UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IX

IN THE MATTER OF:

LEVIATHAN MINE
ALPINE COUNTY, CALIFORNIA

ATLANTIC RICHFIELD COMPANY,

Respondent.

ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT FOR REMOVAL ACTION

U.S. EPA Region IX
CERCLA Docket No. 2008-29

Proceeding Under Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622

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I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Settlement Agreement and Order on Consent ("Settlement Agreement"), pertaining to the Leviathan Mine Site in Alpine County, California ("Leviathan Mine" or the "Site") is entered into voluntarily by the United States Environmental Protection Agency, Region IX ("EPA") and Atlantic Richfield Company ("Atlantic Richfield" or "Respondent"), for the purposes of

(a) the performance by Respondent of certain Work, as defined herein and as specified in portions of a non-time critical removal action ("NTCRA") in connection with the Leviathan Mine Site in Alpine County, California ("Leviathan Mine" or the "Site") selected and as modified by EPA in the Modification to the Removal Action Memorandum, dated September 26, 2008 ("MRAM") (Appendix A), through August 1, 2013, unless that term is extended or terminated previously by written agreement of the Parties;

(b) the reimbursement by Respondent of certain response costs billed and/or incurred by the EPA at or in connection with the Site as described herein;

(c) the payment by Respondent of a civil penalty in the amount of $90,000;

(d) the performance by Respondent of a Supplemental Environmental Project, as specified in Section XVII of this Settlement Agreement;

(e) the settlement and final resolution of Respondent's liability for certain response actions and Settled Past Response Costs as described herein; and

(f) the supersedence, to the extent described in Paragraph 134, of Respondent's obligations under prior EPA unilateral administrative orders or administrative orders on consent relating to the Site, including the November 22, 2000 Administrative Order and the 1998 AOC (both as defined below), except as specifically provided for herein. This Settlement Agreement does not supersede the Administrative Order issued on June 23, 2008.

2. This Settlement Agreement is issued under the authority vested in the President of the United States by Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622, as amended ("CERCLA") and delegated to the Administrator of the United States Environmental Protection Agency ("EPA") by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, as amended by Executive Order No. 13016, August 30, 1996, 61 Federal Register 45871, further delegated to the EPA Regional Administrators by EPA Delegation Nos. 14-14-A, 14-14-C and 14-14-D and further redelegated by Regional Delegations dated September 29, 1997.

3. EPA has notified the states of California and Nevada of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a). With respect to this Settlement Agreement, for purposes of notice under Section 106(a) and involvement by the state of California under 40 C.F.R. § 300.500 in any response activity at the Site, the Lahontan Regional Water Quality

Control Board ("LRWQCB" or "Board") is the designated state agency acting on behalf of the State of California. The Washoe Tribe of Nevada and California has also been notified of this action.

4. EPA and Respondent recognize that this Settlement Agreement has been negotiated in good faith and that the actions undertaken by Respondent in accordance with this Settlement Agreement do not constitute an admission of any liability. Respondent does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Settlement Agreement, the validity of the findings of facts, conclusions of law, and determinations in Sections IV and V of this Settlement Agreement. Respondent agrees to comply with and be bound by the terms of this Settlement Agreement and further agrees that it will not contest the basis or validity of this Settlement Agreement or its terms in any proceeding to implement or enforce this Settlement Agreement.

II. PARTIES BOUND

5. This Settlement Agreement applies to and is binding upon EPA and upon Respondent and its successors and assigns. Any change in ownership or corporate status of Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter its responsibilities under this Settlement Agreement.

6. Respondent shall ensure that its contractors, subcontractors, and representatives performing Work at the Site receive a copy of this Settlement Agreement and comply with this Settlement Agreement. Respondent shall be responsible for any noncompliance with this Settlement Agreement.

III. DEFINITIONS

7. Unless otherwise expressly provided herein, terms used in this Settlement Agreement which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Settlement Agreement or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

a. "Atlantic Richfield" shall mean the Atlantic Richfield Company, a Delaware corporation with its principal place of business in Warrenville, Illinois, including its affiliate ARCO Environmental Remediation LLC ("AERL").

b. "Atlantic Richfield Work Season" or "ARWS" shall mean the period from June 1 through September 30 during each year that this Settlement Agreement remains in effect, unless modified in writing by the Project Coordinator and the RPM.

c. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq*.

d. "Day" shall mean a calendar day. In computing any period of time under this Settlement Agreement, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

e. "Effective Date" shall be the effective date of this Settlement Agreement as provided in Section XXXIV.

f. "EE/CA" shall mean the draft Engineering Evaluation/Cost Analysis for the non-time critical removal action at Leviathan Mine submitted by Atlantic Richfield to EPA on April 2, 2004.

g. "Eligible SEP Costs" shall mean the costs of implementing the Supplemental Environmental Project ("SEP") required pursuant to Section XVII, but do not include Respondent's internal costs, overhead, administrative expenses or legal fees. Costs incurred by contractors or consultants for project administration and production of annual reports, not exceeding $60,000, may be included as Eligible SEP Costs, so long as adequate documentation is provided.

h. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

i. "Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that EPA incurs not inconsistent with the NCP after the Effective Date in reviewing or developing plans, reports and other items pursuant to this Settlement Agreement, verifying the NTCRA, performing any part of the NTCRA, or otherwise implementing, overseeing, or enforcing this Settlement Agreement, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Paragraph 65 (costs and attorneys fees and any monies paid to secure access, including the amount of just compensation), Paragraph 75 (emergency response) and Paragraph 125 (work takeover). Future Response Costs shall also include any costs EPA incurs not inconsistent with the NCP after the Effective Date in conducting human health risk assessment, environmental risk assessment, groundwater sampling, biological surveys, sampling for downstream impacts in Leviathan Creek, Bryant Creek, or the East Fork Carson River, and vegetation screening and sampling, as well as costs of oversight of any work for the initial or long-term Remedial Investigation/ Feasibility Study ("RI/FS"). Future Response Costs shall also include all Interim Response Costs and all Interest on Interim Response Costs. Future Response Costs shall be categorized by EPA according to the Superfund Site Identification numbers described below, subject to Dispute Resolution as set forth in Paragraph 79 and Section XVI (Dispute Resolution) of this Settlement Agreement.

Future Response Costs include the following categories of Future Response Costs:

i. "09PU Costs" shall mean Future Response Costs incurred for oversight of Work performed by Respondent, and all Interest on such costs.

ii. "09PV Costs" shall mean Future Response Costs incurred for oversight of work of the State Water Resources Control Board and/or the LRWQCB, and all Interest on such costs.

iii. "091A Costs" shall mean other Future Response Costs not identified as either 09PU Costs or 09PV Costs, including any costs incurred by EPA for performance of response actions during the LAS, and also including all Interest on such costs.

iv. "Settled Future Response Costs" shall mean 09PU Costs and 50% of 091A Costs, and Interest accrued on Settled Past Response Costs from June 1, 2007 through the Effective Date.

v. "Reserved Future Response Costs" shall mean all Future Response Costs that are not Settled Future Response Costs, including: 09PV Costs and 50% of 091A Costs.

j. "Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.[1]

k. "Interim Response Costs" shall mean all costs, including direct and indirect costs, a) paid by EPA in connection with the Site between August 1, 2005 and the Effective Date, or b) incurred by EPA between August 1, 2005 and the Effective Date, but paid after the Effective Date, and Interest accrued on Past Response Costs from June 1, 2007 through the Effective Date.

l. "Limited Access Season" or "LAS" shall mean the period from October 1 through May 31 during each year that this Settlement Agreement remains in effect, unless modified in writing by the Project Coordinator and the RPM.

m. "Modification to the Removal Action Memorandum" or "MRAM" shall mean the EPA memorandum titled "Request for Approval of Modification to the Removal Action at the Leviathan Mine, Alpine County, CA," which modified the Non-Time-Critical Removal Action selected for the Site, as signed on September 26, 2008 by the Superfund Division Assistant Director, EPA Region IX, and all attachments thereto. The MRAM is attached as Appendix A and incorporated by reference.

n. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

[1] The Superfund currently is invested in 52-week MK notes. The interest rate for these MK notes changes on October 1 of each year. Current and historical rates are currently available online at http://www.epa.gov/cfo/finstatement/superfund/int_rate.htm.

o. "Paragraph" shall mean a portion of this Settlement Agreement identified by an Arabic numeral.

p. "Parties" shall mean Respondent and the EPA, Region IX.

q. "Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, billed, paid or incurred not inconsistent with the NCP by EPA in connection with the Site at any time prior to and including July 31, 2005, plus Interest on all such costs through May 31, 2007, as provided herein. The term "Past Response Costs" includes but is not limited to all costs billed by EPA to Atlantic Richfield prior to December 31, 2005, including without limitation all costs billed by EPA to Atlantic Richfield on the following dates:

February 26, 2001;
May 7, 2001;
August 17, 2001;
September 14, 2001 (revising the bill sent on February 26, 2001);
November 21, 2001;
January 28, 2002;
March 13, 2003;
June 3, 2004; and
December 16, 2005.

Past Response Costs include the following categories of Past Response Costs:

i. "Settled Past Response Costs" shall mean all Past Response Costs paid or incurred by EPA in or prior to 2001, and 50% of all Past Response Costs incurred by EPA in 2002, 2003, 2004, and 2005, including Interest which accrued on these amounts through May 31, 2007.

ii. "Reserved Past Response Costs" shall mean all Past Response Costs that are not Settled Past Response Costs, including 50% of Past Response Costs billed by EPA in 2002, 2003, 2004, and 2005, including Interest which accrued on these amounts through the May 31, 2007.

r. "Penalty Claims" shall mean all claims for penalties or fines under Section 106(b)(1) of CERCLA, 42 U.S.C. § 9606(b)(1), or punitive damages under Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3), associated with any alleged failure to comply with directives or instructions issued by EPA with respect to the Site as set forth or described in EPA correspondence dated April 3, June 2, July 14, September 15, and November 17, 2006.

s. "RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901, *et seq.* (also known as the Resource Conservation and Recovery Act).

t. "Removal Action" or "NTCRA" shall mean the non-time critical removal action for the Site described in Section V.A of the MRAM, including the Work required by this Settlement Agreement, and including any work that the LRWQCB is required to perform at the Site.

u. "Respondent" shall mean the Atlantic Richfield Company.

v. "Site" shall mean the Leviathan Mine Superfund site, as described in the National Priority List ("NPL") listing.

w. "Settlement Agreement" shall mean this Administrative Settlement Agreement and Order on Consent and all appendices attached hereto. In the event of conflict between this Settlement Agreement and any appendix, this Settlement Agreement shall control. This Settlement Agreement is an administrative settlement for purposes of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B).

x. "Section" shall mean a portion of this Settlement Agreement identified by a Roman numeral.

y. "Subparagraph" shall mean a portion of this Settlement Agreement identified by a lower case letter.

z. "Waste Material" shall mean 1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); 2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); 3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and 4) any "hazardous material" under California law.

aa. "Work" shall mean all activities that Respondent is required to perform under this Settlement Agreement, as more particularly described in the 2007 -08 Treatability Studies and Interim Treatment Work Plan, dated June 22, 2007, as amended, and the Process Design Criteria and Technical Decision Memorandum for the High Density Sludge Treatment Plan, dated June 26, 2007, both attached hereto and incorporated herein as Appendix B, and any approved modifications of work plans pursuant to Section XXVIII of this Settlement Agreement. "Work" shall include all Emergency Response Actions pursuant to Section XIII and Modifications pursuant to Section XXVIII. The Work shall not include the collection or treatment of acid mine drainage ("AMD")[2] from the Channel Underdrain ("CUD") or Delta Seep (as described below) during the Limited Access Season.

