Submittal Requirements

The State is required to provide thorough documentation explaining the basis for its decisions to list or not to list its waters (40 CFR 130.7(b)(6)). The documentation must include, at a minimum:

- a description of the methodology used to develop the list;
- a description of the data and information used to identify waters;
- a rationale for any decision to not use any existing and readily available data and information for any one of the categories of waters as described in 40 CFR 130.7(b)(5); and
- any other reasonable information requested by (EPA). Upon request by (EPA), each State must demonstrate good cause for not including a water or waters on the list.

EPA requests that the State's submission describe the specific basis for any decision to remove any waterbody-pollutant combination found on the 1998 303(d) list from the 2002 list.

Other Requirements of the Listing Submittal

The 303(d) list submittal must identify the pollutant(s) of concern and priority ranking for TMDL development for all waterbody-pollutant combinations included on the 2002 list along with the State's rationale for the priority ranking decision (40 CFR 130.7(b)(4)). The submittal must also identify the waters and pollutants targeted for TMDL development in the next two years (40 CFR 130.7(b)(4)).

TMDL Schedule Revisions

Pursuant to the provisions of EPA's 1997 policy concerning TMDL schedules, the State should revise its schedules for completing and submitting for EPA approval the TMDLs for all waterbody-pollutant combinations. Generally, TMDLs should be scheduled for completion within 8-13 years of the date the waterbody-pollutant combination was listed or the date of the 1998 Section 303(d) list submission, whichever is later. We expect that the revised schedule will provide a firm timetable for submission of State-adopted TMDLs for EPA approval which will guide the operation of California's TMDL program in the future.

Conclusion

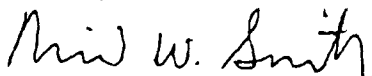
We understand the State's desire to make its listing decisions in a manner which is consistent with State administrative process requirements and thereby avoids "underground rule-making" challenges. We understand that the State has no current plans to develop a formal methodology in advance to guide decision making on waterbody listing, priority ranking, and TMDL targeting and scheduling. We recommend that the State consider the listing guidelines developed by State Board, Regional Board, and EPA staff in conjunction with the 1998 listing process as a viable starting point for the 2002 listing process. In addition, we recommend that the State consider existing and forthcoming EPA national guidance concerning Section 303(d) listing and Section 305(b) assessments. We would be happy to provide copies of existing EPA guidance upon request. We also anticipate providing additional guidance to assist with the 2002 Section 303(d) listing decisions in the coming months.

We are concerned that in an effort to avoid potential listing challenges based on underground rulemaking concerns, the State may not be organizing its listing process in a way which will ensure that the federal listing requirements are met. Specifically, we would like to underscore the importance of ensuring that the following federal requirements are met:

- Demonstration that the State has solicited and considered all existing and readily available information, including the categories identified in 40 CFR 130.7(b)(5);
- Description of the State's listing methodology, including decision rules applied in reviewing different types of data and information to interpret numeric and narrative water quality standards;
- Documentation explaining how the listing methodology was applied for individual waters;
- Justification of decisions to not consider certain sources of readily available data and information;
- Demonstration that the State's overall approach to listing decisions and specific decision rules provide a reasonable level of consistency among listing decisions; and
- Description of the basis for priority ranking and targeting decisions.

We hope this list of data and information sources and discussion of existing listing requirements assist in your assessment efforts. We look forward to working with the Regional Boards and your staff as the listing process proceeds. If you have questions concerning this letter, please call me at (415) 744-2012.

Sincerely,



David Smith

TMDL Team Leader (WTR-2)

cc: RWQCB Listing Coordinators

Additional Information for Region 2:

In addition to the readily available information sources mentioned in the letter, the following information and attachment are for Region 2's consideration:

- Coliform data collected at San Pedro Creek, Pacifica California, analyzed by EPA Region 9 Laboratory (see attachment).
- In Marin county (Tomales Bay watershed), there are monitoring work done by the National Park Service some by California Department of Fish Game(CDFG) - primarily looking at ammonia and nitrates, and some by agricultural entities (data not available until Spring 2002). Contact persons: Fährad Ghodrati (SF Bay RWQCB) (510)622-2331 and CDFG monitoring Mike Rugg (CDFG) (707)944-5523.

San Pedro Creek Coliform Counts

January 13 - May 20, 1997

Samples collected by Pedro Point Surf Club and analyzed by the City of San Francisco Bureau of Water Pollution Control Microbiology Laboratory

Sampling Sites^a

Date	Rainfall (in) ^b	Oddstad		Peralta		Hwy 1 Bridge	
		Total ^c	Fecal ^d	Total	Fecal	Total	Fecal
Jan 13	.20/0	NA		1200	500	1700	500
Jan 21	.18/.05	NA		NA		NA	
Jan 27	NA	60	10	800	700	1200	900
Feb 3	0/0	160	130	1280	1200	2610	700
Feb 10	0/0	30	10	900	530	1280	640
Feb 18	.13/0	180	200	2300	400	7650	1000
Feb 24	0/0	NA		NA		NA	
Mar 3	NA	120	110	3800	4000	2500	2100
Mar 10	NA	40	<10	600	100	1000	200
Mar 17	NA	340	180	2500	1100	2200	1100
Mar 24	0/0	NA		NA		NA	
Mar 31	0/.10	NA		NA		NA	
Apr 2	0/0	3400	3000	1200	740	1500	890
Apr 7	0/0	1600	440	400	50	1300	360
Apr 14	0/0	50	20	1500	370	540	130
Apr 21	.10/0	3600	3000	3300	1100	2300	800
Apr 28	NA	70	40	3800	640	10800	7000
May 5	NA	64	20	700	440	2300	600
May 13	NA	230	140	1700	840	2100	2100
May 20	NA	500	300	4500	150	2880	2100

^a Sampling sites were in the center of the creek at the Oddstad, Peralta and Highway 1 bridges. Samples were taken on the downstream side of the bridge in the mornings between 0630-0645.

^b Rainfall is given in inches for the day before and the day of (number/number) for the sampling date.

^c Total coliform refers to the concentration of total coliform colonies formed per 100 ml of sea water.

