STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING MARCH 19, 2004
Prepared on February 25, 2004

ITEM: 20

SUBJECT: ADOPTING THE CLEAR CREEK AND HERNANDEZ RESERVOIR TOTAL MAXIMUM DAILY LOAD FOR MERCURY AND IMPLEMENTATION PLAN

BACKGROUND

Clear Creek and Hernandez Reservoir are listed for mercury impairment on the 2002 Clean Water Act Section 303(d) list. Section 303(d) requires the Regional Board to adopt a Total Maximum Daily Load (TMDL) for listed waterbodies. Staff recommends the adoption of a TMDL and implementation plan for mercury in Clear Creek and Hernandez Reservoir. Staff evaluated available water quality data for mercury and determined a maximum annual load for mercury to protect beneficial uses, numeric targets that indicate load reduction, and an implementation plan to achieve these targets.

The TMDL report addresses water quality impacts from mercury within the watershed, establishes numeric targets for water and fish tissue, calculates mercury loading and allocates necessary reductions in total loading, and identifies implementation actions that are expected to bring about load reductions and
attainment of the numeric targets. Resolution RB3-2004-0029, Attachment A, will constitute the Regional Board's approval of the TMDL and endorsement of the Implementation Plan. The Technical Analysis report describing the TMDL is available in Attachment B.

DISCUSSION

DESCRIPTION OF CLEAR CREEK AND HERNANDEZ RESERVOIR

The Clear Creek watershed encompasses approximately 14 square miles located in San Benito County. Clear Creek flows into the San Benito River, which is impounded to make Hernandez Reservoir a little less than one mile downstream of the Clear Creek confluence. Upper areas of the Clear Creek watershed form the eastern watershed boundary of the Central Coast Region. These areas contain a number of inactive mines that were involved in mercury production.

PROBLEM

Available data show exceedence of the Basin Plan total mercury objective (0.05 μg/L for municipal and domestic supply [MUN] beneficial use based on California Toxics Rule) in samples from Clear Creek in 1996 - 2000. In addition, fish tissue samples collected from fish in Hernandez Reservoir in 1995-96 exceeded US Food and Drug Administration standards for human consumption (less than 1 mg/kg total mercury in fish tissue), which is an impairment of the Commercial and Sport Fishing beneficial use. Impairment of the Commercial and Sport Fishing beneficial use by mercury transported or deposited as sediment is an exceedence of Basin Plan narrative objectives for suspended and settleable solids.

NUMERIC TARGETS

The TMDL report evaluates the mercury-related water quality problems that exist in Hernandez Reservoir and the Clear Creek watershed. The document identifies suitable targets for water-column mercury in Clear Creek and methylmercury in fish tissue in Hernandez Reservoir. The water column targets are 0.05 ug/L total mercury in water (based on California Toxics Rule as applicable to the municipal supply beneficial use). The fish tissue methylmercury target is no more than 0.3 mg mercury/kg tissue, which is a recommended water quality criterion proposed by USEPA in 2001.

TMDL CALCULATION

Because the available data on flows in Clear Creek and discharge from Hernandez Reservoir are available on a monthly basis, a seasonal load allocation was developed. Although the TMDLs

are actually calculated on a seasonal basis, the term "Total Maximum Daily Load" is used for consistency with the Clean Water Act.[1]

Using the available flow data and the water column targets, a seasonally adjusted total maximum daily mercury load was derived for Clear Creek.

The Total Maximum Annual Mercury Load for the Clear Creek drainage area is:

44 grams (1/1-3/31)
\+ **24 grams** (4/1 – 6/30)
\+ **6 grams** (7/1- 9/30)
\+ **5 grams** (10/1-12/31)
79 grams/yr
(annual average total load from drainage area)

Based on outflows from the reservoir, the Total Maximum Annual Mercury Load for the Hernandez Reservoir is:

112 grams (1/1-3/31)
\+ **84 grams** (4/1 – 6/30)
\+ **116 grams** (7/1- 9/30)
\+ **26 grams** (10/1-12/31)
338 grams/yr
(annual average total load from drainage area)

PUBLIC INVOLVEMENT

Regional Board Staff has conducted TMDL outreach by coordinating the TMDL with the US Bureau of Land Management, the San Benito County Water District, and local residents in the vicinity of Clear Creek. In addition, public review and comment through this board hearing process provides another formal opportunity for public input for adoption of this TMDL. Notice of public hearing was given by notifying newspapers of general circulation within the Region and by mailing a copy of the notice to all persons requesting such notice and affected government agencies.

IMPLEMENTATION

The overall intent of the Implementation Plan is to reduce mercury-rich sediment loading into Clear Creek and therefore the downstream Hernandez Reservoir. The Implementation Plan consists of endorsing activities of another agency, the US Bureau of Land Management.

Because the mercury load of Clear Creek is derived primarily from historic mining operations in the area, the Implementation Plan describes the control of these identifiable sources. The Plan identifies specific actions that have been conducted by the US Bureau of Land Management (BLM) which are expected to bring about the reductions in mercury loads specified in the TMDL.

MONITORING

The monitoring plan describes the way in which the Regional Board will ensure attainment of the TMDL. The Regional Board will make use of the existing monitoring program of the US Bureau of Land Management (USBLM). The USBLM currently monitors Clear Creek near its confluence with the San Benito River.

In addition to the USBLM monitoring in Clear Creek, staff proposes future Regional Board monitoring of fish tissue from Hernandez Reservoir to demonstrate that beneficial uses are protected in the reservoir.