IV. FINDINGS OF FACT

A. Site Description, Ownership History, and NPL Listing

8. The 656 acre Leviathan Mine property lies within a remote portion of northeastern Alpine County, California, on the eastern flank of the central Sierra Nevada, near the California-Nevada border, approximately 25 miles southeast of Lake Tahoe, and 6 miles east of Markleeville, California. Of the total property, approximately 253 acres evince visible disturbance by mine related activities. With the exception of approximately 21 acres of

2 For purposes of this Settlement Agreement, the term AMD includes acid rock drainage ("ARD"). The use of the term "AMD" in this Settlement Agreement does not constitute a determination by EPA or Respondent that the referenced source or flow of low pH, metals impacted water at the Site is naturally occurring or attributable to mining activities.

disturbance on land managed by the United States Department of Agriculture, Forest Service (U.S. Forest Service), the entire surface disturbance is on the mine site owned by the State of California.

9. Vehicular access to the mine is provided by unpaved roads from State Highway 89 on the southeast and from U.S. Highway 395 south of Gardnerville, Nevada, on the northeast. Vehicular access to the mine is limited by snowfall, steep grades, narrow roads with sharp turns and muddy and rough road conditions, so that the Site may be inaccessible to heavy equipment, supply delivery trucks, emergency personnel and other vehicles from as early as October to as late as July, depending on weather. The California-Nevada border lies approximately three miles northeast of the mine.

10. The disturbed areas of Leviathan Mine are sparsely vegetated. Although there is some volunteer vegetation, most existing vegetation is due to localized revegetation efforts carried out by the LRWQCB. No external sources of potable water or power are available at this remote mine.

11. There are several sources of AMD at the Site which may impact Leviathan Creek. When a release from the Site occurs, it may flow into the Leviathan Creek/Bryant Creek watershed, which drains into the East Fork of the Carson River. Unless treated, the releases contain elevated concentrations of metals and metalloids, most notably arsenic, as well as iron, aluminum, chromium, cobalt, copper, nickel, and zinc. The low pH and high metals content of the AMD historically limited most aquatic life in Leviathan Creek and portions of Bryant Creek downstream of the mine, until responses activities were initiated. These releases originate in California and, at times, may have flowed into Nevada and into the East Fork of the Carson River, which serves as a major source of water supplies and a habitat for fish, including a historical habitat for the federally-listed threatened Lahontan cutthroat trout.

12. Mining began at the Site in the 1860's and continued on an intermittent basis for nearly 100 years. The Site was initially developed as an underground mine for gold, copper and copper sulfate from approximately 1863 to 1873. There is evidence of sporadic mining activity thereafter until 1933, when a private party acquired the site for sulfur production. Between 1933 and 1951 several companies owned and operated the mine and developed a series of underground tunnels and adits and a sulfur mill on Site. Anaconda Copper Mining Company (which later became The Anaconda Company) ("Anaconda") acquired the Site in 1951 and further developed it between 1952 and 1953. Anaconda extracted sulfur ore through open pit mining until 1962, at which time, mining ceased and the Site was sold to another party. In 1977, Atlantic Richfield purchased all of Anaconda's stock, and in 1981 it merged with Anaconda.

13. In 1984, the state of California acquired approximately 495 acres of the mine property to pursue cleanup and abatement of the water quality problems associated with historic mining. State jurisdiction over the mine property rests with the State Water Resources Control Board which, in turn, has delegated authority over the mine property to the LRWQCB.

14. On May 11, 2000 (65 Fed. Reg. 30482), pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA listed the Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B.

B. The Evaporation Ponds: Construction, Overflow, Treatment, and Enforcement

15. In an attempt to mitigate releases of AMD, the LRWQCB constructed five lined storage and evaporation ponds and other surface water and groundwater diversion structures on-site between1983 and1985. These ponds collect AMD from an adit and a drainage system built by the LRWQCB under the mine pit ("Pit Underdrain" or "PUD"). From the time of the construction of the ponds until the first successful season of treatment in 1999, evaporation during the dry summer season would decrease the total volume of AMD and concentrate the contaminants within these ponds. However, the combined flow of AMD and direct precipitation (rain and snow) into the ponds exceeded evaporation losses from the ponds in most years between 1985 and 1999, so that the ponds usually reached capacity (approximately 16 million gallons) and then overflowed into Leviathan Creek. Estimates of the overflow from a particularly wet winter range up to 9 million gallons per year. Without annual preventative action, such overflow could reoccur.

15. In May 1998, EPA issued an Administrative Order on Consent for Removal Action (1998 AOC) to Atlantic Richfield. Under the 1998 AOC, Atlantic Richfield agreed to remove a certain quantity of liquids collected in the evaporation ponds, to collect specified information on Site conditions, and to reimburse EPA, other agencies of the United States, and the Washoe Tribe of Nevada and California for certain response costs incurred by them, not inconsistent with the NCP. While Atlantic Richfield succeeded in removing millions of gallons of liquid from the evaporation ponds in a manner consistent with the NCP, Atlantic Richfield was not able to achieve the total amount of removal required by the 1998 AOC.

16. EPA and Atlantic Richfield modified the 1998 AOC on February 18, 2000. The modification to the 1998 AOC required Atlantic Richfield to perform a Riparian Conservation Project, and it provided that Atlantic Richfield's obligations under the 1998 AOC would be terminated after receipt of payment for EPA's response costs incurred in connection with the 1998 AOC between March 1, 1998 and the effective date of the modification to the AOC, which was February 18, 2000. In November, 2001, Atlantic Richfield performed the required Riparian Conservation Project by spending $720,000 to purchase 480 acres of undeveloped land in the Bald Mountain Range in Sierra County, California, donating the land to the Washoe Tribe of Nevada and California, and donating a conservation easement to the Nature Conservancy along with funds for the costs of administering the easement in perpetuity. Atlantic Richfield paid the response costs EPA billed under the 1998 AOC or its modification, except for certain cost items that were specifically disputed.

17. In the summer of 1999, the LRWQCB conducted a treatability study to evaluate a particular process for neutralizing the AMD held in the evaporation ponds. The process tested by the LRWQCB is referred to as biphasic neutralization. The treatability study demonstrated that biphasic neutralization could be used to treat the AMD to a level acceptable for discharge to Leviathan Creek, considering all of the exigencies of the situation prior to design

of further response actions. Operation of this system in the summer of 1999 reduced the level of AMD in the ponds to a significant extent. Further activity in the spring of 2000 prevented overflow that year.

18. On July 19, 2000, EPA issued an Administrative Abatement Action ("AAA") under Section 106(a) of CERCLA, 42 U.S.C. § 9606(a), to the LRWQCB, pursuant to which the LRWQCB treated the AMD in the evaporation ponds. The LRWQCB successfully treated sufficient quantities of AMD in the summer of 2000 so as to prevent pond overflows in 2001.

19. The AAA was modified in each of the years 2001, 2002, 2003, and 2004, to provide for the LRWQCB to perform a similar removal action each summer, each of which has succeeded in preventing pond overflows in the following year. EPA, in consultation with the LRWQCB, issued a new AAA in 2005 directing the LRWQCB to provide for treatment of the AMD captured in the evaporation ponds each year until a final remedy is selected and implemented. During each summer from 2001 through 2008, the LRWQCB effectively emptied the ponds of AMD in preparation for capture throughout the subsequent winter and spring. Each year, EPA and the LRWQCB have further developed the treatment system, so as to respond to changing chemistry in the ponds and improve AMD treatment and sludge handling techniques.

20. During the winters of 2004-5 and 2005-6, total precipitation exceeded 29 and 27 inches of water content respectively. This is somewhat higher than the average over the last 16 years on record but still less than the 37 inches measured in the wet year of 1995. In the spring of 2005 and 2006, the LRWQCB mobilized a portable temporary lime treatment system to the Site in early spring to respond to near-overflow conditions in the evaporation ponds. For several days in mid-April 2006, an uncontrolled overflow of untreated or partially treated pond water discharged to Leviathan Creek before the temporary treatment system was able to draw down the pond water levels sufficiently.

C. Other AMD Releases, Early Response Actions, and the Phased RI/FS

21. In addition to the contaminated water collected in the evaporation ponds, other sources of AMD from the Site may contribute year round to the contamination of the Leviathan Creek/Bryant Creek watershed unless they are captured and treated prior to discharge. The CUD collects subsurface water from beneath a portion of the concrete Leviathan Creek diversion channel that was built by the LRWQCB. The CUD usually discharges roughly 15 to 30 gallons per minute ("gpm") into Leviathan Creek, although flows exceeded 40 gpm for several months in 2006 following a second wet winter.

22. The Delta Seep is an area where surface discharges of AMD exit the lowest portion of the mine waste rock in Leviathan Canyon, known as the Delta Slope, approximately 600 feet downstream from the end of the diversion channel. Prior to 2005, the Delta Seep flow had been typically measured at approximately 10 gpm. The LRWQCB's actions to stabilize the Delta Slope in 2005 added a rudimentary system for subsurface dewatering and drainage of the face of the slope. Prior to 2007, flows from the discharge pipe of these drains and the surface seepage from the toe of the slope were not adequately collected, and flow rates can only be

estimated. In 2005 and 2006, the Delta Seep flows appeared to have increased over the flows during the earlier, drier years.

23. Aspen Seep is a series of surface flows, which at times totals more than 10 gpm from low points of the waste rock in the Aspen Creek drainage. Water quality measurements taken by the LRWQCB and Atlantic Richfield indicate that these sources are somewhat less acidic and less highly concentrated in arsenic and metals than water collected in the evaporation ponds.

24. On November 22, 2000, EPA issued an administrative order requiring Atlantic Richfield to submit work plans for a phased RI/FS for developing a long-term response to releases from Leviathan Mine ("Administrative Order"). Additionally, the Administrative Order required Atlantic Richfield to plan and implement Early Response Actions ("ERAs") to address known releases from Leviathan Mine that are not captured in the evaporation ponds.

25. Atlantic Richfield has implemented ERAs since 2001. The ERAs have emphasized treatment of known sources of AMD, both to develop feasible methods of addressing these releases and to allow examination of whether there are other sources of contamination originating at the Site by measuring how the creeks respond to treatment of the known releases.

26. During 2001 through 2008, Atlantic Richfield captured and treated flows from the CUD for a portion of each year.

27. During 2001 and 2002, the LRWQCB conducted a geotechnical analysis of the stability of the mine wastes near the Delta Seep. In 2003 and 2004, Atlantic Richfield captured the Delta Seep flows and pumped them uphill for treatment along with CUD flows. However, slope instability issues and mudflows from rain storms hampered Delta Seep efforts in both 2003 and 2004, and the Delta Seep effort ended early in the 2004 season. A major project sponsored by the LRWQCB to reconfigure and stabilize the Delta Slope was completed during the 2005 field season. Atlantic Richfield resumed partial capture and treatment of the Delta Seep in 2007 consistent with the 2007 -08 Treatability Studies and Interim Treatment Work Plan, as amended.

28. In 1996, University of Nevada - Reno researchers began to partially address the seep of AMD into Aspen Creek by a demonstration biological treatment project. This project was funded by the LRWQCB until June 30, 2001, when Atlantic Richfield assumed the project funding. The Aspen Creek treatment utilizes a biological process to reduce sulfate to sulfide and precipitate metal sulfides which are relatively insoluble. Pursuant to the Administrative Order, Atlantic Richfield expanded and improved this biological treatment system, which began capturing and treating all AMD flowing into the Aspen Creek by the summer of 2003. This system operates through the winter. Development and testing of improvements to the bioreactor process are important components of this early response action and treatability study. In 2007 and 2008, Atlantic Richfield made additional improvements to the Aspen Seep treatment system consistent with the 2007 -08 Treatability Studies and Interim Treatment Work Plan, as amended.

29. An integral part of past and future pond water treatment and other response actions includes assessment of the effectiveness of the action through water quality monitoring at the Site and in downstream waters as well as measurement of streamflow and meteorological conditions throughout the year. The LRWQCB has monitored water quality since its first involvement, and has increased the intensity of the investigation of site characteristics since 1998.