^d Fecal coliform refers to the concentration of fecal coliform colonies formed per 100 ml of sea water.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX LABORATORY
1337 S. 46TH STREET
BLDG 201
RICHMOND, CA 94804-4698

SEP - 2 1999

MEMORANDUM

SUBJECT: Case R99V01 SDG:99228A
Results for Total Coliform, E. Coli and Enterococcus Analyses

FROM: Brenda Bettencourt, Director
Region 9 Laboratory (PMD-2)

TO: Paul Jones, WTR-3

Attached are the report narrative and results spreadsheet for data from the analysis of samples from San Pedro Creek. The samples were collected on 8/16/99. Summary information for the data included in this report is as follows:

SITE/PROJECT: San Pedro Creek
CASE: R99V01
SAMPLE DELIVERY GROUP: 99228A
LABORATORY: U. S. EPA Region 9 Laboratory
ANALYSIS: 9223, Total Coliform and E. Coli (Colilert)
Enterolert, Enterococcus

If you have any questions please contact Andrew Lincoff at (510) 412-2330.

ATTACHMENTS: Report Narrative
Data Summary

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

Case Number: R99V01 SDG: 99228A
Program: Water
Report Date: 8/17/99
Analysis: 9223 (Colilert), Enterolert

SAMPLE NUMBERS:

<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
1	AB23538
2	AB23539
3	AB23540
4	AB23541
4R	AB23542

GENERAL COMMENTS

The five water samples listed above were received from Paul Jones of the Water Division on 8/16/99.

The requested analyses were total coliforms, *E. coli*, and enterococcus. The samples came from San Pedro Creek.

SAMPLE RECEIPT AND PRESERVATION

The samples were collected and hand-delivered to the laboratory by EPA staff (Paul Jones and the EPA mail). The samples were adequately chilled. The required holding time to bacterial analysis for surface waters is 8 hours. The samples were collected between 1100 and 1130. Analysis began by 1515 - within the holding time for all samples.

ANALYTICAL COMMENTS

The samples were analyzed using Colilert for total coliforms and *E. coli*, and enterolert for enterococcus. Enumerations were performed using the Quanti-tray 2000 system. The total coliform and *E. coli* samples were run as both full volume and 1:100 dilutions to try to obtain countability for results over 2400 per 100 ml.

QA/QC SUMMARY

All method QC criteria were met.

Replicate Sample Results: Sample number 4 was run in replicate for total coliforms and *E. coli*. The difference in results for *E. coli* are not unusual for ambient bacterial samples and do not indicate problems in either sampling or analysis.

Questions concerning the data can be addressed to Andrew Lincoff at (510) 412-2330.

EPA Region 9 Laboratory - Richmond, CA
Summary of Analytical Results

Site: San Pedro Creek
Case No.: R99V01
SDG No.: 99228A
Report Date: 8/17/99

Analyses: Colilert
Enterolert

Matrix: Water

Concentration in: Most Probable Number (MPN) per 100 ml

Station Location	North Fork		Mainstem		Beach Reach		Confluence	
Sample ID	1		2		4		3	
Date of Collection	8/16/99		8/16/99		8/16/99		8/16/99	
Analyte	Result	Q	Result	Q	Result		Result	Q
Total coliforms	20000	d	1900	d	4100	d	7200	d
<i>E. coli</i>	1700		56		460		610	
Enterococci	920.8		20.1		1203.3		148.3	

Station Location	Beach Reach							
Sample ID	4R							
Date of Collection	8/16/99							
Analyte	Result	Q	Result	Q	Result	Q	Result	Q
Total coliforms	4100	d						
<i>E. coli</i>	550							
Enterococci	ns							

Q - Laboratory Data Qualifiers

d - laboratory dilution ratio 1:100

ns - no sample collected for this parameter



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX LABORATORY
1337 S. 46TH STREET
BLDG 201
RICHMOND, CA 94801-4698

AUG 10 1999

MEMORANDUM

SUBJECT: Case R99V01 SDG:99207A
Results for Total Coliform, E. Coli and Enterococcus Analyses

FROM: Brenda Bettencourt, Director *A Zind for BB*
Region 9 Laboratory (PMD-2)

TO: Paul Jones, WTR-3

Attached are the report narrative and results spreadsheet for data from the analysis of the fourth of five sets of samples to be received from San Pedro Creek. The samples were collected on 7/26/99. Summary information for the data included in this report is as follows:

SITE/PROJECT: San Pedro Creek
CASE: R99V01
SAMPLE DELIVERY GROUP: 99207A
LABORATORY: U. S. EPA Region 9 Laboratory
ANALYSIS: 9223, Total Coliform and E. Coli (Colilert)
Enterolert, Enterococcus

If you have any questions please contact Andrew Lincoff at (510) 412-2330.

ATTACHMENTS: Report Narrative
Data Summary

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

Case Number: R99V01 SDG: 99207A
Program: Water
Report Date: 8/6/99
Analysis: 9223 (Colilert), Enterolert

SAMPLE NUMBERS:

<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
1	AB23264
2	AB23265
3	AB23266
3R	AB23267
4	AB23268

GENERAL COMMENTS

The five water samples listed above were received from Paul Jones of the Water Division on 7/26/99.

The requested analyses were total coliforms, *E. coli*, and enterococcus. The samples came from San Pedro Creek. This is the fourth set of an anticipated five sets of weekly samples.

SAMPLE RECEIPT AND PRESERVATION

The samples were collected and hand-delivered to the laboratory by EPA staff (Paul Jones and the EPA mail). The samples were adequately chilled. The required holding time to bacterial analysis for surface waters is 8 hours. The samples were collected between 0730 and 0805. Analysis began by 1446 - within the holding time for all samples.

ANALYTICAL COMMENTS

The samples were analyzed using Colilert for total coliforms and *E. coli*, and enterolert for enterococcus. Enumerations were performed using the Quanti-tray 2000 system. The total coliform and *E. coli* samples were run as both full volume and 2:100 dilutions to try to obtain countability for results over 2400 per 100 ml.

QA/QC SUMMARY

All method QC criteria were met.

Replicate Sample Results: Sample number 3 was run in replicate for total coliforms and *E. coli*. The difference in results for total coliforms and *E. coli* are not unusual for ambient bacterial samples and do not indicate problems in either sampling or analysis.

Questions concerning the data can be addressed to Andrew Lincoln at (510) 412-2330.