The technical support documentation for this proposed Board action is available at the Region 3 website at http://www.swrcb.ca.gov/rwqcb3/TMDL/PublicCommentParticipation.htm. Staff did not include the entire document in the staff report in order to save paper. Paper copies are available upon request.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

This Board resolution certifies that an existing project makes any further regulatory action (i.e., any "project") unnecessary. Therefore, this action is not a "project" that requires compliance with the California Environmental Quality Act (California Public Resources Code §21000 et seq.). The Regional Board is not directly undertaking an activity, funding an activity or issuing a permit or other entitlement for use (Public Resources Code section 21065; 14 Cal. Code of Regs. §15378). USBLM is not required to obtain Regional Board approval to continue its remediation plan. The Regional Board is not approving any activity; it is merely certifying that an ongoing activity also satisfies other legislative requirements.

[1] Total maximum "daily" loads can be expressed as mass-per-time (40 CFR 130.2(i)), i.e., on a basis other than daily.

ANTI-DEGRADATION

This resolution does not allow degradation or lower water quality, and does not approve an activity that produces or may produce a waste or increased volume or concentration of waste or an activity that discharges or proposes to discharge to existing high quality waters. This resolution therefore complies with Resolution 68-16 and 40 CFR §131.12.

COMMENTS

Notice of this item being proposed to the Regional Board was distributed to a list of interested parties and agencies that have indicated interest in the Clear Creek area or have indicated interest in TMDL activities in the vicinity of the Clear Creek and Hernandez Reservoir sites. These interested parties include:

Mr. Keith Anderson, California Army National Guard
Mr. Michael Cahn, UC Cooperative Extension
Mr. Robert Curry, Environmental Studies
Mr. Greg Frantz, SWRCB
Emily Hanson, Monterey County RCD
Mr. Don Klusman, Natural Resource Consultant
Mr. Michael Levy, SWRCB
Ms. Cheryl McGovern, USEPA-9
Ms. Connie Rutherford, US Fish and Wildlife Service
Mr. Jon Bishop, LA-RWQCB
Ms. Karen Christensen, Santa Cruz County
Dr. Andrew DeVogelaere, Monterey Bay National Marine Sanctuary
Mr. John Gregg, San Benito County Water Management District
Ms. Pamela Heatherington, ECOSLO
Mr. Lowell Landowski, CA Dept. of Parks and Recreation
Ms. Dawn Mathes, Coalition of CCCFB
Mr. Tim Moore, US Bureau of Land Management
Mr. John Steinbeck, Tenera, Inc.
Mr. Ray Bransfield, US Fish and Wildlife Service
Mr. Eugene Cunningham, Citizen
Ms. Mary Ellen Dick, San Benito/Santa Clara County Farm Bureau
Ms. Nancy Griffin, San Benito County
Mr. Joe Karkoski, Central Valley RWQCB
Mr. Rick LeFlore, CA Department of Parks and Recreation
Ms. Mary Ann Matthews, California Native Plant Society
Mr. Jeff Rodriguez, Central Coast Resource Cons. and Develop.
Mr. Allen Stroh, Monterey County Environmental Health
Terry Palmisano, CA Department of Fish and Game
Ms. Kathy Thomasberg, Monterey County
Ms. Linda Vida, UC-Berkeley
Mr. Ed Tobin, Salinas Ramblers Motorcycle Club
Mr. Craig J Wilson, SWRCB
Ms. Ling Tseng, SWRCB

Written comments (via mail, e-mail, and fax) concerning the proposed TMDL for Mercury in Clear Creek and Hernandez Reservoir received prior to the Regional Board meeting will be considered prior to Board approval.

RECOMMENDATION

Adopt Resolution R3-2004-0029 approving the TMDL for Mercury in Clear Creek and Hernandez Reservoir, certifying the implementation plan of the USBLM will achieve the TMDL.

ATTACHMENTS:

A. Resolution R3-2004-0029
B. Technical Support Document- available at the Region Three website at http://www.swrcb.ca.gov/rwqcb3/TMDL/PublicCommentParticipation.htm

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STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

SUPPLEMENTAL SHEET FOR REGULAR MEETING OF MARCH 19, 2004

Prepared on March 4, 2004

ITEM: **20**

SUBJECT: **Resolution No. R3-2004-0029, Adopting the Clear Creek and Hernandez Reservoir Total Maximum Daily Load for Mercury and Implementation Plan**

KEY INFORMATION

Staff has revised language in the original Staff Report for Item 20 and the accompanying Resolution No. R3-2004-0029. The language was revised in order to clarify the text and improve consistency with administrative law. Most changes are editorial but notable ones include:

- wording changes to the Staff Report to clarify that the US Bureau of Land Management (USBLM) is the owner and manager of the abandoned mines identified as sources of mercury loading to Clear Creek,
- addition of a finding in the Resolution clarifying the USBLM's responsibility for the inactive mines, the Regional Board's authority to require technical and monitoring reports from USBLM, changes in the USBLM's current monitoring necessary to satisfy the Regional Board's needs, and the reasonable nature of the potential costs associated with the monitoring requested.

These changes do not represent modification of the technical analysis or its conclusions, nor do they reflect significant changes in the strategy for implementing the TMDL.

Copies of the revised Staff Report (now dated March 4, 2004) and the accompanying revised proposed Resolution in "track changes mode" (changes highlighted in underlined/~~strikeout~~ text) and in "clean copy" are attached to this Supplemental Sheet.

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STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING MARCH 19, 2004
Prepared on March4, 2004

ITEM: 20

SUBJECT: ADOPTING THE CLEAR CREEK AND HERNANDEZ RESERVOIR TOTAL MAXIMUM DAILY LOAD FOR MERCURY AND IMPLEMENTATION PLAN

BACKGROUND

Clear Creek and Hernandez Reservoir are listed for mercury impairment on the 2002 Clean Water Act Section 303(d) list. Section 303(d) requires the Regional Board to adopt a Total Maximum Daily Load (TMDL) for listed waterbodies. Staff recommends the adoption of a TMDL and implementation plan for mercury in Clear Creek and Hernandez Reservoir. Staff evaluated available water quality data for mercury and determined a maximum annual load for mercury to protect beneficial uses, numeric targets that indicate load reduction, and an implementation plan to achieve these targets.