30. The ERAs to date have demonstrated effective technologies for seasonal treatment of the AMD discharges at the Site and confirmed that the known releases contribute the majority of contaminants affecting the streams during the dry season. Based on what has been learned over the past few years through ERAs performed by Atlantic Richfield, the removal actions performed by the LRWQCB, the initial stages of RI/FS activity, and discussions with the stakeholders, EPA, on November 13, 2003, directed Atlantic Richfield to prepare an EE/CA to evaluate options for capturing and treating the AMD year round to specified discharge criteria.

31. Atlantic Richfield developed the Draft EE/CA with input from EPA and other stakeholders, and submitted the Draft EE/CA on April 2, 2004. The LRWQCB had a reasonable opportunity to review and comment on the proposed EE/CA pursuant to Section 106(a) of CERCLA, 42 U.S.C. §9606(a), and 40 C.F.R. § 300.500. EPA received comments from the public, in writing and in a public meeting held on May 4, 2004.

32. EPA signed a NTCRA Memorandum on July 12, 2005, selecting a phased program for testing the effectiveness and reliability of on site year-round AMD treatment. EPA and other stakeholders identified uncertainties of winter treatment at this remote site with no existing power source and without reliable personnel access during periods of deep snow and muddy roads. At the time, active treatment of AMD at an elevation of approximately 7,000 feet, under harsh winter conditions and without day-to-day access, had not been implemented anywhere else in the nation. Consequently the new efforts during the initial years were to focus on flows from the CUD and Delta Seep, which had been allowed to discharge untreated except during the summer treatment season. Subsequent incorporation of the Adit and PUD into a combined year-round treatment system was postponed until the winterized treatment system for the CUD and Delta Seep could be proven reliable, although the pond system did not provide sufficient storage capacity for a year of particularly high precipitation.

33. An additional objective of the NTCRA was to eliminate untreated AMD discharge to the watershed to provide an opportunity to determine the scope of the subsequent phases of the RI/FS, given that such interception and treatment can be expected to substantially alter the nature and extent of the threats posed by the Site. The elimination of the major known discharges was expected to allow quantification of the effect of sediments and any other remaining sources without the confounding effect of replenishment of contaminated sediments for most of the year, particularly during the start of the lower flow conditions in late spring.

D. Attempts to Implement the 2005 NTCRA Memorandum and the Modification of the Removal Action

34. During the latter part of the 2005 construction season, Atlantic Richfield successfully tested a common lime treatment system known as High Density Sludge (“HDS”).

This method is often preferred since the treatment solids or sludge form denser particles that more easily dewater than sludge generated from conventional lime treatment, producing significantly lower volumes of waste solids that are easier to handle.

35. On May 4, 2006, Atlantic Richfield submitted a draft work plan for a winter treatability study to test the effectiveness and reliability of the HDS system for year-round treatment of CUD and Delta Seep flows ("High Density Sludge Treatment System Design and 2006/2007 Winter Operations Work Plan"). EPA approved this work plan with comments on June 2, 2006, and directed Atlantic Richfield to implement the work plan. Atlantic Richfield submitted a second work plan on May 26, 2006, for HDS treatment during the summer of 2006 prior to full implementation of the winterized treatability study. EPA approved and directed implementation of this work plan on July 14, 2006, commenting that EPA expected that Atlantic Richfield would plan to continue to capture flows from the CUD and Delta Seep during the conversion period, even if the summer treatment system would not be able to operate for a number of days.

36. The design of the winterized treatment system became more complex than initially had been anticipated, including a much larger and more elaborate building than had been envisioned, due in part to the need to enclose and heat more sludge-handling facilities, more power generation, more operator health and safety features and additional snow- and wind-load structural features. The HDS process has not been tested under conditions where operator access is limited for days or possibly weeks at a time. Atlantic Richfield became quite concerned over operator health and safety issues that arose over the need to have personnel present at this remote site for much of the winter.

37. Construction of the winterized system began on-site in July 2006. Although a great deal of work was done including preparing foundations and routing some of the transmission piping, by October it became clear to Atlantic Richfield that concerns about access and worker safety would prevent the project from being completed during 2006, and the effort was terminated for that year.

38. On November 17, 2006, EPA sent Atlantic Richfield a letter stating that Atlantic Richfield had failed to comply with EPA directives under the Administrative Order to implement the schedule and AMD capture requirements of the approved work plans, and that EPA intended to seek penalties and punitive damages.

39. During the following autumn and winter, Atlantic Richfield met with EPA and technical representatives of stakeholder groups to present its analysis of the feasibility of year-round treatment at Leviathan Mine. Atlantic Richfield's mine treatment experts present at the meeting explained that HDS was the preferred option for lime treatment due to the reduced volume of waste solids and simplified handling of this sludge. Because of the remote conditions of Leviathan Mine, it became apparent during the 2006 attempt that the level of design and robustness of construction required for year-round treatment was significantly greater than had previously been anticipated. EPA determined that any year-round treatment would be more appropriate following a thorough RI/FS and formal Record of Decision ("ROD"). As on-site winterized treatment is now envisioned, it would require capital investment and lasting effects on

land use more appropriate to consider as a final remedy. Such a remedy will be analyzed in the RI/FS, where it will be compared to other potential remedies, such as increased biological treatment, off-site treatment or additional pond storage, which were determined by EPA in the NTCRA Memorandum to be inappropriate to implement as interim remedies due to similar challenges.

40. EPA invited all interested stakeholders including representatives of all commenters on the EE/CA to participate in the November 2006 Technical Advisory Committee meeting, at which difficulties with the year-round treatment were discussed. Thirty-nine individuals - representing 12 tribal, state, federal and local government agencies as well as several businesses - attended this meeting. At that meeting and in subsequent communication, EPA invited participation of the stakeholders in a January 2007 technical meeting to explore the problems encountered with implementation of year-round HDS treatment and possible solutions to the challenges. Seventeen individuals participated, representing tribal, state, federal and private entities.

41. EPA considered Atlantic Richfield's presentation, comments of other stakeholders, and the advice of experienced engineers and researchers at EPA. EPA has determined that safe and daily availability of winter access for personnel is necessary for reliable operation of an HDS lime treatment system at this time. EPA has determined not to require implementation of such a system on a year-round basis prior to a thorough RI/FS and ROD process.

42. Personnel have been able to access the Site by four-wheel drive vehicles at certain times when early spring and late autumn conditions preclude access by large delivery vehicles and other heavy equipment. Although EPA has determined that the requirements for implementing on-site winterized treatment of CUD and Delta Seep flows exceed the scope of the NTCRA, treatment during such limited access periods, to the extent practicable, may provide watershed protection from AMD and accumulation of contaminated sediment during critical low-flow stream conditions. Equally important, treatment during spring and autumn will provide information about operations during cold weather, which can negatively affect treatment chemistry, plant operations and the physical conditions for sludge handling.

43. Accordingly, EPA is issuing a Modification of the Removal Action Memorandum ("MRAM"), concurrently with issuance of this Settlement Agreement, to modify the NTCRA to stress the importance of lengthening the period during which flows from the CUD and Delta Seep are collected and treated. The MRAM envisions treatment of CUD and Delta Seep flows at times when weather and road conditions may preclude delivery of the types and quantities of supplies needed to operate an HDS system but when personnel can safely reach the Site and rely on reduced quantities of supplies and the use of a smaller scale alternative/portable treatment system . The MRAM selects an early response action, certain portions of which shall continue until the final remedy is fully implemented or as directed by EPA.

44. This Settlement Agreement provides for implementation of portions of the NTCRA as modified by the MRAM, including those portions related to implementation of a treatability study of treatment of flows from the CUD and Delta Seep during the ARWS, as well

as the continued year-round operation of the bio-reactor treatment of Aspen Seep. In anticipation of the formal issuance of the MRAM, and pursuant to direction of EPA under the 2000 Order, Respondent submitted the 2007 -08 Treatability Studies and Interim Treatment Work Plan, dated June 22, 2007, the Process Design Criteria and Technical Decision Memorandum for the High Density Sludge Treatment Plan, dated June 26, 2007, and the Work Plan Amendment, dated March 3, 2008. EPA has approved these documents. In 2007, Respondent commenced construction of the HDS Treatment System, as described in Section 5.2.4 of the 2007-08 Treatability Studies and Interim Treatment Work Plan and in accordance with design criteria and specifications submitted by Respondent and approved by EPA. This Settlement Agreement and the Work required hereunder pertain only to the implementation of the portions of the NTCRA addressed by the 2007 -08 Treatability Studies and Interim Treatment Work Plan, as amended, and the Process Design Criteria and Technical Decision Memorandum for the High Density Sludge Treatment Plan. Implementation of subsequent phases or other aspects of the NTCRA will be addressed through amendments to this Settlement Agreement, by separate orders or decrees or by other parties. Performance of this Settlement Agreement will further contribute to the efficient performance of the anticipated long-term remedial action, as required by 40 C.F.R. § 300.15(d). EPA issued a separate order on June 23, 2008, requiring Respondent to conduct the RI/FS. All response actions performed by Respondent to date in connection with the Site were performed pursuant to either the Administrative Order, the 1998 AOC, the February 18, 2000 modification of the 1998 AOC, or the Administrative Order issued on June 23, 2008.

V. CONCLUSIONS OF LAW AND DETERMINATIONS

45. Based on the Findings of Fact set forth above, and the Administrative Record supporting this removal action, EPA has determined that:

a. The Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

b. The contamination found at the Site, as identified in the Findings of Fact above, includes "hazardous substances" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

c. Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

d. For the purposes of this Settlement Agreement only, Respondent is the successor to the liabilities of Anaconda, which was an "owner" and/or "operator" of the facility at the time of disposal of hazardous substances at the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2).

e. The conditions described in Section IV, Findings of Fact, above constitute an actual or threatened "release" of a hazardous substance from the facility as defined by Section 101(22) of CERCLA, 42 U.S.C.§ 9601(22).

f. The Work required by this Settlement Agreement is necessary to protect the public health, welfare, or the environment and, if carried out in compliance with the terms of this Settlement Agreement, will be considered consistent with the NCP, as provided in Section 300.700(c)(3)(ii) of the NCP.

VI. SETTLEMENT AGREEMENT AND ORDER

Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, it is hereby Ordered and Agreed that Respondent shall comply with all provisions of this Settlement Agreement, including, but not limited to, all attachments to this Settlement Agreement and all documents incorporated by reference into this Settlement Agreement.

VII. DESIGNATION OF CONTRACTOR, PROJECT COORDINATOR, AND ON-SCENE COORDINATOR

46. Respondent shall retain one or more contractors to submit and perform each work plan as approved by EPA and shall notify EPA of the name(s) and qualifications of such contractor(s) within 14 Days of the approval of each work plan. Respondent shall also notify EPA of the name(s) and qualification(s) of any other contractor(s) or subcontractor(s) retained to perform the Work at least 14 Days prior to commencement of any Work. EPA retains the right to disapprove of any or all of the contractors and/or subcontractors retained by the Respondent. If EPA disapproves of a selected contractor, Respondent shall retain a different contractor and shall notify EPA of that contractor's name and qualifications within 14 Days of EPA's disapproval. Any proposed contractor must demonstrate compliance with ANSI/ASQC E-4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B0-1/002), or equivalent documentation as required by EPA. Respondent shall not be required under this Paragraph to re-notify EPA of the name and qualifications of any contractors or subcontractors for whom such notice was provided to EPA prior to the Effective Date.