EPA Region 9 Laboratory - Richmond, CA
Summary of Analytical Results

Site: San Pedro Creek
Case No.: R99V01
SDG No.: 99207A
Report Date: 7/30/99

Analyses: Colilert
Enterolert
Matrix: Water

Concentration in: Most Probable Number (MPN) per 100 ml

Station Location	North Fork		Mainstem		Beach Reach		Confluence	
Sample ID	1		2		4		3	
Date of Collection	7/26/99		7/26/99		7/26/99		7/26/99	
Analyte	Result	Q	Result	Q	Result		Result	Q
Total coliforms	>120000	d	990	d	4200	d	>120000	d
<i>E. coli</i>	820		65		980		770	
Enterococci	210		11		290		43	

Station Location	Confluence							
Sample ID	3R							
Date of Collection	7/26/99							
Analyte	Result	Q	Result	Q	Result	Q	Result	Q
Total coliforms	>2400							
<i>E. coli</i>	730							
Enterococci	ns							

Q - Laboratory Data Qualifiers

d - laboratory dilution ratio 2:100

ns - no sample collected for this parameter



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX LABORATORY
1337 S. 46TH STREET
BLDG 201
RICHMOND, CA 94804-4698

JUL 12 1999

MEMORANDUM

SUBJECT: Case R99V01 SDG:NF070199
Results for Total Coliform, E. Coli and Enterococcus Analyses

FROM: *B. Bentencourt*
Brenda Bentencourt, Director
Region 9 Laboratory (PMD-2)

TO: Paul Jones, WTR-3

Attached are the report narrative and results spreadsheet for data from the analysis of the third of five sets of samples to be received from San Pedro Creek. The samples were collected on 7/1/99. Summary information for the data included in this report is as follows:

SITE/PROJECT: San Pedro Creek
CASE: R99V01
SAMPLE DELIVERY GROUP: NF070199
LABORATORY: U. S. EPA Region 9 Laboratory
ANALYSIS: 9223, Total Coliform and E. Coli (Colilert)
Enterolert, Enterococcus

If you have any questions please contact Andrew Lincoff at (510) 412-2330.

ATTACHMENTS: Report Narrative
Data Summary

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

Case Number: R99V01 SDG: NF070199
Program: Water
Report Date: 7/12/99
Analysis: 9223 (Colilert), Enterolert

SAMPLE NUMBERS:

<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
1	AB22943
2	AB22944
3	AB22945
4	AB22946
4R	AB22947
5	AB22948
6	AB22949
7	AB22950

GENERAL COMMENTS

The eight water samples listed above were received from Paul Jones of the Water Division on 7/1/99.

The requested analyses were total coliforms, *E. coli*, and enterococcus. The samples came from San Pedro Creek and the Pacific Ocean at Linda Mar Beach. This is the third set of an anticipated five sets of weekly samples.

SAMPLE RECEIPT AND PRESERVATION

The samples were collected and hand-delivered to the laboratory by EPA staff (Paul Jones). The samples were adequately chilled. The required holding time to bacterial analysis for surface waters is 8 hours. The samples were collected between 0940 and 1017. Analysis began by 1500 - within the holding time for all samples.

ANALYTICAL COMMENTS

The samples were analyzed using Colilert for total coliforms and *E. coli*, and enterolert for enterococcus. Enumerations were performed using the Quanti-tray 2000 system. The total coliform and *E. coli* samples were run as both full volume and 2:100 dilutions to try to obtain countability for results over 2400 per 100 ml.

QA/QC SUMMARY

All method QC criteria were met.

Replicate Sample Results: Sample number 4 was run in replicate for total coliforms and *E. coli*. The difference in results for total coliforms and *E. coli* are not unusual for ambient bacterial samples and do not indicate problems in either sampling or analysis.

Questions concerning the data can be addressed to Andrew Lincoff at (510) 412-2330.

EPA Region 9 Laboratory - Richmond, CA
Summary of Analytical Results

Site: San Pedro Creek
Case No.: R99V01
SDG No.: NF070199
Report Date: 7/12/99

Analyses: Colilert
Enterolert

Matrix: Water

Concentration in: Most Probable Number (MPN) per 100 ml

Station Location	North Fork		Mainstem		Beach Reach		Beach Reach	
Sample ID	1		2		4		4R	
Date of Collection	7/01/99		7/01/99		7/01/99		7/01/99	
Analyte	Result	Q	Result	Q	Result		Result	Q
Total coliforms	>120,000	d	600		1400		1700	
<i>E. coli</i>	2400		74		410		550	
Enterococci	>2400		6		48		ns	

Station Location	Confluence		Ocean 1		Ocean 2		Ocean 3	
Sample ID	3		5		6		7	
Date of Collection	7/01/99		7/01/99		7/01/99		7/01/99	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q
Total coliforms	71000	d	ns		ns		ns	
<i>E. coli</i>	1600		ns		ns		ns	
Enterococci	>2400		20	D	10	D	0	D

Q - Laboratory Data Qualifiers

d- laboratory dilution ratio 2:100

D - laboratory dilution ratio 1:10

ns - no sample collected for this parameter



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX LABORATORY
1337 S. 46TH STREET
BLDG 201
RICHMOND, CA 94804-4698

AUG 10 1999

MEMORANDUM

SUBJECT: Case R99V01 SDG:99217B
Results for Total Coliform, E. Coli and Enterococcus Analyses

FROM: Brenda Bettencourt, Director
Region 9 Laboratory (PMD-2) *G. L. Z. for BB*

TO: Paul Jones, WTR-3

Attached are the report narrative and results spreadsheet for data from the analysis of the fifth of five sets of samples to be received from San Pedro Creek. The samples were collected on 8/4/99. Summary information for the data included in this report is as follows:

SITE/PROJECT: San Pedro Creek
CASE: R99V01
SAMPLE DELIVERY GROUP: 99217B
LABORATORY: U. S. EPA Region 9 Laboratory
ANALYSIS: 9223, Total Coliform and E. Coli (Colilert)
Enterolert, Enterococcus

If you have any questions please contact Andrew Lincoff at (510) 412-2330.

ATTACHMENTS: Report Narrative
Data Summary

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

Case Number: R99V01 SDG: 99217B
Program: Water
Report Date: 8/6/99
Analysis: 9223 (Colilert), Enterolert

SAMPLE NUMBERS:

<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
1	AB23314
2	AB23315
3	AB23316
4	AB23317
4R	AB23318

GENERAL COMMENTS

The five water samples listed above were received from Paul Jones of the Water Division on 8/4/99.

The requested analyses were total coliforms, *E. coli*, and enterococcus. The samples came from San Pedro Creek. This is the fifth set of an anticipated five sets of weekly samples.