The TMDL report addresses water quality impacts from mercury within the watershed, establishes numeric targets for water and fish tissue, calculates mercury loading and allocates necessary reductions in total loading, and identifies implementation actions that are expected to bring about load reductions and attainment of the numeric targets. Resolution RB3-2004-0029, Attachment A, will constitute the Regional Board's approval of the TMDL and endorsement of the Implementation Plan. The Technical Analysis report describing the TMDL is available in Attachment B.

DISCUSSION

DESCRIPTION OF CLEAR CREEK AND HERNANDEZ RESERVOIR

The Clear Creek watershed encompasses approximately 14 square miles located in San Benito County. Clear Creek flows into the San Benito River, which is impounded to make Hernandez Reservoir a little less than one mile downstream of the Clear Creek confluence. Upper areas of the Clear Creek watershed form the eastern watershed boundary of the Central Coast Region. These areas contain a number of inactive mines that were involved in mercury production. The US Bureau of Land Management (USBLM) is the owner and manager of most of the land in the Clear Creek watershed and is the owner of the inactive mines in the Clear Creek watershed.

PROBLEM

Available data show exceedence of the Basin Plan total mercury objective (0.05 μg/L for municipal and domestic supply [MUN] beneficial use based on California Toxics Rule) in samples from Clear Creek in 1996 - 2000. In addition, fish tissue samples collected from fish in Hernandez Reservoir in 1995-96 exceeded US Food and Drug Administration standards for human consumption (less than 1 mg/kg total mercury in fish tissue), which is an impairment of the Commercial and Sport Fishing beneficial use. Impairment of the Commercial and Sport Fishing beneficial use by mercury transported or deposited as sediment is an exceedence of Basin Plan narrative objectives for suspended and settleable solids.

NUMERIC TARGETS

The TMDL report evaluates the mercury-related water quality problems that exist in Hernandez Reservoir and the Clear Creek watershed. The document identifies suitable targets for water-column mercury in Clear Creek and methylmercury in fish tissue in Hernandez Reservoir. The water column targets are 0.05 ug/L total mercury in water (based on California Toxics Rule as applicable to the municipal supply beneficial use). The fish tissue methylmercury target is no more than 0.3 mg mercury/kg tissue,

which is a recommended water quality criterion proposed by USEPA in 2001.

TMDL CALCULATION

Because the available data on flows in Clear Creek and discharge from Hernandez Reservoir are available on a monthly basis, a seasonal load allocation was developed. Although the TMDLs are actually calculated on a seasonal basis, the term "Total Maximum Daily Load" is used for consistency with the Clean Water Act.[2]

Using the available flow data and the water column targets, a seasonally adjusted total maximum daily mercury load was derived for Clear Creek.

The Total Maximum Annual Mercury Load for the Clear Creek drainage area is:

44 grams (1/1-3/31)
\+ **24 grams** (4/1 – 6/30)
\+ **6 grams** (7/1- 9/30)
\+ **5 grams** (10/1-12/31)
79 grams/yr
(annual average total load from drainage area)

Based on outflows from the reservoir, the Total Maximum Annual Mercury Load for the Hernandez Reservoir is:

112 grams (1/1-3/31)
\+ **84 grams** (4/1 – 6/30)
\+ **116 grams** (7/1- 9/30)
\+ **26 grams** (10/1-12/31)
338 grams/yr
(annual average total load from drainage area)

PUBLIC INVOLVEMENT

Regional Board Staff has conducted TMDL outreach by coordinating the TMDL with the US Bureau of Land Management, the San Benito County Water District, and local residents in the vicinity of Clear Creek. In addition, public review and comment through this board hearing process provides another formal opportunity for public input for adoption of this TMDL. Notice of public hearing was given by notifying newspapers of general circulation within the Region and by mailing a copy of the notice to all persons requesting such notice and affected government agencies.

IMPLEMENTATION

The overall intent of the Implementation Plan is to reduce mercury-rich sediment loading into Clear Creek and therefore the downstream Hernandez Reservoir. The US Bureau of Land Management (USBLM) is the owner and manager of the most of the land in the Clear Creek watershed and is the owner of the inactive mines in the Clear Creek watershed. The Regional Board therefore has authority to require technical and monitoring reports from USBLM pursuant to Water Code section 13267.

The Implementation Plan consists of finding that activities of another agency, the US Bureau of Land Management, are sufficient to attain water quality standards.

Because the mercury load of Clear Creek is derived primarily from historic mining operations in the area, the Implementation Plan describes the control of these identifiable sources. The Plan identifies specific actions that have been conducted by the US Bureau of Land Management (BLM) which are expected to bring about the reductions in mercury loads specified in the TMDL.

MONITORING

The monitoring plan describes the way in which the Regional Board will ensure attainment of the TMDL. The Regional Board will make use of the existing monitoring program of the US Bureau of Land Management (USBLM). The USBLM currently monitors Clear Creek near its confluence with the San Benito River.

In addition to the USBLM monitoring in Clear Creek, staff proposes future Regional Board monitoring of fish tissue from Hernandez Reservoir to demonstrate that beneficial uses are protected in the reservoir.

The technical support documentation for this proposed Board action is available at the Region 3 website at http://www.swrcb.ca.gov/rwqcb3/TMDL/PublicCommentParticipation.htm. Staff did not include the entire document in the staff report in order to save paper. Paper copies are available upon request.

[2] Total maximum "daily" loads can be expressed as mass-per-time (40 CFR 130.2(i)), i.e., on a basis other than daily.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

This Board resolution finds that an existing project makes any further regulatory action (i.e., any "project") unnecessary. Therefore, this action is not a "project" that requires compliance with the California Environmental Quality Act (California Public Resources Code §21000 et seq.). The Regional Board is not directly undertaking an activity, funding an activity or issuing a permit or other entitlement for use (Public Resources Code section 21065; 14 Cal. Code of Regs. §15378). USBLM is not required to obtain Regional Board approval to continue its remediation plan. The Regional Board is not approving any activity; it is merely finding that an ongoing activity also satisfies other legislative requirements.