47. Respondent shall designate a Project Coordinator who shall be responsible for administration of all required actions under this Settlement Agreement. Respondent's initial Project Coordinator shall be:

Anthony R. Brown
Atlantic Richfield Company
4 Centerpointe Drive
La Palma, CA 90623-1066
Tel. (714) 228-6770

To the extent feasible, the Project Coordinator shall be present on Site or readily available during Site Work by Respondent. EPA retains the right to disapprove of the designated Project Coordinator. Respondent retains the right to change its Project Coordinator. Respondent shall

notify EPA 14 Days before such a change is made. The initial notification may be made orally, but shall be promptly followed by a written notice. EPA retains the right to disapprove of any future Project Coordinator Respondent may designate. If EPA disapproves of the designated Project Coordinator, Respondent shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number, and qualifications within 14 Days following EPA's disapproval. Receipt by Respondent's Project Coordinator of any notice or communication from EPA relating to this Settlement Agreement shall constitute receipt by Respondent.

48. EPA has designated Gary Riley of the Region IX Superfund Division as its Remedial Project Manager ("RPM"). Except as otherwise provided in this Settlement Agreement, Respondent shall direct all submissions required by this Settlement Agreement to the RPM at

Gary Riley
75 Hawthorne Street SFD 7-2
San Francisco, CA 94105
(415) 972-3003

And a copy of each such submission to

Kevin Mayer
75 Hawthorne Street SFD 7-2
San Francisco, CA 94105
(415) 972-912

49. EPA has the unreviewable right to change its RPM. If EPA changes its RPM, EPA will inform the Respondent in writing of the name, address, and telephone number of the new RPM.

EPA's RPM shall have the authority lawfully vested in a RPM and On Scene Coordinator ("OSC") by the NCP. EPA's RPM shall have authority, consistent with the NCP, to halt any work required by this Settlement Agreement, and to take any necessary response action.

VIII. WORK TO BE PERFORMED

50. Respondent shall perform all actions necessary to implement the portions of the NTCRA addressed by the 2007-08 Treatability Studies and Interim Treatment Work Plan, as amended, and the Process Design Criteria and Technical Decision Memorandum for the High Density Sludge Treatment Plan. This Settlement Agreement does not make Respondent responsible for undertaking the following work: (a) operation, maintenance and re-supply of the capture and treatment systems for the flows from the CUD and Delta Seep during the LAS; (b) work related to continuation of the year-round capture of, and existing summer treatment of, the flows from the Adit and PUD, (c) the capture and treatment of other naturally occurring sources of ARD at the Site; and (d) maintenance work of equipment, structures, facilities, or areas that are not part of an interim treatment system that Respondent is required to build and/or

operate under this Settlement Agreement. The actions to be implemented by Respondent include the following, subject to EPA approval of work plans described in Paragraphs 53:

a. During the 2007 and 2008 ARWS, Respondent shall:

i. Capture all flows from the CUD and as much of the surface flows from the Delta Seep as practicable using the methods described in Section 3.2.2 and 3.2.3 of the 2007-08 Treatability Studies and Interim Treatment Work Plan, as amended, or another approved work plan or work plan amendment; and

ii. Treat all of the captured flows from the CUD and Delta Seep, up to a maximum combined flow of 80 gpm, using a single-phase lime treatment system employing Rotating Cylinder Treatment System ("RCTS") technology.

b. By December 31, 2008, Respondent shall implement the other treatment, construction, monitoring and evaluation activities outlined in Sections 3.0 and 4.0 of the 2007-08 Treatability Studies and Interim Treatment Work Plan, as amended, according to the design specifications and schedule submitted by Respondent and approved by EPA and subject to the ability of personnel to safely access the Site and safely deliver any equipment and supplies that are necessary for such work to the Site, as determined by the Project Coordinator in his/her sole discretion.

c. During the 2008 ARWS, Respondent shall commence construction of the HDS Treatment System, as described in Section 5.2.4 of the 2007-08 Treatability Studies and Interim Treatment Work Plan, as amended, and in accordance with design criteria and specifications submitted by Respondent and approved by EPA.

d. During the entire 2009 ARWS, Respondent shall:

i. Capture all flows from the CUD, up to a maximum flow of 60 gpm, and as much of the flows from the Delta Seep as practicable, up to a maximum flow of 40 gpm, using the methods described in Section 5.2.1 and 5.2.2 of the 2007-08 Treatability Studies and Interim Treatment Work Plan, as amended, or another approved work plan or work plan amendment;

ii. Treat all of the captured flows from the CUD and Delta Seep, up to a maximum combined flow of 100 gpm, using the single-phase RCTS lime treatment system or the HDS Treatment System.

e. By September 1, 2009, Respondent shall initiate commissioning/start-up of the HDS Treatment System and implement the other treatment, construction, monitoring and evaluation activities outlined in Sections 5.0 of the 2007-08 Treatability Studies and Interim Treatment Work Plan, as amended, or another approved work plan or work plan amendment, according to the design specifications and schedule submitted by Respondent and approved by EPA.

f. After the end of the 2008 ARWS, and for each year that Respondent is required to perform Work under this Settlement Agreement, Respondent may perform operations during the LAS as provided in Subparagraph g of this Paragraph.

g. During the periods described in Subparagraph f of this Paragraph, Respondent may, in its sole discretion, elect to request EPA's authorization, but shall not be required pursuant to this Settlement Agreement, to perform certain operations at the Site, including the capture and treatment of flows from the CUD and Delta Seep, at times when personnel can safely access the site, necessary consumable materials and other supplies are available or can safely be delivered to the Site, and cold weather conditions will not cause damage to the capture and treatment systems and other equipment. Any request by the Project Coordinator to continue to operate during the fall/winter portion of the LAS must be made at least 5 Days prior to commencement of the LAS and shall include an estimate of when operations will cease for the year. Any request by the Project Coordinator to perform water treatment during the winter/spring portion of the LAS must be made at least 10 days prior to commencement of the proposed treatment. The RPM shall have sole discretion in deciding whether to grant such a request.

h. If, pursuant to EPA's reservation in Paragraph 123, EPA elects to operate the HDS Treatment System (as described in Paragraph 44) during some portion of the LAS, EPA will so notify the Project Coordinator. Respondent will have 7 Days from the receipt of such notice to request authorization from EPA to commence capture and perform treatment of flows from the CUD, and from the Delta Seep if feasible, during the specified portion of LAS using methods and equipment selected by Respondent and approved by EPA. If EPA grants such authorization and approval, EPA will refrain from operating the HDS Treatment System as long as Respondent initiates capture of flows from the CUD, and from the Delta Seep if feasible, within 21 days after the Project Coordinator receives notice from EPA that Respondent's request for authorization under this Subparagraph is granted. The previous sentence shall not be deemed an exception to EPA's reservation of rights under Paragraph 123.

i. After the Effective Date, for each year that Atlantic Richfield is required to perform Work under this Settlement Agreement, Respondent shall:

i. Submit Progress Reports and an Annual Report, as described in Paragraphs 62 and 63;

ii. Submit a draft work plan or work plan amendment by March 1, or some later date if agreed to by the RPM, for all Work to be performed during that year, provided that this requirement and deadline shall not apply to work plans for Work to be performed during 2008; and

iii. Capture all flows from the CUD, up to a maximum flow of 60 gpm, and as much of the surface flows from the Delta Seep as practicable, up to a maximum flow of 40 gpm, during the ARWS and treat such flows at the design rate and according to the specifications and schedule set forth in the approved work plans or amendments thereto.

j. From the Effective Date of this Settlement Agreement through each year that Respondent is required to perform Work under this Settlement Agreement, Respondent shall continue to perform the following activities, as described in work plan(s) or work plan amendments approved by the RPM:

i. Continue to operate and maintain the Aspen Seep bioreactor;

ii. Maintain and update the Leviathan Mine Database;

iii. Evaluate on-site and off-site disposal options for solids generated from Respondent's treatment of flows from the CUD and Delta Seep, consistent with EPA guidance on regulatory and administrative issues;

iv. If so directed by the RPM, implement contingency plans as provided in approved work plans for potential failure of the collection and treatment systems designed, constructed and operated by Respondent; and

v. Continue sampling as set forth in the work plans. Environmental sampling of water quantity and quality for intake and discharges into Leviathan Creek from the treatment systems designed, constructed and operated by Respondent shall be performed. In addition to monitoring water quality and system performance data collection, sampling will be performed as described in the applicable work plans or amendments thereto submitted to and approved by EPA, to assure that each such treatment system's effluent is in conformance with the standards set forth in Table 1 of the MRAM to the extent practicable considering the exigencies of the situation.

Submittal, Revisions, and Implementation of Work Plans.

51. Respondent shall submit to EPA for approval draft work plans or work plan amendments for Work generally described in Paragraph 50 , according to the schedule provided in Paragraph 50, unless the schedule is extended by the RPM.

52. Each draft work plan or amendment shall provide a description of, and an expeditious schedule for, the applicable actions required by this Settlement Agreement. Each draft work plan shall include preparation of a Quality Assurance Project Plan ("QAPP") or updating of the existing QAPP as part of the work plan. The QAPP should be prepared in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" (EPA/240/B-01/003, March 2001), and "EPA Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998). The QAPP from one work plan may be incorporated by reference in other or subsequent work plans or amendments thereto as appropriate.

53. EPA may approve, disapprove, require revisions to, or modify any draft work plan or amendment thereto in whole or in part. If EPA requires revisions, Respondent shall submit a revised draft work plan or amendment within 30 Days of receipt of EPA's notification of the required revisions. The requirement that a timely submitted work plan be revised or modified as provided for herein shall not be considered an event of noncompliance for purposes

of Section XIX. Respondent shall implement each work plan or amendment thereto as approved in writing by EPA in accordance with the schedule approved by EPA. Once approved, or approved with modifications, each work plan or amendment thereto, the schedule, and any subsequent modifications shall be incorporated into and become fully enforceable under this Settlement Agreement.

54. After the Effective Date, Respondent shall not commence any Work except in conformance with the terms of this Settlement Agreement. Unless otherwise instructed or authorized by EPA, Respondent shall not commence implementation of any work plan or amendment thereto developed hereunder until receiving written EPA approval pursuant to the preceding Paragraph.

55. Health and Safety Plan. Concurrent with the submittal of each work plan, Respondent shall submit for EPA review and comment a plan that ensures the protection of the public health and safety during performance of on-Site Work under this Settlement Agreement. This plan shall be prepared in accordance with EPA's Standard Operating Safety Guide (PUB 9285.1-03, PB 92-963414, June 1992). In addition, the plan shall comply with all currently applicable Occupational Safety and Health Administration ("OSHA") regulations found at 29 C.F.R. Part 1910. If EPA determines that it is appropriate, the plan shall also include contingency planning. Respondent shall incorporate all changes to the plan recommended by EPA and shall implement the plan during the performance of the associated work plan. The Health and Safety Plan from one work plan may be incorporated by reference in other or subsequent work plans or amendments thereto as appropriate.

56. Unless otherwise instructed by EPA, Respondent shall submit three copies of all plans, reports or other submissions required by this Settlement Agreement, or any approved work plan. Documents which Respondent has in electronic form shall also be sent by electronic mail, compact disc, or other electronic format approved by the RPM.

Quality Assurance and Sampling.

57. All sampling and analyses performed pursuant to this Settlement Agreement shall conform to EPA direction, approval, and guidance regarding sampling, quality assurance/quality control ("QA/QC"), data validation, and chain of custody procedures. Respondent shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with the appropriate EPA guidance. Respondent shall follow, as appropriate, "Quality Assurance/Quality Control Guidance for Removal Activities: Sampling QA/QC Plan and Data Validation Procedures" (OSWER Directive No. 9360.4-01, April 1, 1990), as guidance for QA/QC and sampling. Respondent shall only use laboratories that have a documented Quality System that complies with ANSI/ASQC E-4 1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs" (American National Standard, January 5, 1995), and "EPA Requirements for Quality Management Plans (QA/R-2) (EPA/240/B-01/002, March 2001)," or equivalent documentation as determined by EPA. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program ("NELAP") as meeting the Quality System requirements.