SAMPLE RECEIPT AND PRESERVATION

The samples were collected and hand-delivered to the laboratory by EPA staff (Paul Jones and the EPA mail). The samples were adequately chilled. The required holding time to bacterial analysis for surface waters is 8 hours. The samples were collected between 0625 and 0700. Analysis began by 1247 - within the holding time for all samples.

ANALYTICAL COMMENTS

The samples were analyzed using Colilert for total coliforms and *E. coli*, and enterolert for enterococcus. Enumerations were performed using the Quanti-tray 2000 system. The total coliform and *E. coli* samples were run as both full volume and 2:100 dilutions to try to obtain countability for results over 2400 per 100 ml.

QA/QC SUMMARY

All method QC criteria were met.

Replicate Sample Results: Sample number 4 was run in replicate for total coliforms and *E. coli*. The difference in results for *E. coli* are not unusual for ambient bacterial samples and do not indicate problems in either sampling or analysis.

Questions concerning the data can be addressed to Andrew Lincoff at (510) 412-2330.

EPA Region 9 Laboratory - Richmond, CA
Summary of Analytical Results

Site: San Pedro Creek
Case No.: R99V01
SDG No.: 99217B
Report Date: 8/6/99

Analyses: Colilert
Enterolert

Matrix: Water

Concentration in: Most Probable Number (MPN) per 100 ml

Station Location	North Fork		Mainstem		Beach Reach		Confluence	
Sample ID	1		2		4		3	
Date of Collection	8/4/99		8/4/99		8/4/99		8/4/99	
Analyte	Result	Q	Result	Q	Result		Result	Q
Total coliforms	>120000	d	8600	d	9000	d	52000	d
<i>E. coli</i>	7800	d	390		690		4300	d
Enterococci	>2400		90		>2400		580	

Station Location	Beach Reach							
Sample ID	4R							
Date of Collection	8/4/99							
Analyte	Result	Q	Result	Q	Result	Q	Result	Q
Total coliforms	>2400							
<i>E. coli</i>	460							
Enterococci	ns							

Q - Laboratory Data Qualifiers

d - laboratory dilution ratio 2:100

ns - no sample collected for this parameter



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX LABORATORY
1337 S. 46TH STREET
BLDG 201
RICHMOND, CA 94804-4698

JUN 29 1999

MEMORANDUM

SUBJECT: Case R99V01 a
Results for Total Coliform, E. Coli and Enterococcus Analyses

FROM: ^{for} Brenda Bettencourt, Director
Region 9 Laboratory (PMD-2)

A handwritten signature in black ink, appearing to read "B. Bettencourt", written over the typed name.

TO: Paul Jones, WTR-3

Attached are the report narrative and results spreadsheet for data from the analysis of the first of five sets of samples to be received from San Pedro Creek. The samples were collected on 6/17/99. Summary information for the data included in this report is as follows:

SITE/PROJECT:	San Pedro Creek
CASE:	R99V01
SAMPLE DELIVERY GROUP:	NF061799
LABORATORY:	U. S. EPA Region 9 Laboratory
ANALYSIS:	9223, Total Coliform and E. Coli (Colilert) Enterolert, Enterococcus

If you have any questions please contact Andrew Lincoff at (510) 412-2330.

ATTACHMENTS: Report Narrative
Data Summary

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

Case Number:	R99V01 a
Program:	Water
Report Date:	6/25/99
Analysis:	9223 (Colilert) Enterolert

SAMPLE NUMBERS:

<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
1	AB22791
2	AB22792
3	AB22793
4	AB22794
5	AB22795
6	AB22796
7	AB22797
Blank	AB22798

GENERAL COMMENTS

The seven water samples listed above were received from Paul Jones of the Water Division on 6/17/99.

The requested analyses were total coliforms, *E. coli*, and enterococcus. The samples came from San Pedro Creek and the Pacific Ocean at Linda Mar Beach. This is the first set of an anticipated five sets of weekly samples.

SAMPLE RECEIPT AND PRESERVATION

The samples were collected and hand-delivered to the laboratory by EPA staff (Paul Jones). The samples were adequately chilled. The required holding time to bacterial analysis for surface waters is 8 hours. The samples were collected between 0855 and 1015. Analysis began at 1500 - within the holding time for all samples.

ANALYTICAL COMMENTS

The samples were analyzed using Colilert for total coliforms and *E. coli*, and enterolert for enterococcus. Enumerations were performed using the Quanti-tray 2000 system. The total coliform and *E. coli* samples were run as both full volume and 1:100 dilutions to ensure countability for results over 2400 per 100 ml. The ocean samples for enterococci were run as 1:10 dilutions as required by the method instructions for marine samples.

QA/QC SUMMARY

All method QC criteria were met.

Replicate Sample Results: No replicate samples were collected.

Questions concerning the data can be addressed to Andrew Lincoln at (510) 412-2330.

EPA Region 9 Laboratory - Richmond, CA
Summary of Analytical Results

Site: San Pedro Creek
Case No.: R99V01
SDG No.: NF061799
Report Date: 6/25/99

Analyses: Colilert
Enterolert

Matrix: Water

Concentration in: Most Probable Number (MPN) per 100 ml

Station Location	North Fork		Mainstem		Beach Reach	
Sample ID	1		2		4	
Date of Collection	6/17/99		6/17/99		6/17/99	
Analyte	Result	Q	Result	Q	Result	Q
Total coliforms	2400	d	1200	d	2000	
<i>E. coli</i>	220		56		240	
Enterococci	870		14		130	

Station Location	Confluence		Ocean 1		Ocean 2		Ocean 3	
Sample ID	3		5		6		7	
Date of Collection	6/17/99		6/17/99		6/17/99		6/17/99	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q
Total coliforms	20000	d						
<i>E. coli</i>	9300	d						
Enterococci	>2400		61		30		10	

Q - Laboratory Data Qualifiers
d- laboratory dilution ratio 1:100



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX LABORATORY
1337 S. 46TH STREET
BLDG 201
RICHMOND, CA 94804-4698

JUN - 6 2000

MEMORANDUM

SUBJECT: Case R00V06
Results for Total Coliform, E. Coli and Enterococcus Analyses

FROM: *B. Beltencourt*
Brenda Beltencourt, Director
Region 9 Laboratory (PMD-2)

TO: Paul Jones, WTR-3

Attached are the report narrative and results spreadsheet for data from the analysis of five weekly sets of samples received from San Pedro Creek. The samples were collected from 4/24 to 5/22/2000. Summary information for the data included in this report is as follows:

SITE/PROJECT: San Pedro Creek
CASE: R00V06
SAMPLE DELIVERY GROUPS: 00115B
00122B
00130A
00136A

LABORATORY: U. S. EPA Region 9 Laboratory
ANALYSIS: 9223, Total Coliform and E. Coli (Colilert)
Enterolert, Enterococcus

If you have any questions please contact Andrew Lincoln at (510) 412-2330.