ANTI-DEGRADATION

This resolution does not allow degradation or lower water quality, and does not approve an activity that produces or may produce a waste or increased volume or concentration of waste or an activity that discharges or proposes to discharge to existing high quality waters. This resolution therefore complies with Resolution 68-16 and 40 CFR §131.12.

COMMENTS

Notice of this item being proposed to the Regional Board was distributed to a list of interested parties and agencies that have indicated interest in the Clear Creek area or have indicated interest in TMDL activities in the vicinity of the Clear Creek and Hernandez Reservoir sites. These interested parties include:

Mr. Keith Anderson, California Army National Guard
Mr. Michael Cahn, UC Cooperative Extension
Mr. Robert Curry, Environmental Studies
Mr. Greg Frantz, SWRCB
Emily Hanson, Monterey County RCD
Mr. Don Klusman, Natural Resource Consultant
Mr. Michael Levy, SWRCB
Ms. Cheryl McGovern, USEPA-9
Ms. Connie Rutherford, US Fish and Wildlife Service
Mr. Jon Bishop, LA-RWQCB
Ms. Karen Christensen, Santa Cruz County
Dr. Andrew DeVogelaere, Monterey Bay National Marine Sanctuary
Mr. John Gregg, San Benito County Water Management District
Ms. Pamela Heatherington, ECOSLO
Mr. Lowell Landowski, CA Dept. of Parks and Recreation
Ms. Dawn Mathes, Coalition of CCCFB
Mr. Tim Moore, US Bureau of Land Management
Mr. John Steinbeck, Tenera, Inc.
Mr. Ray Bransfield, US Fish and Wildlife Service
Mr. Eugene Cunningham, Citizen
Ms. Mary Ellen Dick, San Benito/Santa Clara County Farm Bureau
Ms. Nancy Griffin, San Benito County
Mr. Joe Karkoski, Central Valley RWQCB
Mr. Rick LeFlore, CA Department of Parks and Recreation
Ms. Mary Ann Matthews, California Native Plant Society
Mr. Jeff Rodriguez, Central Coast Resource Cons. and Develop.
Mr. Allen Stroh, Monterey County Environmental Health
Terry Palmisano, CA Department of Fish and Game
Ms. Kathy Thomasberg, Monterey County
Ms. Linda Vida, UC-Berkeley
Mr. Ed Tobin, Salinas Ramblers Motorcycle Club
Mr. Craig J Wilson, SWRCB
Ms. Ling Tseng, SWRCB

Written comments (via mail, e-mail, and fax) concerning the proposed TMDL for Mercury in Clear Creek and Hernandez Reservoir received prior to the Regional Board meeting will be considered prior to Board approval.

RECOMMENDATION

Adopt Resolution R3-2004-0029 approving the TMDL for Mercury in Clear Creek and Hernandez Reservoir, finding that the implementation plan of the USBLM will achieve the TMDL.

ATTACHMENTS:

A. Resolution R3-2004-0029
B. Technical Support Document- available at the Region Three website at

http://www.swrcb.ca.gov/rwqcb3/TMDL/PublicCommentParticipation.htm

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STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

SUPPLEMENTAL SHEET TWO FOR REGULAR MEETING OF MARCH 19, 2004
Prepared on March 12, 2004

ITEM: 20

SUBJECT: Resolution No. R3-2004-0029, Adopting the Clear Creek and Hernandez Reservoir Total Maximum Daily Load for Mercury and Implementation Plan

KEY INFORMATION

Staff has revised language in the March 4, 2004 version of Resolution No. R3-2004-0029. Staff has also received one comment letter on the original Staff Report, Resolution, and Technical Support Document released on February 18, 2004. These two matters are discussed in the two sections below titled "Revised Resolution" and "Comment and Response."

Most importantly, staff has identified and corrected a mathematical error in the load calculations and has changed the Total Maximum Annual Load allowed for both Clear Creek and Hernandez Reservoir. The mathematical error was part of a conversion made in the flow data and increases the total allowable load and load allocations by a factor of three. No other changes were made to the TMDL or the way Board staff proposes to proceed in this matter. However, this has resulted in a revised Staff Report and revised Technical Support Document as discussed below.

REVISED RESOLUTION

The Resolution has been revised to include two additional findings, which were previously located in the Staff Report (and still remain in the Staff Report). These findings are:

- Number 10 – addressing CEQA and whether the current proposed action constitutes a "project" under CEQA,
- Number 11 – addressing the proposed action and its relationship to existing anti-degradation policies of the State.

These changes do not represent modification of the technical analysis or its conclusions, nor do they reflect significant changes in the strategy for implementing the TMDL. Copies of the new proposed Resolution in "track changes mode" (showing all changes proposed since the original Resolution, highlighted in underlined/~~strikeout~~ text) and in "clean copy" are attached to this Supplemental Sheet.

COMMENT AND RESPONSE

After the issuance of the original Item for public review on February 18, 2004, one letter commenting on the item has been received. This letter, dated March 5, 2004, is included in its entirety as an attachment to this Supplemental Sheet per the request of the commenter, Mr. Gene Cunningham.

COMMENT
In general, the letter requests that the Board not allow the Bureau of Land Management (BLM) to collect the water samples required under the proposed action, citing a number of factors for that request. The letter states "…it does not seem prudent to allow BLM to obtain water samples. The perpetrator of the mercury contamination of the watershed is the BLM. To allow the BLM to obtain the water samples does not give the samples an independent chain of custody. Private citizens in addressing hazardous and toxic materials on their

property must have sample taken and transported with an independent chain of custody. The California Regional Water Quality Control Board will place the obtained data in question, if the samples are not obtained by the Board or the laboratory doing the analysis or by some other credible independent party."