58. Upon request by EPA, Respondent shall have such a laboratory analyze samples submitted by EPA for QA monitoring. Respondent shall provide to EPA the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

59. Upon request by EPA, Respondent shall allow EPA or its authorized representatives to take split and/or duplicate samples. Respondent shall not be required to notify EPA in advance of any sample collection activity regularly performed in accordance with a schedule or work plan previously approved by EPA, unless the schedule is changed. Respondent shall notify EPA not less than seven (7) Days in advance of any other sample collection activity, unless shorter notice is agreed to by EPA. EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall allow Respondent to take split or duplicate samples of any samples it takes as part of its oversight of Respondent's implementation of the Work.

Post-Removal Site Control.

60. In accordance with the work plan schedule, or as otherwise agreed upon between the Parties, once EPA selects a final remedy for AMD at the Site, Respondent shall submit a proposal for the transition or termination of the interim treatment of flows from the CUD, Delta Seep, and Aspen Seep, consistent with the final remedy selected and Section 300.415(*l*) of the NCP and OSWER Directive No. 9360.2-02. Upon EPA approval, Respondent shall implement that proposal and shall provide EPA with documentation showing that the proposal has been properly implemented.

61. If not otherwise extended or terminated previously, Respondent's obligations to perform Work under this Settlement Agreement shall continue through and terminate on August 1, 2013. Nothing herein shall be construed to require Respondent to submit a proposal to terminate or to implement termination of interim treatment or any other action conducted or performed by any other person or entity at the Site, including but not limited to the LRWQCB.

Progress Reports.

62. Respondent shall submit a monthly written progress report to EPA concerning actions undertaken pursuant to this Settlement Agreement by the tenth day of each month, from the month following the Effective Date of this Settlement Agreement until its termination, unless otherwise directed in an approved work plan or amendment thereto or in writing by the RPM. These reports shall describe all significant developments occurring subsequent to the period addressed by the previously submitted report, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

Annual Reports.

63. Once each year by April 10, Respondent shall submit for EPA review an annual report summarizing the actions taken during the prior calendar year to comply with this Settlement Agreement. The annual report shall conform, at a minimum, with the requirements set forth in Section 300.165 of the NCP entitled "OSC Reports." The annual report shall include a good faith estimate of total costs or a statement of actual costs incurred in complying with this Settlement Agreement, a listing of quantities and types of materials removed off-Site or handled on-Site, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destination(s) of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (*e.g.*, manifests, invoices, bills and contracts). The annual report shall also include the following certification signed by a person who supervised or directed the preparation of that report:

> "Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Off-Site Shipments.

64. Respondent shall, prior to any off-Site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification of such shipment of Waste Material to the appropriate state environmental official in the receiving facility's state and to the RPM. However, this notification requirement shall not apply to any off-Site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

a. Respondent shall include in the written notification the following information: 1) the name and location of the facility to which the Waste Material is to be shipped; 2) the type and quantity of the Waste Material to be shipped; 3) the expected schedule for the shipment of the Waste Material; and 4) the method of transportation. Respondent shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

b. The identity of the receiving facility and state will be determined by Respondent following the award of the contract for the removal action. Respondent shall provide the information required by this Paragraph as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

c. Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-Site location, Respondent shall obtain EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondent shall only send hazardous substances, pollutants, or contaminants from the Site to an off-Site facility that

complies with the requirements of the statutory provision and regulation cited in the preceding sentence.

IX. SITE ACCESS

65. Respondent shall obtain or extend, or use its best efforts, to obtain or extend, all necessary access agreements within 60 Days after the Effective Date or at least 30 Days prior to the expiration of any existing access agreements, or as otherwise specified in writing by the RPM. Respondent shall immediately notify EPA if after using its best efforts it is unable to obtain or extend such agreements. For purposes of this Paragraph, "best efforts" includes the payment of reasonable sums of money in consideration of access. Respondent shall describe in writing its efforts to obtain access. EPA may then assist Respondent in gaining access, to the extent necessary to effectuate the response actions described herein, using such means as EPA deems appropriate. Respondent shall reimburse EPA for all costs and attorney's fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XV (Payment of Response Costs and Civil Penalties).

66. Notwithstanding any provision of this Settlement Agreement, EPA retains all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

X. ACCESS TO INFORMATION

67. Respondent shall provide to EPA, upon request, copies of all documents and information within its possession or control or that of its contractors or agents relating to activities at the Site or to the implementation of this Settlement Agreement, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondent shall also make available to EPA, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

68. Respondent may assert business confidentiality claims covering part or all of the documents or information submitted to EPA under this Settlement Agreement to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to EPA, or if EPA has notified Respondent that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Respondent.

69. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege, the work product doctrine, or any other privilege recognized by federal law. If the Respondent asserts such a privilege in lieu of providing documents requested by EPA, Respondent shall provide EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or

information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the contents of the document, record, or information; and 6) the privilege asserted by Respondent. However, no final documents, plans, reports, or other information created or generated pursuant to the specific submittal requirements of this Settlement Agreement shall be withheld on the grounds that they are privileged.

70. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

XI. RECORD RETENTION

71. Until ten (10) years after the Respondent' receipt of EPA's notification pursuant to Section XXIX (Notice of Completion of Work), Respondent shall preserve and retain all non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the Site, regardless of any corporate retention policy to the contrary. Until ten (10) years after Respondent's receipt of EPA's notification pursuant to Section XXIX(Notice of Completion of Work), Respondent shall also instruct its contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to performance of the Work.

72. At the conclusion of this document retention period, Respondent shall notify EPA at least 90 Days prior to the destruction of any such records or documents, and, upon request by EPA, Respondent shall deliver any such records or documents to EPA. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege, the work product doctrine or any other privilege recognized by federal law as provided in Paragraph 69.

73. Respondent hereby certifies individually that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by EPA or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e).

XII. COMPLIANCE WITH OTHER LAWS

74. Respondent shall perform all actions required pursuant to this Settlement Agreement in accordance with all applicable local, state, and federal laws and regulations except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 6921(e), and 40 C.F.R. §§ 300.400(e) and 300.415(j). In accordance with 40 C.F.R. § 300.415(j), all on-Site actions required pursuant to this Settlement Agreement shall, to the extent practicable, as determined by EPA, considering

the exigencies of the situation, attain applicable or relevant and appropriate requirements ("ARARs") under federal environmental or state environmental or facility siting laws as set forth and identified in the MRAM and as clarified in the 2007-08 Treatability Studies and Interim Treatment Work Plan, as amended. No federal, state or local permits shall be required for any portion of the Work conducted entirely on-site.

XIII. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

75. In the event of any action taken by Respondent or occurrence arising from Respondent's performance of the Work which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action. Respondent shall take these actions in accordance with all applicable provisions of this Settlement Agreement, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondent shall also immediately notify the RPM or, in the event of his unavailability, the Regional Duty Officer, Emergency Response Program, EPA Region IX, (800) 300-2193, of the incident or Site conditions. In the event that Respondent fails to take appropriate response action as required by this Paragraph, and EPA takes such action instead, Respondent shall reimburse EPA all costs of such response action not inconsistent with the NCP pursuant to Section XV (Payment of Response Costs and Civil Penalties).

76. In addition, in the event of any release of a hazardous substance from the portion of the Site that is under Respondent's control for purposes of performing the Work, or about which the Respondent knows or should know, which release is not addressed specifically by the Work, Respondent shall immediately notify the RPM at (800) 300-2193 and the National Response Center at (800) 424-8802. Respondent shall submit a written report to EPA within 7 Days after each such release that occurs from the portion of the Site that is under Respondent's control for purposes of performing the Work, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, *et seq.*

XIV. AUTHORITY OF REMEDIAL PROJECT MANAGER

77. The RPM shall be responsible for overseeing Respondent's implementation of this Settlement Agreement. The RPM shall have the authority vested in an On-Scene Coordinator by the NCP, including the authority to halt, conduct, or direct any Work required by this Settlement Agreement, or to direct any other removal action undertaken at the Site. Absence of the RPM from the Site shall not be cause for stoppage of work unless specifically directed by the RPM.

XV. PAYMENT OF RESPONSE COSTS AND CIVIL PENALTIES

78. Settled Past Response Costs:

a. Within 60 Days after the Effective Date, Respondent shall pay to EPA $1,758,316.88 for Settled Past Response Costs.

b. In the event that full payment for Settled Past Response Costs is not made within 30 Days after the Effective Date, Respondent shall pay Interest on the unpaid balance, which shall begin to accrue on the Effective Date and continue to accrue until the date of payment. Such Interest, if any, shall be payable as Settled Future Response Costs.

79. Settled Future Response Costs:

a. On a periodic basis, EPA will send Respondent a bill requiring payment that includes Settled Future Response Costs, which will include an itemized Cost Summary, prepared according to the Region 9 Procedures for Preparing Cost Recovery Documentation Packages, or any superseding guidance, for each category of Settled Future Response Costs.

b. Respondent shall pay all Settled Future Response Costs incurred by EPA not inconsistent with the NCP within 60 Days of receipt of each such bill and supporting documentation, except as otherwise provided in Subparagraph (c) below and Section XVI (Dispute Resolution) of this Settlement Agreement.

c. Respondent may dispute all or part of a bill for Settled Future Response Costs submitted under this Settlement Agreement if Respondent alleges that EPA has made an accounting error, if Respondent has a reasonable basis for objecting to the identification of any cost item as either an 09PU Cost or an 091A Cost, or if Respondent alleges that a cost item was incurred inconsistent with the NCP. Respondent shall notify EPA of any such dispute, and such dispute shall be resolved, in accordance with the procedures set forth in Section XVI of this Settlement Agreement.

d. If any dispute over a bill for Settled Future Response Costs is resolved before payment is due, the amount due will be adjusted as necessary. If the dispute over a bill for Settled Future Response Costs is not resolved before payment is due, Respondent shall pay the full amount of the uncontested portion of the bill to EPA on or before the due date. Within the same time period, Respondent shall pay the full amount of the contested Settled Future Response Cost into an interest-bearing escrow account. Respondent shall simultaneously transmit a notice that such payment has been made to the persons listed in Paragraph 81 below. Respondent shall ensure that the prevailing party or parties in the dispute shall receive the amount upon which they prevailed from the escrow funds plus interest within 30 days after the dispute is resolved. Any portion of the bill not required to be paid in accordance with such resolution shall be identified and handled in a manner consistent with such resolution.

e. In the event that payment for any uncontested portion of a bill for Settled Future Response Costs is not made within 60 Days after Respondent receives the bill, Respondent shall pay Interest on the unpaid balance, which shall begin to accrue on the date the bill was received and continue to accrue until the date of payment.

f. If a bill for Settled Future Response Costs is disputed as provided herein, and in the event that the dispute is not resolved within 60 Days after Respondent receives the

bill, Respondent shall pay Interest on the portion of the bill required to be paid in accordance with the resolution of such dispute, if any, which shall begin to accrue on the date the bill was initially received and continue to accrue until the date of payment.

80. Payments for both Settled Past Response Costs and Settled Future Response Costs shall be made to EPA by Electronic Funds Transfer ("EFT") in accordance with current EFT procedures to be provided to Respondent by EPA Region IX, and shall be accompanied by a statement identifying the name and address of the party making payment, the Site name, the EPA Region and Site/Spill ID Number shown on the itemized Cost Summary attached to each bill, and the EPA docket number for this Settlement Agreement.

81. At the time of any payment for Settled Past Response Costs or Settled Future Response Costs, Respondent shall send notice that such payment has been made to:

Joshua Wirtschafter
Assistant Regional Counsel
ORC-3
75 Hawthorne Street
San Francisco, CA 95105

and

David Wood
Chief, Account Section
MTS-4-2
75 Hawthorne Street
San Francisco, CA 95105

82. The total amounts to be paid by Respondent for Settled Past Response Costs and Settled Future Response Costs shall be deposited in the Leviathan Mine Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

83. Payments of Interest made under this Section shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondent's failure to make timely payments for Settled Past Response Costs or Settled Future Response Costs under this Section, including but not limited to, payment of stipulated penalties pursuant to Section XIX.