ATTACHMENTS: Report Narrative
Data Summary

cc: Vivian Matuk

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

Case Number: R00V06
Site: San Pedro Creek
Program: Water
Report Date: 5/30/2000
Analysis: 9223 (Colilert), Enterolert
SDGs: 00115B
00122B
00130A
00136A

SAMPLE NUMBERS:

	<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
4/24/2000	1	AB26829
	2	AB26830
	3	AB26832
	4	AB26833
	5	AB26834
	6	AB26835
	7	AB26836
	2R	AB26831
5/1/2000	1	AB26854
	2	AB26855
	3	AB26856
	4	AB26857
	5	AB26859
	6	AB26860
	7	AB26861
	4R	AB26858
5/9/2000	1	AB26931
	2	AB26932
	3	AB26933
	4	AB26935
	5	AB26936
	6	AB26937
	7	AB26938
	3R	AB26934
5/15/2000	1	AB27032
	2	AB27033
	3	AB27034
	4	AB27035
	5	AB27036
	6	AB27037
	7	AB27038
	7R	AB27039

5/22/2000	1	AB27158
	2	AB27159
	3	AB27160
	4	AB27162
	5	AB27163
	6	AB27164
	7	AB27165
	3R	AB27161

GENERAL COMMENTS

The 40 water samples listed above were received from Vivian Matuk of Friends of San Pedro Creek on 4/24/2000, 5/1/2000, 5/9/2000, 5/15/2000, and 5/22/2000. Paul Jones of the Water Division is the EPA project contact. The requested analyses were total coliforms, *E. coli*, and enterococcus. The samples came from San Pedro Creek in Pacifica.

Geometric means of five consecutive weekly values were calculated. If a result was a greater than value (eg. >2400), then the value (2400) was used in the calculation and the geometric mean is reported as a greater than value. If one or more results was a less than a value (eg. <10), then the value (10) was used in the calculation and the geometric mean is reported as less than a value.

SAMPLE RECEIPT AND PRESERVATION

The samples were collected and hand-delivered to the laboratory by Vivian Matuk. The samples were adequately chilled. The required holding time to bacterial analysis for non-compliance surface water samples is 24 hours (SM 20th ed.). The samples were analyzed within the holding time for all samples.

ANALYTICAL COMMENTS

The samples were analyzed using Colilert for total coliforms and *E. coli*, and enterolert for enterococcus. Freshwater samples (station 1 through 5) were analyzed for total coliforms and *E. coli*. Marine samples (stations 6 and 7) were analyzed for total coliforms, *E. coli*, and enterococcus. Enumerations were performed using the Quanti-tray 2000 system. The samples were run as full volume or dilutions to try to obtain countability for results over 2400 per 100 ml. Marine samples from stations 6 and 7 were always run as 1:10 dilutions as required by the method. The values reported are corrected for the dilutions used.

QA/QC SUMMARY

All method QC criteria were met.

The differences in coliform, *E. coli* and enterococcus counts between replicate samples (indicated by R's, above) are typical of sequentially collected bacterial samples and do not indicate problems in either sampling or analysis throughout the study period.

Questions concerning the data can be addressed to Andrew Lincoff at (510) 412-2330.

**EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS**

Case Number: R00V06 Analysis: Total Coliforms, E. coli, Enterococci
 Site: San Pedro Creek Matrix: Water
 SDG: 000115B
 Date:

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Lab Sample I.D.	AB26829		AB26830		AB26832		AB26833		AB26834		AB26835		AB26836	
Date of Collection	04/24/00		04/24/00		04/24/00		04/24/00		04/24/00		04/24/00		04/24/00	
Time	740		830		1055		1133		1144		1145		1155	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (MPN/100mL)	1500	dd	22000	dd	3600	dd	7000	dd	8200	dd	270	d	<10	d
E.coli (MPN/100 mL)	5		510	dd	<100	dd	1200	dd	1700	dd	74	d	<10	d
Enterococcus (MPN/100mL)	na		na		na		na		na		20	d	<10	d

Station Location	Field Replicate		Lab Blank											
Client Sample I.D.	2R													
Lab Sample I.D.	AB26831													
Date of Collection	04/24/00		04/25/00											
Time	910													
Analyte	Result	Q	Result	Q										
Total Coliforms (MPN/100mL)	20000	dd	<1											
E.coli (MPN/100 mL)	740	dd	<1											
Enterococcus (MPN/100mL)	na		<1											

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions
 na- not analyzed d- dilution factor 1:10 dd- dilution factor 1:100

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R00V06 Analysis: Total Coliforms, E. coli, Enterococci
 Site: San Pedro Creek Matrix: Water
 SDG: 000122B
 Date:

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Lab Sample I.D.	AB26854		AB26855		AB26856		AB26857		AB26859		AB26860		AB26861	
Date of Collection	05/01/00		05/01/00		05/01/00		05/01/00		05/01/00		05/01/00		05/01/00	
Time	745		830		900		930		1021		1030		1040	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (MPN/100mL)	2400		5600	dd	4000	d	13000	d	14000	d	240	d	31	d
E.coli (MPN/100 mL)	14		200	dd	74	d	1500	d	3600	d	130	d	<10	d
Enterococcus (MPN/100mL)	na		na		na		na		na	d	10	d	<10	d

Station Location	Field Replicate		Lab Blank											
Client Sample I.D.	4R													
Lab Sample I.D.	AB26858													
Date of Collection	05/01/00		05/01/00											
Time	930													
Analyte	Result	Q	Result	Q		Q		Q		Q		Q		Q
Total Coliforms (MPN/100mL)	14000	d	<1											
E.coli (MPN/100 mL)	1700	d	<1											
Enterococcus (MPN/100mL)	na		<1											

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions
 na- not analyzed d- dilution factor 1:10 dd- dilution factor 1:100

**EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS**

Case Number: R00V06
Site: San Pedro Creek
SDG: 000130A
Date:

Analysis: Total Coliforms, E. coli, Enterococci
Matrix: Water

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Lab Sample I.D.	AB26931		AD26932		AD26933		AD26935		AB26936		AB26937		AD26938	
Date of Collection	05/09/00		05/09/00		05/09/00		05/09/00		05/09/00		05/09/00		05/09/00	
Time	740		815		845		905		1000		1005		1015	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (MPN/100mL)	410	dd	>240000	dd	39000	dd	4600	dd	6900	dd	290	d	130	d
E.coli (MPN/100 mL)	20		27000	dd	3000	dd	740	dd	860	dd	41	d	30	d
Enterococcus (MPN/100mL)	na		na		na		na		na		10	d	10	d

Station Location	Field Replicate		Lab Blank											
Client Sample I.D.	3R													
Lab Sample I.D.	AD26934													
Date of Collection	05/09/00		05/09/00											
Time	845													
Analyte	Result	Q	Result	Q		Q		Q		Q		Q		Q
Total Coliforms (MPN/100mL)	46000	dd	<1											
E.coli (MPN/100 mL)	3300	dd	<1											
Enterococcus (MPN/100mL)	na		<1											

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions
na- not analyzed d- dilution factor 1:10 dd- dilution factor 1:100

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R00V06 Analysis: Total Coliforms, E. coli, Enterococci
 Site: San Pedro Creek Matrix: Water
 SDG: 000136A
 Date:

Station Location	Odusted		North Fork		Lloda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Lab Sample I.D.	AB27032		AB27033		AB27034		AB27035		AB27036		AB27037		AB27038	
Date of Collection	05/15/00		05/15/00		05/15/00		05/15/00		05/15/00		05/15/00		05/15/00	
Time	735		810		835		900		945		950		1000	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (MPN/100mL)	850	dd	19000	dd	6900	dd	13000	dd	25000	dd	4100	d	930	d
E.coli (MPN/100 mL)	70		630	dd	100	dd	1200	dd	3000	dd	460	d	97	d
Enterococcus (MPN/100mL)	na		na		na		na		na		310	d	98	d

Station Location	Field Replicate		Lab Blank											
Client Sample I.D.	7R													
Lab Sample I.D.	AB27039													
Date of Collection	05/15/00		05/15/00											
Time	1000													
Analyte	Result	Q	Result	Q										Q
Total Coliforms (MPN/100mL)	1300	d	<1											
E.coli (MPN/100 mL)	140	d	<1											
Enterococcus (MPN/100mL)	41	d	<1											

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions
 na- not analyzed d- dilution factor 1:10 dd- dilution factor 1:100

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R00V06
Site: San Pedro Creek
SDG: 000136A
Date:

Analysis: Total Coliforms, E. coli, Enterococci
Matrix: Water

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Lab Sample I.D.	AB27158		AB27159		AB27160		AB27162		AB27163		AB27164		AB27165	
Date of Collection	05/22/00		05/22/00		05/22/00		05/22/00		05/22/00		05/22/00		05/22/00	
Time	740		805		830		905		930		935		945	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (MPN/100mL)	2400		13000	d	9800	d	9200	d	9200	d	1700	d	31	d
E.coli (MPN/100 mL)	120		120	d	200	d	990	d	800	d	96	d	<10	d
Enterococcus (MPN/100mL)	na		na		na		na		na		200	d	<10	d

Station Location	Field Replicate		Lab Blank											
Client Sample I.D.	3R													
Lab Sample I.D.	AB27161													
Date of Collection	05/22/00		05/22/00											
Time	830													
Analyte	Result	Q	Result	Q		Q		Q		Q		Q		Q
Total Coliforms (MPN/100mL)	10000	d	<1											
E.coli (MPN/100 mL)	180	d	<1											
Enterococcus (MPN/100mL)	na		<1											

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions
na- not analyzed d- dilution factor 1:10 dd- dilution factor 1:100

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R00V06 Analysis: Total Coliforms, E. coli, Enterococci
 Site: San Pedro Creek Matrix: Water
 SDGs: 00115B, 00122B, 00130A, 00136A
 Dates: 4/24/2000-5/22/2000

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Analyte (MPN/100mL)	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms 4/24/00	1500	dd	22000	dd	3600	dd	7000	dd	8200	dd	270	d	<10	d*
Total Coliforms 5/1/00	2400		5600	dd	4000	d	13000	d	14000	d	240	d	31	d
Total Coliforms 5/9/00	410	dd	>240000	dd*	39000	dd	4600	dd	6900	dd	290	d	130	d
Total Coliforms 5/15/00	850	dd	19000	dd	6900	dd	13000	dd	25000	dd	4100	d	930	d
Total Coliforms 5/22/00	2400		13000	d	9800	d	9200	d	9200	d	1700	d	31	d
Geometric Mean Total Coliforms	1200		>24000		8200		8700		11000		670		<65	
E.coli 4/24/00	5		510	dd	<100	dd*	1200	dd	1700	dd	74	d	<10	d*
E.coli 5/1/00	14		200	dd	74	d	1500	d	3600	d	130	d	<10	d*
E.coli 5/9/00	20		27000	dd	3000	dd	740	dd	860	dd	41	d	30	d
E.coli 5/15/00	70		630	dd	100	dd	1200	dd	3000	dd	460	d	97	d
E.coli 5/22/00	120		120	d	200	d	990	d	800	d	96	d	<10	d*
Geometric Mean E. coli	26		730		<210		1100		1700		110		<20	
Enterococcus 4/24/00	na		na		na		na		na		20	d	<10	d*
Enterococcus 5/1/00	na		na		na		na		na		10	d	<10	d*
Enterococcus 5/9/00	na		na		na		na		na		10	d	10	d
Enterococcus 5/15/00	na		na		na		na		na		310	d	98	d
Enterococcus 5/22/00	na		na		na		na		na		200	d	<10	d*
Geometric Mean Enterococcus											42		<16	

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions

* - Actual value outside quantification range. Estimated value used to calculate geometric mean. See narrative.

na- not analyzed d- dilution factor 1:10 dd- dilution factor 1:100

MAY 15 2001 16:16

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PAGE.31

Filename: geomeanr00v06.123



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX LABORATORY
1337 S. 46TH STREET
BLDG 201
RICHMOND, CA 94804-4698

NOV 17

MEMORANDUM

SUBJECT: Case R01V02
Results for Total Coliform, E. Coli and Enterococcus Analyses

FROM: Brenda Benfancourt, Director
Region 9 Laboratory (PMD-2)

TO: Paul Jones, WTR-3

Attached are the report narrative and results spreadsheet for data from the analysis of five weekly sets of samples received from San Pedro Creek. The samples were collected from 10/16 to 11/13/2000. Summary information for the data included in this report is as follows:

SITE/PROJECT: San Pedro Creek
CASE: R01V02
SAMPLE DELIVERY GROUPS: 00290A
00297A
00304A
00311A
00318A
LABORATORY: U. S. EPA Region 9 Laboratory
ANALYSIS: 9223, Total Coliform and E. Coli (Colilert)
Enterolert, Enterococcus

If you have any questions please contact Andrew Lincoff at (510) 412-2330.