STAFF RESPONSE

Staff does not believe there is any valid concern regarding BLM conducting the monitoring. Mr. Cunningham's statements are incorrect. The Board routinely allows dischargers to collect samples and submit self-monitoring reports to the Board as evidence of compliance with regulatory requirements. The Board requires that all regulatory samples be submitted under an acceptable quality assurance program which includes a signature from the discharger certifying that the samples submitted have been appropriately collected and analyzed and are accurate for the Board to rely upon in making regulatory decisions.

The Executive Officer will only approve the Monitoring Plan to be submitted by the Bureau of Land Management if it includes such certifications.

Staff does not recommend any changes to the proposed monitoring plan in response to this letter for three reasons:

1) Consistency in the Board's general approach to compliance monitoring requires that the Board allow the BLM to collect samples as the Board allows other dischargers to collect their own samples.
2) Consistency with other Regional Boards and States which find the US Geological Survey laboratory and data to be of acceptable quality and reliable for decision-making.
3) Enhanced value to the monitoring program by extending the current BLM/ USGS program. This value comes from: a) having a consistent collection and analysis program for ease of comparing new data to past years and, b) the fact that the USGS lab routinely uses a detection limit of 0.01 µg/L for mercury while the California lab certification program only requires labs to use a detection limit of 0.2 µg/L. The lower detection limit of the USGS lab will allow greater understanding of the Clear Creek system relative to the numeric target of 0.05 µg/L.

Finally, staff also notes that the Board retains the right (as with all dischargers) to occasionally collect a split sample, observe the sample collection, or even sample on the Board's own initiative (an action especially convenient here due to the public land nature of the sampling location). Additionally, the Board will be collecting samples of fish tissue downstream in Hernandez Reservoir, which will provide an extra check on attainment of water column mercury targets.

REVISED STAFF REPORT AND TECHNICAL SUPPORT DOCUMENT

During final review of this item, a simple mathematical error was discovered in the Technical Support Document, which then was repeated in the Staff Report. The following discussion explains the error and corrections made to the Technical Support Document, and supercedes the related information in the Staff Report.

The Technical Support Document contains the calculations of the proposed Total Maximum Annual Load for mercury in Clear Creek and Hernandez Reservoir. The calculation of these loads was based upon available flow data for Clear Creek and discharge data from Hernandez Reservoir. In both cases, monthly average flow data was available. Staff considered a seasonal flow analysis to be most appropriate for evaluation of mercury transport, and monthly flow data was converted to quarterly flow data. We mistakenly used a monthly average flow in place of a quarterly average flow. Because all calculations were simplified to an average 30-day month and are now corrected to an average 90-day quarter, the loads and allocations have simply been corrected by a factor of three.

The corrected Total Maximum Annual Mercury Load for the Clear Creek drainage area is:

131 grams (1/1-3/31)
\+ **73 grams** (4/1 – 6/30)
\+ **17 grams** (7/1- 9/30)
\+ **15 grams** (10/1-12/31)
236 grams/yr
(annual average total load from drainage area)

Based on outflows from the reservoir, the Total Maximum Annual Mercury Load for the Hernandez Reservoir is:

336 grams (1/1-3/31)
\+ **253 grams** (4/1 – 6/30)
\+ **347 grams** (7/1- 9/30)
\+ **79 grams** (10/1-12/31)
1015 grams/yr
(annual average total load from drainage area)"

Corrected flow data used in calculations has also resulted in similar changes in several locations in the Technical Support Document. Therefore, the Technical Support Document has been revised and the current version is now dated March 10, 2004. Corrected calculations have resulted in changes to pages 15-20 of the Technical Support Document, which are attached here for convenience. A copy of the revised Technical Support Document showing changes in underline/ strikeout format is available on the Regional Board's website at: http://www.swrcb.ca.gov/rwqcb3/TMDL/PublicCommentParticipation.htm.

ATTACHMENTS

1. Revised Resolution R3-2004-0029 "track changes version"
2. Revised Resolution R3-2004-0029 – "clean copy"
3. Letter of Gene Cunningham, dated March 5, 2004.
4. Revised Technical Support Document, pages 15- 20 only.

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A. Total Maximum Daily Load
B. Technical Support Analysis for Mercury Impairment
C. of

Clear Creek and Hernandez Reservoir

Central Coast Regional Water Quality Control Board

March 10~~February 25~~, 2004

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5. Linkage Analysis

The basic approach of reducing sediment mercury loads to estimated background conditions can also be assumed to restore tissue levels of mercury to background conditions (based on an assumption that background conditions pre-mining influence resulted in local fish tissue that supported the COMM designation, and assuming an adequate response time to mine remediation leading to re-establishing "background" sediment mercury levels). The linkage between the implementation actions of reducing sedimentary mercury loading from the mines and achieving the water column targets for mercury is demonstrated in the work of Krabbenhoft et al. (1999), which shows a correlation between sediment mercury and water column methylmercury levels at the relatively low ranges of values observed in the Clear Creek and Hernandez Reservoir data. In setting the criterion for methylmercury in fish tissue, the USEPA suggested three approaches to link methylmercury in tissue to methylmercury in the water column. We believe this combination linkage of mercury sediment loads to methylmercury in the water column and of methylmercury in the water column to methylmercury in fish tissue demonstrates that the proposed loads will achieve the numeric targets selected for Clear Creek and Hernandez Reservoir.

6. Load Allocations

The allocated loads are directly correlated with the average flows from Hernandez Reservoir and within Clear Creek because the Numeric Target selected for this TMDL is the CTR water column objective for total mercury. Therefore, the load allocation for mercury in Clear Creek can be calculated as the average flow at the USGS Gage on Clear Creek times the allowable water column concentration (incorporating factors for unit conversions).

A similar allocation for the reservoir itself can be made using outflow data from Hernandez Dam reported by the San Benito County Water District. The remaining portion of the load is allocated to general "background" non-point source runoff from the remaining portion of the Hernandez Reservoir watershed other than the Clear Creek sub-watershed. This method does not explicitly account for changes in storage within the reservoir, but by basing the total mercury load only upon the outflow from Hernandez Reservoir, the estimated allowable load is conservatively calculated.