84. Payment of Civil Penalties. Within 60 Days after the Effective Date of this Settlement Agreement, Respondent shall pay the United States the sum of $90,000 in full and final settlement of Penalty Claims. Such payments shall be deposited in the EPA Hazardous Substance Superfund. Such payment shall be made to EPA by EFT in accordance with current EFT procedures to be provided to Respondent by EPA Region IX, and shall be accompanied by a statement identifying the name and address of the party making payment, the Site name, the EPA Region and Site/Spill ID Number 09PU, and the EPA docket number for this Settlement

Agreement. Respondent shall simultaneously transmit notice that payment has been made to the persons listed in Paragraph 81 above.

85. In the event that the payment required by the preceding Paragraph is not made within 30 Days of the Effective Date, Respondent shall pay Interest on the unpaid balance. Interest to be paid on civil penalties under this Paragraph shall begin to accrue on the Effective Date. Interest shall accrue through the date of the Respondent's payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to EPA by virtue of Respondent's failure to make timely payments under this Section, including but not limited to payment of Stipulated Penalties pursuant to Section XIX. Respondent shall make all payments required by this Paragraph in the manner described in the preceding Paragraph.

XVI. DISPUTE RESOLUTION

86. Unless otherwise expressly provided for in this Settlement Agreement, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Settlement Agreement. The Parties shall attempt to resolve any disagreements concerning this Settlement Agreement expeditiously and informally.

87. If Respondent objects to any EPA action taken pursuant to this Settlement Agreement, including billings for Settled Future Response Costs, it shall notify EPA in writing of its objection(s) within 30 Days of such action, unless the objection(s) has/have been resolved informally. EPA and Respondent shall have 60 Days from EPA's receipt of Respondent's written objection(s) to resolve the dispute through formal negotiations (the "Negotiation Period"). The Negotiation Period may be extended at the sole discretion of EPA. If Respondent requests additional documentation for purposes of determining or disputing whether a bill contains an accounting error, whether a particular cost item has been incorrectly identified as either an 09PU Cost or an 091A Cost, or whether an included cost item was incurred inconsistent with the NCP, EPA will provide documents in its possession which Region IX typically includes in a Certified Cost Package, prepared in accordance with Region 9 Procedures for Preparing Cost Recovery Documentation Packages, or any superseding guidance, and shall not be required to provide any further documentation.

88. Any agreement reached by the parties pursuant to this Section shall be in writing and shall, upon signature by both parties, be incorporated into and become an enforceable part of this Settlement Agreement. If the Parties are unable to reach an agreement within the Negotiation Period, an EPA management official at the Division Director level or higher will issue a written decision on the dispute to Respondent. EPA's decision shall be incorporated into and become an enforceable part of this Settlement Agreement.

89. Respondent's obligations under this Settlement Agreement shall not be tolled by submission of any objection for dispute resolution under this Section, unless so determined by the EPA management official or the Regional Administrator responsible for resolving the dispute, or unless Respondent prevails in the dispute. Following resolution of the dispute, as provided by this Section, Respondent shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs.

XVII. SUPPLEMENTAL ENVIRONMENTAL PROJECT

90. Respondent shall implement a Supplemental Environmental Project, referred to as the River Fork Ranch Supplemental Environmental Project (the "SEP"), in accordance with all provisions of Appendix C to this Settlement Agreement, which is attached hereto and incorporated into this Settlement Agreement by reference. The SEP will provide for specified riparian restoration in Douglas County, Nevada.

91. Respondent is responsible for accomplishing the satisfactory completion of the SEP in accordance with the requirements of this Settlement Agreement within 5 years after the Effective Date, unless such time period is extended by mutual written agreement among the Parties. "Satisfactory completion" means that Respondent shall complete the implementation of the SEP in accordance with Appendix C. Respondent may use contractors, consultants, or other personnel, selected by Respondent in its sole discretion, in planning and implementing the SEP.

92. With regard to the SEP, Respondent certifies, to the best of its knowledge, the truth and accuracy of each of the following:

a. that all cost information provided to EPA in connection with EPA's approval of the SEP is complete and accurate and that $400,000 represents a fair estimate of the costs necessary to implement the SEP;

b. that, as of the date of executing this Settlement Agreement, Respondent is not required to perform or develop the SEP by any federal, state, or local law or regulation and is not required to perform or develop the SEP by agreement, grant, or as injunctive relief awarded in any other action in any forum;

c. that the SEP is not a project that Respondent was planning or intending to construct, perform, or implement other than in settlement of the claims resolved in this Settlement Agreement;

d. that Respondent has not received, and is not negotiating to receive, credit for the SEP in any other enforcement action; and

e. that Respondent will not receive any reimbursement for any portion of the SEP from any other person.

93. SEP Annual Report. By April 1 of each year during SEP implementation and post-restoration monitoring, Respondent shall submit a SEP annual report to EPA's RPM containing the information required for such reports in Appendix C.

94. SEP Completion Report. Within 60 Days after completion of the SEP, Respondent shall submit a SEP Completion Report to EPA's RPM. The SEP Completion Report may, but need not, be combined with the final SEP annual report. The SEP Completion Report shall contain the following information:

a. a detailed description of the SEP as implemented;

b. a description of any problems encountered in completing the SEP and the solutions thereto;

c. an itemized list of all SEP expenditures;

d. certification that the SEP has been fully implemented pursuant to the provisions of this Settlement Agreement;

e. a description of the environmental and public health benefits resulting from implementation of the SEP (with a quantification of the benefits, if feasible);

f. The SEP Completion Report shall be signed by a responsible corporate official of Respondent or by Respondent's Project Coordinator and shall bear the certification language:

> To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

95. EPA may require information relating to the implementation of the SEP in addition to that described above, in order to determine the adequacy of SEP completion, and Respondent shall provide such information in accordance with the procedures set forth in Section X.

96. After receiving the SEP Completion Report, EPA shall notify Respondent whether or not Respondent has satisfactorily completed the SEP in accordance with Appendix C. If EPA notifies Respondent that the SEP has not been satisfactorily completed, which notice shall specify any deficiencies in SEP completion, Respondent shall have 60 days from the receipt of such notice (or such other time period as the Parties agree upon) (the "SEP Cure Period") in which to address any alleged SEP deficiencies and to provide notice and support to EPA that the deficiencies have been addressed, during which time stipulated penalties shall not accrue. For purposes of this Paragraph and Paragraph 108, "addressing" alleged SEP deficiencies shall include submitting plans to EPA for corrective measures if EPA determines that site conditions preclude the actual implementation of such measures during the SEP Cure Period. If the SEP has not been satisfactorily completed in accordance with Appendix C, or if the amount of Eligible SEP Costs incurred is less than $360,000, Stipulated Penalties may be assessed to the extent provided for under Section XIX (Stipulated Penalties) of this Settlement Agreement.

97. Disputes concerning the satisfactory performance and completion of the SEP and the amount of Eligible SEP Costs incurred (including disputes about whether stipulated penalties are due) may be resolved under Section XVI (Dispute Resolution) of this Settlement Agreement. No other disputes arising under this Section shall be subject to Dispute Resolution.

98. Each submission required under this Section shall be signed by a corporate representative of Respondent with knowledge of the SEP or by Respondent's Project Coordinator.

99. Any public statement, oral or written, in print, film, or other media, made by Respondent making reference to the SEP under this Settlement Agreement shall include the following language: "This project was undertaken in connection with the settlement of an enforcement action in the matter of Leviathan Mine, taken on behalf of the U.S. Environmental Protection Agency under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund.

100. For federal income tax purposes, Respondent agrees that it will neither capitalize into inventory or basis nor deduct any costs or expenditures incurred in performing the SEP.

XVIII. FORCE MAJEURE

101. Respondent agrees to perform all requirements of this Settlement Agreement within the time limits established under this Settlement Agreement, unless the performance is delayed by a *force majeure*. For purposes of this Settlement Agreement, a *force majeure* is defined as any event arising from causes beyond the control of Respondent, or of any entity controlled by Respondent, including but not limited to its contractors and subcontractors, which delays or prevents performance of any obligation under this Settlement Agreement despite Respondent's best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work, or increased cost of performance.

102. If any event occurs or has occurred that may delay the performance of any obligation under this Settlement Agreement, whether or not caused by a *force majeure* event, Respondent shall notify EPA orally within three (3) Days of when Respondent first knew that the event might cause a delay. Within seven (7) Days thereafter, Respondent shall provide to EPA in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a *force majeure* event if Respondent intends to assert such a claim; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements shall preclude Respondent from asserting any claim of *force majeure* for that event for the period of time of such failure to comply and for any additional delay caused by such failure.

103. If EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Settlement Agreement that are affected by the *force majeure* event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused

by a *force majeure* event, EPA will notify Respondent in writing of its decision. If EPA agrees that the delay is attributable to a *force majeure* event, EPA will notify Respondent in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

XIX. STIPULATED PENALTIES

104. Respondent shall be liable to EPA for stipulated penalties up to the amounts set forth in Paragraphs 105 through 111 for noncompliance with the requirements of this Settlement Agreement specified below, unless excused under Section XVIII (Force Majeure) or as otherwise determined by EPA. Except as provided in Paragraphs 119 and 120, "Noncompliance," by Respondent shall include the failure to complete any of the activities required under this Settlement Agreement, the SEP, or any work plan or other plan approved under this Settlement Agreement identified below in accordance with all applicable requirements of law, this Settlement Agreement, and any plans or other documents approved by EPA pursuant to this Settlement Agreement and within the specified time schedules established by and approved under this Settlement Agreement. "Noncompliance" shall not include exceedances of discharge criteria in the treatment system effluent discharged to Leviathan Creek or Aspen Creek that occur:

(a) during the initial two weeks of treatment during the ARWS;

(b) during treatment system commissioning, maintenance or optimization trials approved in writing by EPA;

(c) as a result of temporary shut-downs of the capture or treatment systems approved in writing by EPA; or

(d) for less than 72 hours;

provided that Respondent is otherwise in compliance with Sections VIII and XIII of this Settlement Agreement and all work plans approved by EPA and directives issued by the RPM under this Settlement Agreement.

105. Stipulated Penalty Amounts - Work.

a. The following stipulated penalties shall accrue per violation per Day for any noncompliance identified in Subparagraph (b) immediately below:

Penalty Per Violation Per Day	Period of Noncompliance
$1,000	1st through 14th Day
$2,500	15th through 30th Day
$8,000	31st Day and beyond

b. Compliance Milestones

i. Implementation of all Work described in Paragraph 50 in accordance with the schedule provided therein or otherwise approved by EPA;

ii. Submittal of all draft and final work plans or work plan amendments described in Paragraph 51 in accordance with the schedule provided therein or otherwise approved by EPA;

iii. Timely payments for the non-disputed portion of any bill for Settled Future Response Costs, as provided for in Paragraph 79 of this Settlement Agreement;

iv. Timely payment of Settled Past Response Costs, as provided for in Paragraph 78 of this Settlement Agreement; and,

v. Timely payment of civil penalties, as provided for in Paragraph 84 of this Settlement Agreement.