ATTACHMENTS: Report Narrative
Data Summary

cc: Vivian Matuk

USEPA REGION 9 LABORATORY
REPORT NARRATIVE

Case Number: R01V02
Site: San Pedro Creek
Program: Water
Report Date: 11/14/2000
Analysis: 9223 (Colilert), Enterolert
SDGs: 00290A
00297A
00304A
00311A
00318A

SAMPLE NUMBERS:

	<u>CLIENT SAMPLE ID</u>	<u>LABORATORY SAMPLE ID</u>
10/16/2000	1	AB28825
	2	AB28826
	3	AB28827
	4	AB28828
	5	AB28829
	6	AB28830
	7	AB28831
	3R	AB28832
10/23/2000	1	AB28894
	2	AB28895
	3	AB28897
	4	AB28898
	5	AB28899
	6	AB28900
	7	AB28901
	2R	AB28896
10/30/2000	1	AB29027
	2	AB29028
	3	AB29029
	4	AB29031
	5	AB29032
	6	AB29033
	7	AB29034
	3R	AB29030
11/6/2000	1	AB29159
	2	AB29160
	3	AB29161
	4	AB29162
	5	AB29164
	6	AB29165
	7	AB29166
	4R	AB29163

11/13/2000	1	AB29243
	2	AB29244
	3	AB29245
	4	AB29246
	5	AB29247
	6	AB29249
	7	AB29250
	5R	AB29248

GENERAL COMMENTS

The 40 water samples listed above were received from Vivian Matuk of Friends of San Pedro Creek on 10/16/2000, 10/23/2000, 10/30/2000, 11/6/2000, and 11/13/2000. Paul Jones of the Water Division is the EPA project contact. The requested analyses were total coliforms, *E. coli*, and enterococcus. The samples came from San Pedro Creek in Pacifica.

Five-week geometric mean values were calculated from the data to allow comparison with federal and state criteria. If a result was a greater than value (eg. >24000), then the value (24000) was used in the calculation and the geometric mean is reported as a greater than value. If one or more results was a less than a value (eg. <10), then the value (10) was used in the calculation and the geometric mean is reported as less than a value.

SAMPLE RECEIPT AND PRESERVATION

The samples were collected and hand-delivered to the laboratory by Vivian Matuk. The samples were adequately chilled. The required holding time to bacterial analysis for non-compliance surface water samples is 24 hours (SM 20th ed.). The samples were analyzed within the holding time for all samples.

ANALYTICAL COMMENTS

The samples were analyzed using Colilert-18 for total coliforms and *E. coli*, and enterolert for enterococcus. Freshwater samples (station 1 through 5) were analyzed for total coliforms and *E. coli*. Marine samples (stations 6 and 7) were analyzed for total coliforms, *E. coli*, and enterococcus. Enumerations were performed using the Quanti-tray 2000 system. All samples were run as 1:10 dilutions to be consistent with the San Mateo County Laboratory. The values reported are corrected for the dilutions used.

QA/QC SUMMARY

All method QC criteria were met.

The differences in coliform, *E. coli* and enterococcus counts between replicate samples (indicated by R's, above) are typical of sequentially collected bacterial samples and do not indicate problems in either sampling or analysis throughout the study period.

Questions concerning the data can be addressed to Andrew Lincoff at (510) 412-2330.

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R01V02
Site: San Pedro Creek
SDG: 00290A
Date: 11/14/00

Analysis: Total Coliforms, E. coli, Enterococci
Matrix: Water

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Lab Sample I.D.	AB28825		AB28826		AB28827		AB28828		AB28829		AB28830		AB28831	
Date of Collection	10/16/00		10/16/00		10/16/00		10/16/00		10/16/00		10/16/00		10/16/00	
Time	720		740		800		820		900		910		915	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (MPN/100mL)	1500	d	11000	d	9200	d	9200	d	13000	d	3300	d	74	d
E.coli (MPN/100 mL)	31	d	230	d	170	d	1900	d	600	d	190	d	10	d
Enterococcus (MPN/100mL)	na		na		na		na		na		85	d	10	d

Station Location	Field Replicate		Lab Blank											
Client Sample I.D.	3R													
Lab Sample I.D.	AB28832													
Date of Collection	10/16/00		10/16/00											
Time	800													
Analyte	Result	Q	Result	Q			Q			Q		Q		Q
Total Coliforms (MPN/100mL)	9200	d	<1											
E.coli (MPN/100 mL)	130	d	<1											
Enterococcus (MPN/100mL)	na		<1											

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions
na- not analyzed d- dilution factor 1:10 dd- dilution factor 1:100

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R01V02 Analysis: Total Coliforms, E. coli, Enterococci
 Site: San Pedro Creek Matrix: Water
 SDG: 00297A
 Date: 11/14/00

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Lab Sample I.D.	AB28894		AB28895		AB28897		AB28898		AD28899		AB28900		AD28901	
Date of Collection	10/23/00		10/23/00		10/23/00		10/23/00		10/23/00		10/23/00		10/23/00	
Time	750		815		830		845		915		920		930	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (MPN/100mL)	500	d	4600	d	1700	d	>24000	d	5800	d	470	d	140	d
E.coli (MPN/100 mL)	20	d	170	d	160	d	13000	d	450	d	74	d	31	d
Enterococcus (MPN/100mL)	na		na		na		na		na		20	d	<10	d

Station Location	Field Replicate		Lab Blank											
Client Sample I.D.	2R													
Lab Sample I.D.	AB28896													
Date of Collection	10/23/00		10/23/00											
Time	815													
Analyte	Result	Q	Result	Q		Q		Q		Q		Q		Q
Total Coliforms (MPN/100mL)	2900	d	<1											
E.coli (MPN/100 mL)	230	d	<1											
Enterococcus (MPN/100mL)	na		<1											