Each of the load allocation calculations described above can also be tailored to the timeframes of available data (e.g., daily, monthly, or annual average flows). To account for seasonality and anticipating a reasonable monitoring schedule, a quarterly average flow has been selected as the basis for load allocations. The load allocations shown in Table 4 were derived by summing three consecutive months of monthly average flow data to obtain a quarterly (seasonal) average flow (in liters, L), then multiplying that flow times the 0.050 µg/L mercury objective concentration to obtain a quarterly load allocation.

Table 4. Mercury Load Allocations.

Time Period:	Hernandez Reservoir Flow (acre- ft)	Hernandez Load Allocation (grams)	Clear Creek Flow (acre-ft)	Clear Creek Load Allocation (grams)
1/1 – 3/31	~~1774~~5323	~~112~~336	~~692~~2078	~~44~~131
4/1 – 6/30	~~1336~~4010	~~84~~253	~~385~~1155	~~24~~73
7/1 – 9/30	~~1833~~5499	~~116~~347	~~91~~272	~~6~~17
10/1 – 12/31	~~415~~1245	~~26~~79	~~79~~238	~~5~~15
Annual Total	~~5358~~16077	~~338~~1015	~~1247~~3743	~~79~~236

Note:
Calculations are: (Flow, in acre-ft)*(1,262,587 Liters/acre-ft)*(0.050 µg/L)*(1 g/1,000,000 µg)= Load (g.)

Flow data from: USGS Website (8 years of record) for Clear Creek, San Benito County Water District website (4 years of record) for Hernandez Reservoir outlet.

As shown on Table 4, the total maximum annual load for mercury in Hernandez Reservoir is ~~338~~1015 grams per year, allocated as follows:

Total Maximum Annual Load =
Clear Creek allocation + "rest of Hernandez watershed" Non-Point Load + MOS

Because the Margin of Safety (MOS) is implicitly derived from conservative assumptions in the development of the targets and the total load, the TMDL numerically becomes:

1015~~338~~ grams/year = 236~~79~~ grams/year (Clear Crk) + 779~~259~~ grams/year (Non-Point Sources)

The load in Clear Creek is a combination of inactive mines and background from other lands in the Clear Creek watershed. The allocation will be met by USBLM activities that result in achieving 236~~79~~ grams/year in Clear Creek as appropriate to that year's flow in the creek.

As a check on the non-point source load attributed to the remainder of the Hernandez Reservoir watershed (outside of the Clear Creek sub-watershed), an "order-of-magnitude" estimate was calculated assuming atmospheric deposition of mercury as the main source of mercury for the rest of the watershed (assuming essentially no mining impacts outside of the Clear Creek sub-basin). This calculation used annual deposition rates from a mercury deposition station in San Jose (the nearest station), assumed dry season deposition was equal to wet deposition, and assumed a pass-through rate of 20% (that is, 20% of the mercury deposited in the basin leaves in non-point source runoff, with the remainder being adsorbed to soils, adsorbed to plants or taken up in plant tissue, re-emitted to the atmosphere, etc.). A rate of 20% is mid-range from one study in the literature for measurements reported for the forested, pasture, and cropland land uses found in the Hernandez Reservoir watershed (USEPA, 2001b). This "order-of-magnitude" calculation resulted in a non-point source mercury load to Hernandez Reservoir estimated to be about 239 grams/year. This estimate is in general agreement with the TMDL load calculation which assumes 779~~259~~ grams per year of non-point source mercury load will still allow Hernandez Reservoir to meet the selected targets.

6.1 MARGIN OF SAFETY

Clear Creek

The total maximum annual load for Clear Creek includes an implicit margin of safety. The margin of safety incorporates safety factors used in the derivation of the CTR water column objective and general factors using average recent flow conditions adjusted for critical seasonal times. The consideration of the lowest sediment guidance value (TEL) in evaluating site-specific data also contributes implicitly to the margin of safety.

Hernandez Reservoir

The total maximum annual load for Hernandez Reservoir includes an implicit margin of safety. The margin of safety incorporates safety factors used in the derivation of the CTR water column objective and general factors using average recent reservoir discharges regardless of storage volume change within the reservoir. Because Hernandez Reservoir is a public water supply facility and therefore is located within an area of restricted access (fenced and locked gates), this also adds an extra margin of safety for a fish tissue target because few, if any, people are likely to be able to regularly consume fish from Hernandez Reservoir at levels the health risk calculations used to derive the fish tissue value assume. That is, the tissue value was derived based on an estimated weekly fish consumption rate (of Hernandez Reservoir fish) that no one is likely to be able to reach (due to limited access to the reservoir and its fish).

7. Implementation

To discuss potential implementation of the load allocations for Clear Creek, it is important to re-visit the current conditions in the watershed and evaluate the results of recent erosion control and mercury load control efforts of the US Bureau of Land Management (USBLM, 2002b; USBLM, 2002c). Brief summaries of some of these actions are included in the Appendix. In general, the actions included:

- Removal and/or entombment of mining wastes,
- Capping of residual material with clean, native (non-mercury ore) soil,
- Re-vegetation of disturbed areas, and,
- Monitoring.

These are the same general activities the Regional Board would require as necessary actions under an implementation plan.

7.1 CURRENT CONDITIONS

It is appropriate to review the most recent available data for Clear Creek to see if any change in conditions can be observed, because the USBLM has recently completed efforts to control mercury-rich sediment runoff and prevent it from entering Clear Creek.

In reviewing the data on Table 3, one can consider both the water column data and the sediment data.

Water:

In reviewing the water column data, it is difficult to discern a clear pattern from the limited amount of data, however, it appears reasonable to conclude that water column conditions with respect to mercury are improving.