106. Stipulated Penalty Amounts - Reports. The following stipulated penalties shall accrue per violation per Day for failure to submit timely or adequate reports or other written documents pursuant to Paragraphs 62 and 63:

Penalty Per Violation Per Day	Period of Noncompliance
$250	1st through 14th Day
$500	15th through 30th Day
$1,000	31st Day and beyond

107. Stipulated Penalty Amounts – SEP Reports. The following stipulated penalties shall accrue per violation per Day for failure to submit timely or adequate reports or other written documents pursuant to Paragraphs 93 and 94:

Penalty Per Violation Per Day	Period of Noncompliance
$250	1st through 14th Day
$500	15th through 30th Day
$1,000	31st Day and beyond

108. Stipulated Penalty Amounts - SEP Completion. If Respondent does not accomplish the "satisfactory completion" of the physical work of the SEP, as defined in Paragraph 91 within five years following the Effective Date or such later date as is mutually agreed to in writing among the Parties, Respondent shall pay a stipulated penalty of $440,000, less any Eligible SEP Costs incurred that EPA determines were expended on the SEP in a manner consistent with this Settlement Agreement and Appendix C. In accordance with Paragraph 96, EPA shall notify Respondent whether or not the SEP has been satisfactorily completed following submission of the SEP Completion Report, and Respondent shall have 60 days from the receipt of such notice (or such other time period as the Parties agree upon) (the "SEP Cure Period") to address any alleged deficiencies. If Respondent does not address the alleged deficiencies within the SEP Cure Period, the penalties under this Paragraph shall accrue. The penalties under this Paragraph for failure to accomplish satisfactory completion of the SEP

may accrue regardless of whether Respondent has spent $360,000 on the SEP. If EPA elects to seek stipulated penalties under this Paragraph, the obligations of Respondent to complete the SEP shall terminate upon payment of the stipulated penalties under this Paragraph.

109. Stipulated Penalty Amounts - Shortfall. If Respondent completes the SEP in accordance with the requirements of this Settlement Agreement and Appendix C, and Respondent spent less than $360,000 on Eligible SEP Costs, as determined by EPA, Respondent shall pay a stipulated penalty of $50,000. Such stipulated penalty shall be in lieu of, not in addition to, the stipulated penalties provided for in Paragraphs 108 and 110.

110. Stipulated Penalty Amounts – SEP Abandonment. If Respondent fails to undertake the SEP or abandons the work on the SEP, Respondent shall pay a stipulated penalty of $460,000. The penalty under this Paragraph shall accrue when either Respondent evidences its unequivocal intent to cease performance of the SEP or, upon a determination by EPA that Respondent, by the date specified for completion of the SEP, either failed to undertake or abandoned the work, whichever is earlier. Respondent shall provide notice of abandonment to EPA's RPM. No stipulated penalties shall accrue under this Paragraph if Respondent has spent at least $360,000 on Eligible SEP Costs, as determined by EPA. If EPA elects to seek stipulated penalties under this Paragraph, the obligations of Respondent to complete the SEP shall terminate upon payment of the stipulated penalties under this Paragraph.

111. Stipulated Penalty Amounts - Work Takeover. In the event that EPA assumes performance of all or any portion of the Work pursuant to Paragraph 125, Respondent shall be liable for a stipulated penalty in the amount of 50% of EPA's Future Response Costs incurred for that portion of the Work, provided, however, that the stipulated penalties under this Paragraph shall not exceed: (a) in the event of takeover of Work on the CUD/Delta Slope, $750,000; (b) in the event of takeover of Work at the Aspen Seep, $250,000, or (c) in the event of takeover of Work on both the CUD/Delta Slope and the Aspen Seep, $1,000,000.

112. All penalties shall begin to accrue on the Day after the complete performance is due or the Day a violation occurs, and shall continue to accrue through the final Day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: 1) with respect to a deficient submission under Section VIII (Work to be Performed), during the period, if any, beginning on the 31st Day after EPA's receipt of such submission until the date that EPA notifies Respondent of any deficiency; and 2) with respect to a decision by the EPA Management Official at the Division Director level or higher, under Section XVI (Dispute Resolution), during the period, if any, beginning on the 15th Day after the Negotiation Period begins until the date that the EPA management official or the Regional Administrator issues a final written decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Settlement Agreement.

113. Following EPA's determination of noncompliance with a requirement of this Settlement Agreement, EPA shall give Respondent written notification of the failure and describe the noncompliance. EPA may send Respondent a written demand for payment of the

penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has provided Respondent with a written demand for payment of penalties. The EPA management official or the Regional Administrator may waive such accrual of stipulated penalties.

114. All penalties accruing under this Section shall be due and payable to EPA within 30 Days of Respondent's receipt from EPA of a demand for payment of the penalties, unless Respondent invokes the dispute resolution procedures under Section XVI (Dispute Resolution).

115. Payments for any penalties accruing under this Section shall be made to EPA by Electronic Funds Transfer ("EFT") in accordance with current EFT procedures to be provided to Respondent by EPA Region IX, and shall be accompanied by a statement identifying the name and address of the party making payment, the Site name, the EPA Region and Site/Spill ID Number 091A, and the EPA docket number for this Settlement Agreement. At the time of payment, Respondent shall send notice that such payment has been made to the persons identified in Paragraph 81.

116. The total amounts to be paid by Respondent for any penalties accruing under this Section shall be deposited in the EPA Hazardous Substance Superfund.

117. The payment of penalties shall not alter in any way Respondent's obligation to complete performance of the Work required under this Settlement Agreement.

118. Except as provided in Section XVI and Paragraph 112, penalties shall continue to accrue during any dispute resolution period, but need not be paid: (a)until 60 Days after the dispute is resolved by agreement or by receipt of EPA's decision; or (b) if Respondent prevails with respect to any dispute giving rise to or pertaining to stipulated penalties.

119. Respondent shall not be liable for any stipulated penalties for, and EPA shall not assess stipulated penalties against Respondent arising from or related to, any delay in the onset of water treatment activities or any other delay or event of noncompliance caused by or attributable to EPA's and/or its contractor's operation, maintenance and/or repair of any treatment systems during the LAS.

120. Respondent shall not be liable for any stipulated penalties for, and EPA shall not assess stipulated penalties against Respondent arising from or related to, any failure of the treatment systems during the LAS.

121. If Respondent fails to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as Interest. Respondent shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 114. Nothing in this Settlement Agreement shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Respondent's violation of this Settlement Agreement or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Sections 106(b) and 122(l) of CERCLA, 42 U.S.C. §§ 9606(b) and 9622(l), and punitive damages pursuant to

Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that EPA shall not seek civil penalties pursuant to Section 106(b) or 122(l) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of this Settlement Agreement or in the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 125. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive all or any portion of stipulated penalties that have accrued pursuant to this Settlement Agreement.

XX. COVENANT NOT TO SUE BY EPA

122. In consideration of the actions that will be performed and the payments that will be made by Respondent under the terms of this Settlement Agreement, and for purposes of resolving Respondent's liability to EPA for response actions as set forth herein, and except as otherwise specifically provided in this Settlement Agreement, EPA covenants not to sue or to take administrative action against Respondent for performance of the Work and for recovery of Settled Past Response Costs and Settled Future Response Costs. This covenant not to sue shall take effect upon receipt by EPA of the payment for Settled Past Response Costs and Civil Penalties due under Section XV of this Settlement Agreement and any Interest or Stipulated Penalties due for failure to pay Settled Past Response Costs or Civil Penalties as required by Sections XV and XIX of this Settlement Agreement. This covenant not to sue is conditioned upon the complete and satisfactory performance by Respondent of its obligations under this Settlement Agreement, including, but not limited to, payment of Settled Future Response Costs pursuant to Section XV and performance of the SEP pursuant to Section XVII. This covenant not to sue does not extend to Reserved Past Response Costs or Reserved Future Response Costs. This covenant not to sue extends only to Respondent and its corporate successors, officers, and directors, and does not extend to any other person. This covenant extends to Respondent's corporate successors, officers, and directors only to the extent that the potential liability of such person or entity arises with regard to the Site and derives from that person's or entity's relationship to or affiliation with Respondent and not from an independent basis of liability under CERCLA, Section 107(a), 42 U.S.C. § 9607(a).

XXI. RESERVATIONS OF RIGHTS BY EPA

123. Except as specifically provided in this Settlement Agreement, nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Settlement Agreement, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

124. The covenant not to sue set forth in Section XX above does not pertain to any matters other than those expressly identified therein. EPA reserves, and this Settlement

Agreement is without prejudice to, all rights against Respondent with respect to all other matters, including, but not limited to:

a. claims based on a failure by Respondent to meet a requirement of this Settlement Agreement;

b. liability for costs not included within the definitions of Settled Past Response Costs or Settled Future Response Costs, such as Reserved Past Response Costs and Reserved Future Response Costs;

c. liability for performance of any response actions other than the Work;

d. criminal liability;

e. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

f. liability arising from the past, present, or future disposal, release or threat of release of Waste Materials outside of the Site; and

g. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the Site.

125. Work Takeover. In the event EPA determines that Respondent has ceased implementation of any portion of the Work, is seriously or repeatedly deficient or late in its performance of the Work, or is implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portion of the Work as EPA determines necessary following notice to Respondent and a reasonable opportunity to cure. The operation, maintenance or repair by EPA or its contractor of any treatment systems at the Site during the LAS shall not be considered a Work takeover for purposes of this Paragraph 125. Respondent may invoke the procedures set forth in Section XVI (Dispute Resolution) to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. Costs incurred by the United States, not inconsistent with the NCP, in performing the Work pursuant to this Paragraph shall be considered Settled Future Response costs that Respondent shall pay pursuant to Section XV (Payment of Response Costs and Civil Penalties). Notwithstanding any other provision of this Settlement Agreement, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

XXII. COVENANT NOT TO SUE BY RESPONDENT

126. Respondent covenants not to sue and agrees not to assert any claims or causes of action against the United States, EPA, or its contractors or employees, with respect to the Work, Settled Past Response Costs or Settled Future Response Costs, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund established by 26 U.S.C. § 9507, based on Sections 106(b)(2), 107, 111,

112, or 113 of CERCLA, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, or 9613, or any other provision of law relating to the performance of the Work at the Site;

b. any claim arising out of response actions at or in connection with the Work at the Site, including any claim under the United States Constitution, the California Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law; or

c. any claim against the EPA or United States pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, relating to the Work at the Site.

127. Except as provided in Paragraph 129, these covenants not to sue shall not apply in the event EPA or the United States brings a cause of action or issues an order pursuant to the reservations set forth in Subparagraphs (a), (b), (c), and (e) - (g) of Paragraph 124, but only to the extent that Respondent's claims arise from the same response action, response costs, or damages that EPA or the United States is seeking pursuant to the applicable reservation. Nothing in this Settlement Agreement is intended to waive or otherwise limit any defense or counterclaims that Respondent may have in the event that EPA or the United States brings an action against Respondent pursuant to the reservations set forth in Section XXI of this Settlement Agreement.

127. (a) Respondent reserves, and this Settlement Agreement is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States while acting within the scope of his office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, any such claim shall not include a claim for any damages caused, in whole or in part, by the act or omission of any person, including any contractor, who is not a federal employee as that term is defined in 28 U.S.C. § 2671; nor shall any such claim include a claim based on EPA's selection of response actions, or the oversight or approval of the Respondent's plans or activities. The foregoing applies only to claims which are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA.

128. Nothing in this Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

129. Respondent agrees not to assert any claims and to waive all claims or causes of action that it may have for all matters relating to the Site, including for contribution, against any person where the person's liability to Respondent with respect to the Site is based solely on having arranged for disposal or treatment, or for transport for disposal or treatment, of hazardous substances at the Site, or having accepted for transport for disposal or treatment of hazardous substances at the Site, if all or part of the disposal, treatment, or transport occurred before April 1, 2001, and the total amount of material containing hazardous substances

contributed by such person to the Site was less than 110 gallons of liquid materials or 200 pounds of solid materials. This waiver shall not apply to any claim or cause of action against any person meeting the above criteria if EPA has determined that the materials contributed to the Site by such person contributed or could contribute significantly to the costs of response at the Site, nor shall it apply in the event such person's liability is based upon current or past ownership or operation of the Site or any other statutory, contractual, legal or common law theory. Nothing in this Settlement Agreement shall be construed to waive or limit in any way Respondent's claims and causes of action against the State of California, the State Water Resources Control Board, the LRWQCB, or any other State agency, board, division, department or similar State entity.