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EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R01V02 Analysis: Total Coliforms, E. coli, Enterococci
 Site: San Pedro Creek Matrix: Water
 SDG: 00304A
 Date: 11/14/00

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Lab Sample I.D.	AB29027		AB29028		AB29029		AB29031		AB29032		AB29033		AB29034	
Date of Collection	10/30/00		10/30/00		10/30/00		10/30/00		10/30/00		10/30/00		10/30/00	
Time	725		745		805		825		915		925		935	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (MPN/100mL)	2200	d	>24000	d	>24000	d	>24000	d	>24000	d	13000	d	190	d
E.coli (MPN/100 mL)	41	d	6500	d	4600	d	3600	d	3200	d	730	d	41	d
Enterococcus (MPN/100mL)	na		na		na		na		na		1100	d	52	d

Station Location	Field Replicate		Lab Blank											
Client Sample I.D.	3R													
Lab Sample I.D.	AB29030													
Date of Collection	10/30/00		10/30/00											
Time	805													
Analyte	Result	Q	Result	Q		Q		Q		Q		Q		Q
Total Coliforms (MPN/100mL)	>24000	d	<1											
E.coli (MPN/100 mL)	4600	d	<1											
Enterococcus (MPN/100mL)	na		<1											

Q - Laboratory Data Qualifiers; Refer to EPA Region 9 Laboratory Qualifier Definitions
 na- not analyzed d- dilution factor 1:10 dd- dilution factor 1:100

EPA REGION 9 LABORATORY RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R01V02
Site: San Pedro Creek
SDG: 00311A
Date: 11/14/00

Analysis: Total Coliforms, E. coli, Enterococci
Matrix: Water

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Lab Sample I.D.	AB29159		AB29160		AB29161		AB29162		AB29164		AB29165		AB29166	
Date of Collection	11/06/00		11/06/00		11/06/00		11/06/00		11/06/00		11/06/00		11/06/00	
Time	720		740		750		807		845		850		905	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (MPN/100mL)	1200	d	6900	d	3400	d	4600	d	8700	d	1300	d	630	d
E.coli (MPN/100 mL)	31	d	170	d	62	d	120	d	340	d	74	d	20	d
Enterococcus (MPN/100mL)	na		na		na		na		na		220	d	20	d

Station Location	Field Replicate		Lab Blank											
Client Sample I.D.	4R													
Lab Sample I.D.	AD29163													
Date of Collection	11/06/00		11/06/00											
Time	807													
Analyte	Result	Q	Result	Q				Q			Q			Q
Total Coliforms (MPN/100mL)	4100	d	<1											
E.coli (MPN/100 mL)	210	d	<1											
Enterococcus (MPN/100mL)	na		<1											

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na- not analyzed d- dilution factor-1:10 dd- dilution factor 1:100

**EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS**

Case Number: R01V02 Analysis: Total Coliforms, E. coli, Enterococci
 Site: San Pedro Creek Matrix: Water
 SDG: 00318A
 Date: 11/14/00

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Lab Sample I.D.	AB29243		AB29244		AB29245		AB29246		AB29247		AB29249		AB29250	
Date of Collection	11/13/00		11/13/00		11/13/00		11/13/00		11/13/00		11/13/00		11/13/00	
Time	720		740		750		810		855		900		910	
Analyte	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (MPN/100mL)	680	d	9800	d	4100	d	3100	d	5500	d	730	d	10	d
E.coli (MPN/100 mL)	20	d	10	d	31	d	210	d	300	d	74	d	<10	d
Enterococcus (MPN/100mL)	na		na		na		na		na		52	d	<10	d

Station Location	Field Replicate		Lab Blank											
Client Sample I.D.	SR													
Lab Sample I.D.	AB29248													
Date of Collection	11/13/00		11/13/00											
Time	855													
Analyte	Result	Q	Result	Q		Q		Q		Q		Q		Q
Total Coliforms (MPN/100mL)	4400	d	<1											
E.coli (MPN/100 mL)	160	d	<1											
Enterococcus (MPN/100mL)	na		<1											

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 na- not analyzed d- dilution factor 1:10 dd- dilution factor 1:100

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R01V02 Analysis: Total Coliforms, E. coli, Enterococci
 Site: San Pedro Creek Matrix: Water
 SDGs: 00290A, 00297B, 00304A, 00311A, 00228B
 Dates: 10/16/2000-11/13/2000

Station Location	Oddstad		North Fork		Linda Mar		Peralta		Outlet		Beach		Parking Lot	
Client Sample I.D.	1		2		3		4		5		6		7	
Analyte (MPN/100mL)	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Coliforms (10/16/2000)	1500	d	11000	d	9200	d	9200	d	13000	d	3300	d	74	d
Total Coliforms (10/23/2000)	500	d	4600	d	1700	d	24000	d	5800	d	470	d	140	d
Total Coliforms (10/30/2000)	2200	d	>24000	d	>24000	d	>24000	d	>24000	d	13000	d	190	d
Total Coliforms (11/6/2000)	1200	d	6900	d	3400	d	4600	d	8700	d	1300	d	630	d
Total Coliforms (11/13/2000)	680	d	9800	d	4100	d	3100	d	5500	d	730	d	10	d
Geometric Mean Total Coliforms	1061		>9614		>5543		>9455		>9716		1805		104	
E.coli (10/16/2000)	31	d	230	d	170	d	1900	d	600	d	190	d	10	d
E.coli (10/23/2000)	20	d	170	d	160	d	13000	d	450	d	74	d	31	d
E.coli (10/30/2000)	41	d	6500	d	4600	d	3600	d	3200	d	730	d	41	d
E.coli (11/6/2000)	31	d	170	d	62	d	120	d	340	d	74	d	20	d
E.coli (11/13/2000)	20	d	10	d	31	d	210	d	300	d	74	d	<10	d
Geometric Mean E. coli	28		212		189		1175		615		141		<19	
Enterococcus (10/16/2000)	na		na		na		na		na		85	d	10	d
Enterococcus (10/23/2000)	na		na		na		na		na		20	d	<10	d
Enterococcus (10/30/2000)	na		na		na		na		na		1100	d	52	d
Enterococcus (11/6/2000)	na		na		na		na		na		220	d	20	d
Enterococcus (11/13/2000)	na		na		na		na		na		52	d	<10	d
Geometric Mean Enterococcus											116		<16	

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> or < - Actual value outside quantification range. Estimated value used to calculate geometric mean. See narrative.

na- not analyzed d- dilution factor 1:10 dd- dilution factor 1:100