For example, in 1995, both water samples (100% of samples) collected by the USGS exceeded the 0.050 µg/L CTR value being used as a comparison. In fact, with an average value of 1.15 µg/L, these waters were significantly impaired with regard to mercury. In 2001, two of the four USGS samples (50% of samples) collected exceeded the CTR value, with an average value of approximately 0.19 µg/L (considering non-detected values at ½ of the method detection limit). The most recent data, the Regional Board 2002 results, had only three of fourteen samples (21% of samples) exceeding the CTR objective, with an arithmetic average value of 0.04 µg/L (note the average value is below the CTR objective). USGS data collected in 2002 (through August 2002) showed no exceedences of the CTR objective. The historic data are summarized in Table 5.

Table 5. Summary of historic Clear Creek water column data.

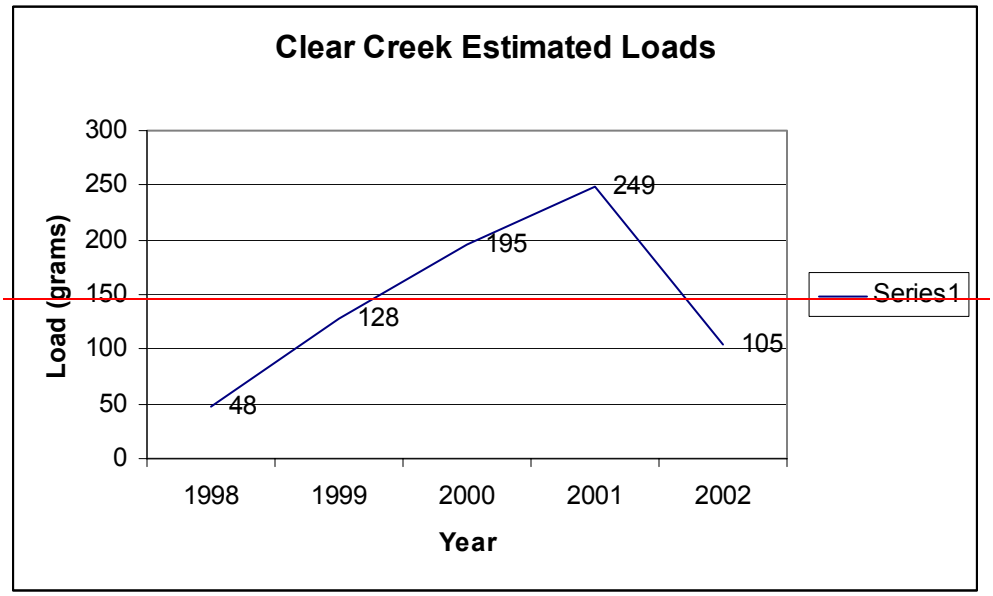
Year	Data Source	# of samples	% above 0.050 µg/L	Arithmetic average
1995	USGS	2	100%	1.15 µg/L
1996	USGS + RWQCB/DFG	2	50%	0.15 µg/L
1998	RWQCB/CCAMP	5	0%	0.012 µg/L
1999	USGS + CCAMP	4	25%	0.099 µg/L
2000	USGS	4	25%	0.155 µg/L*
2001	USGS	4	50%	0.19 µg/L
2002	RWQCB	14	21%	0.04 µg/L

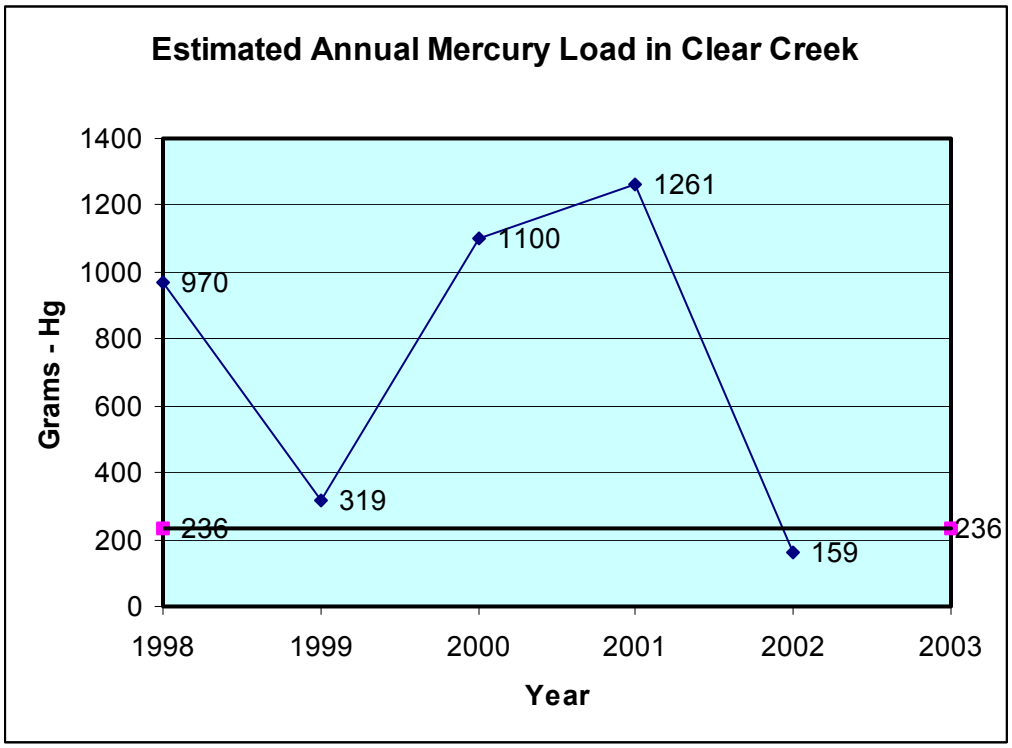
Note: * = USGS lab used PQL above 0.2 µg/L, average influenced by method of ND = ½ PQL.

The pattern of the data is a little clearer if some minor assumptions are made and the estimated current loads are plotted. This is shown in Figure 3, where estimated loads from the last 5 years are shown. These estimated loads were calculated using the average monthly flow data for the Clear Creek USGS gages~~shown in Table 4~~,

the water-column mercury level averaged from samples reported in Table 3, or, for those seasons where no water sample data were collected, assuming the water column mercury was at the 0.05 µg/L level. Although this assumption may impact the estimated loads shown in the graph, the fairly consistent timing of sample collection during the years 1998 – 2002 make it a reasonable aid to understanding the available data.

Figure 3. Estimated Clear Creek Loads in Recent Years.





From Figure 3, one can see that, although the 2002 estimated load (159~~105~~ grams) is below~~above~~ the target for Clear Creek (236~~79~~ grams), the 2002 load estimate is a marked improvement from previous years and suggests that the target load may be maintained ~~reached~~ in the~~the near~~ future.

Sediment:

The sediment sample data exhibit a ~~more~~ convincing pattern similar to~~than~~ the water column data and support the conclusion that conditions are improving in Clear Creek. Table 6 summarizes the available sediment data and compares those data against the *lowest* threshold sediment guidance value from the NOAA database, the threshold value below which no effects would be anticipated (TEL), 0.174 mg/kg. Considering an estimated "background" value of 0.2 mg/kg mercury in sediment, one can see that the 2001 data were close to this value and the average 2002 results were well below this value.

Table 6. Summary of Historic Sediment Data for Clear Creek

Year	Data Source	# of samples	% above TEL (0.174 mg/kg)	Average
1995	USGS	2	100%	0.375 mg/kg
1996	USGS + RWQCB/DFG	2	100%	2.637 mg/kg*
1998	RWQCB/CCAMP	2	100%	0.185 mg/kg
1999	USGS + CCAMP	1	100%	2.37 mg/kg*
2000	USGS	4	100%	0.432 mg/kg
2001	USGS	4	75%	0.222 mg/kg
2002	RWQCB	14	21%	0.117 mg/kg

Note: * = results skewed by small number of samples and one large value

7.2 IMPLEMENTATION SUMMARY

No additional implementation efforts are proposed because it is clear that the recent remedial efforts of the US Bureau of Land Management (USBLM) are causing a decrease in sediment concentrations of mercury in Clear Creek and because water column data from Clear Creek appear supportive of the conclusion that conditions are improving. The

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

SUPPLEMENTAL SHEET THREE FOR REGULAR MEETING OF MARCH 19, 2004

Prepared on March 17, 2004

ITEM: 20

SUBJECT: Resolution No. R3-2004-0029, Adopting the Clear Creek and Hernandez Reservoir Total Maximum Daily Load for Mercury and Implementation Plan

KEY INFORMATION

Subsequent to Supplemental Sheet Two (date March 12, 2004), one additional comment has been received via electronic mail. This comment is discussed in the sections below titled "Comment and Response." Staff recommends no changes to the proposed item in response to this comment.

COMMENT AND RESPONSE

An electronic mail (e-mail) comment dated 3/13/04 was received from Mr. Marvin Niccum.

COMMENT

Mr. Niccum has appeared before the Board during previous comment periods as a consultant to Buena Vista Mines, Inc. Mr. Niccum's e-mail states that he read the current agenda item "for comparison to the (Draft) Las Tablas TMDL."

Mr. Niccum's e-mail states that he "could not find a Loading Capacity (LC)" and discusses his concerns about where the California Toxics Rule (for mercury) applies in the waterways.

STAFF RESPONSE

Staff notes that the Loading Capacity for both Hernandez Reservoir (1015 grams/year) and Clear Creek (236 grams/year) is documented on pages 15 and 16 of the Technical Support Document. This capacity and the resulting allocations are also listed on page two of the Staff Report under the section titled "TMDL Calculation" and were revised in Supplemental Sheet Two dated March 12, 2004.

Staff also notes that the California Toxics Rule numeric objective for mercury applies to all waters of the state with the Municipal and Domestic Supply (MUN) beneficial use designation. This objective applies to all waters with the MUN designation, and is not unique to the Clear Creek and Hernandez Reservoir TMDL for mercury being proposed in this item.

Staff recommends the Board adopt the proposed Resolution R3-2004-0029 without any changes in response to Mr. Niccum's comment.

ATTACHMENTS

1. Electronic Mail From Mr. Marvin Niccum dated 3/13/04.

S:\TMDLs & Watershed Assessment\TMDL and Related Projects -Region3\Clear Creek-Hernandez Reservoir\Metals\Reg Action Review Draft\March12 Supplemental\ClrCrk-HgMar19-SupplementalSheet3.doc

Attachment 1

From: "Marvin Niccum" <mniccum@sprynet.com>
To: "Doug Gouzie" <dgouzie@rb3.swrcb.ca.gov>
Date: 3/13/04 1:12PM
Subject: Staff Report and Resolution for San Benito River Mercury TMDL

Dear Dr. Gouzie;

I was able to download the Revised (Final) TMDL document from the 5/19/04 Agenda's links. However when I attempted to follow document links from the Public Participation Page, to the rest of the package, just got a note from the server that those other pages could not be located. Thus, I've not seen the Revised Resolution.

Just read this one for comparison to the (Draft) Las Tablas TMDL. You have improved your perception of "Seasonal Variation" but I could not find a Loading Capacity (LC). Without a Loading Capacity and a transition from Loading Capacity to Load Allocations (LA), All the permitted dischargers will have to meet the CA Toxics limits (for mercury). This is normally applied at the intake structures of Public Water Supply (MUN).

Of course, the present RWQCB approach should lead to more enforcement actions and mandatory administrative fines.

Consideration of "environmental Fate" and "dilution" could save a lot of dischargers a lot of grief and still protect public water supplies. Such consideration is allowed by the TMDL rules (40 CFR 130) and the California Toxic Rule (40 CFR 131.38).

Marv, RG