XXIII. OTHER CLAIMS

130. By issuance of this Settlement Agreement, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. The United States or EPA shall not be deemed a party to any contract entered into by Respondent or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Settlement Agreement.

131. Respondent assumes no liability for injuries or damages to persons or property resulting from any acts or omissions of the United States and EPA, including without limitation the operation by EPA or its contractor of any treatment systems at the Site during the LAS. Respondent shall not be deemed a party to any contract entered into by the United States or EPA or their respective officials, directors, officers, employees, agents, successors, representatives, assigns, contracts, or consultants in carrying out actions pursuant to this Settlement Agreement.

132. Except as expressly provided in Section XX (Covenant not to Sue by EPA), and Paragraphs 126 and 129 of Section XXII (Covenant Not to Sue by Respondent), nothing in this Settlement Agreement constitutes a satisfaction of or release from any claim or cause of action against Respondent or any person not a party to this Settlement Agreement, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States or Respondent for costs, damages, contribution and interest under Sections 106, 107 and 113 of CERCLA, 42 U.S.C. §§ 9606, 9607 and 9613.

133. No action or decision by EPA pursuant to this Settlement Agreement shall give rise to any right to judicial review, except as set forth in Sections 113(h) or 113(j) of CERCLA, 42 U.S.C. § 9613(h), (j).

XXIV. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

134. Upon the Effective Date, this Settlement Agreement shall resolve the Penalty Claims and, together with the Administrative Order issued on June 23, 2008, shall supersede the 1998 AOC, the February 18, 2000 modification of the 1998 AOC and the Administrative Order, without prejudice to EPA's claims for Reserved Past Response Costs. The Parties agree that this Settlement Agreement constitutes an administrative settlement for

purposes of Section 113(f)(2) of CERCLA, 42 U.S.C. §§ 9613(f)(2), and that Respondent is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), for "matters addressed" in this Settlement Agreement. The "matters addressed" in this Settlement Agreement are Work, Settled Past Response Costs, Settled Future Response Costs, and Penalty Claims.

135. The Parties agree that this Settlement Agreement constitutes an administrative settlement for purposes of Section 113(f)(3)(B) of CERCLA, 42 U.S.C. § 9613(f)(3)(B), pursuant to which Respondent has, as of the Effective Date, resolved its liability to the United States for the Work, Settled Past Response Costs, Settled Future Response Costs and Penalty Claims. This Settlement Agreement is intended to satisfy any and all requirements necessary for Respondent to bring a contribution action under CERCLA, including Section 113(f)(3)(B).

136. Except as provided in Section XXIII (Other Claims), nothing in this Settlement Agreement precludes the United States or Respondent from asserting any claims, causes of action, or demands for indemnification, contribution, cost recovery or any other cause of action against any persons not parties to this Settlement Agreement. Nothing herein diminishes the right of the United States, pursuant to Sections 113(f)(2) and (3) of CERCLA, 42 U.S.C. § 9613(f)(2)-(3), to pursue any such persons to obtain additional response costs or response action and to enter into settlements that give rise to contribution protection.

XXV. INDEMNIFICATION

137. Respondent shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Settlement Agreement. In addition, Respondent agrees to pay the United States all costs incurred by the United States, including but not limited to attorneys fees and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Settlement Agreement. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondent in carrying out activities pursuant to this Settlement Agreement. Neither Respondent nor any such contractor shall be considered an agent of the United States.

138. The United States shall give Respondent written notice of any claim for which the United States plans to seek indemnification pursuant to this Section within sixty (60) Days of the claim arising, and shall consult with Respondent prior to settling such claim.

139. Respondent waives all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between any one or more of

Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Respondent shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

XXVI. INSURANCE

140. At least 7 Days prior to commencing any on-Site Work under this Settlement Agreement, Respondent shall secure, and shall maintain for as long as Respondent is required to perform Work under this Settlement Agreement, comprehensive general liability insurance and automobile insurance with limits of two million dollars, combined single limit. Within the same time period, Respondent shall provide EPA with certificates of such insurance and a copy of each insurance policy. In addition, for as long as Respondent is required to perform Work under this Settlement Agreement, Respondent shall satisfy, or shall ensure that its contractors or subcontractors performing Work at the Site satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondent in furtherance of this Settlement Agreement. If Respondent demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Respondent need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

XXVII. FINANCIAL ASSURANCE

141. Within 60 Days of the Effective Date, Respondent shall establish and maintain financial security in the amount of $7,000,000 for Respondent's obligations under this Settlement Agreement, in one or more of the following forms:

a. A surety bond guaranteeing performance of the Work;

b. One or more irrevocable letters of credit equaling the total estimated cost of the Work;

c. A trust fund equaling the total estimated cost of the Work;

d. A guarantee to perform the Work by one or more affiliated corporations, or by one or more unrelated corporations that have a substantial business relationship with Respondent; or

e. A demonstration that the Respondent satisfies the requirements of 40 C.F.R. Part 264.143(f).

142. If Respondent seeks to demonstrate the ability to complete the Work through a guarantee by a third party pursuant to Paragraph 141, Subparagraph (d), Respondent shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. Part 264.143(f). If

Respondent seeks to demonstrate its ability to complete the Work by means of the financial test or the corporate guarantee pursuant to Paragraph 141, Subparagraphs (d) or (e), it shall submit statements signed by a responsible corporate official conveying the information required by 40 C.F.R. Part 264.143(f) annually, on or before May 1 of each year until a Notice of Completion of Work has been issued by EPA. In the event that EPA determines at any time that the financial assurances provided pursuant to this Section are inadequate, Respondent shall, within 60 Days of receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 141. Respondent's inability to demonstrate financial ability to complete the Work shall not excuse performance of any activities required under this Settlement Agreement.

143. If, after the Effective Date, Respondent can show that the estimated cost to complete the remaining Work has diminished below the previous estimate of the cost of performing the Work , Respondent may, on May 1 of any year that Respondent's obligations under this Section continue, or at any other time agreed to by the Parties, reduce the amount of the financial assurance provided under this Section to the estimated cost of the remaining Work to be performed. Respondent shall submit a proposal for such reduction to EPA, in accordance with the requirements of this Section, and may reduce the amount of the financial assurance upon approval by EPA. In the event of a dispute, Respondent may reduce the amount of the security in accordance with the written decision resolving the dispute.

144. Respondent may change the form of financial assurance provided under this Section at any time, upon notice to and approval by EPA, provided that the new form of assurance meets the requirements of this Section. In the event of a dispute, Respondent may change the form of the financial assurance only in accordance with the written decision resolving the dispute.

XXVIII. MODIFICATIONS

145. The RPM may make modifications not inconsistent with CERCLA or the NCP, and within the scope of the MRAM to any work plan or schedule by providing Respondent with seven (7) Days written notice of such modification, provided that no such modification, including but not limited to any such modification that changes the schedule in a previously approved plan so as to decrease the time scheduled for performance of Work, shall give rise to stipulated penalties, unless such modifications have been agreed to in writing by Respondent. Nothing in this Paragraph limits the right of EPA to pursue statutory penalties or other remedies. Any oral modification will be memorialized in writing by EPA promptly, and shall have as its effective date the date that it is provided in writing to Respondent. Any other requirements of this Settlement Agreement may be modified in writing by mutual agreement of the Parties.

146. If Respondent seeks permission to deviate from any approved work plan or schedule, the Respondent's Project Coordinator shall submit a written request to EPA for approval outlining the proposed modification and its basis. Respondent may not proceed with the requested deviation until receiving oral or written approval from the RPM pursuant to the preceding Paragraph.

147. No informal advice, guidance, suggestion, or comment by the RPM or other EPA representatives regarding reports, plans, specifications, schedules, or any other writing submitted by Respondent shall relieve Respondent of its obligation to obtain any formal approval required by this Settlement Agreement, or to comply with all requirements of this Settlement Agreement, unless it is formally modified.

XXIX. NOTICE OF COMPLETION OF WORK

148. When EPA determines that all Work has been fully performed in accordance with this Settlement Agreement, with the exception of any continuing obligations required by this Settlement Agreement, including post-removal site controls, payment of Settled Future Response Costs, or record retention, EPA will provide written notice to Respondent. If EPA determines that any such Work has not been completed in accordance with this Settlement Agreement, EPA will notify Respondent, provide a list of the deficiencies, and require that Respondent modify the work plan if appropriate in order to correct such deficiencies. Respondent shall implement the modified and approved work plan and shall submit a modified Final Report in accordance with the EPA notice. Failure by Respondent to implement the approved modified work plan shall be a violation of this Settlement Agreement.

XXX. COMMUNITY INVOLVEMENT

149. Respondent shall provide all pertinent non-privileged information requested by EPA to the public as the project progresses, and cooperate with EPA's community involvement effort.

XXXI. SEVERABILITY/INTEGRATION/APPENDICES

150. If a court issues an order that invalidates any provision of this Settlement Agreement or finds that Respondent has sufficient cause not to comply with one or more provisions of this Settlement Agreement, Respondent shall remain bound to comply with all provisions of this Settlement Agreement not invalidated or determined to be subject to a sufficient cause defense by the court's order.

151. This Settlement Agreement and its appendices constitute the final, complete and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Settlement Agreement. The Parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Settlement Agreement.

152. The following appendices are attached to and incorporated into this Settlement Agreement: Modification to the Removal Action Memorandum, dated __, 2008 ("MRAM") (Appendix A); 2007-08 Treatability Studies and Interim Treatment Work Plan, dated June 22, 2007, as amended, and the Process Design Criteria and Technical Decision Memorandum for the High Density Sludge Treatment Plant, dated June 26, 2007 (Appendix B); and Supplemental Environmental Project (SEP) (Appendix C).

XXXII. PUBLIC COMMENT

153. Final acceptance and signature of this Settlement Agreement shall be subject to and shall not occur before the close of a public comment period of not less than 30 days. EPA may withhold consent from, or seek to modify, this Settlement Agreement if comments received regarding the Settlement Agreement disclose facts or considerations which indicate that the Settlement Agreement is inappropriate, improper or inadequate.

XXXIII. ATTORNEY GENERAL APPROVAL

154. The Attorney General or his designee has approved the settlement embodied in this Settlement Agreement.

XXXIV. EFFECTIVE DATE

155. This Settlement Agreement shall be effective on the date it is signed by EPA and notice of such signature is received by Respondent.

The undersigned representative of Respondent certifies that he or she is fully authorized to enter into the terms and conditions of this Settlement Agreement and to bind the Respondent to this document.

Agreed this ___ day of _____, 2_____.

For Respondent Atlantic Richfield Company

BY:_____ DATE: _____
Henry C. Winsor, Vice President

It is so ORDERED and Agreed this _____day of _____, 2008.

BY: _____ DATE: _____
Kathleen Salyer, Assistant Director
Superfund Division
California Site Cleanup Branch
Region IX
U.S. Environmental Protection Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 9
75 Hawthorne Street
San Francisco, CA 94105-3901

MEMORANDUM

DATE: September 25, 2008

SUBJECT: Request for Approval of Modification to the Removal Action at the Leviathan Mine, Alpine County, CA

FROM: Kevin P. Mayer, RPM, California Site Cleanup Branch KPM

TO: Kathleen Salyer, Assistant Director Superfund Division, California Site Cleanup Branch

I. PURPOSE

The purpose of this Memorandum is to request and document approval of a modification to the Non-Time Critical Removal Action (NTCRA) described herein for the Leviathan Mine Site, located in Alpine County, CA. This Memorandum is based on the Draft Engineering Evaluation/Cost Assessment (EE/CA) submitted by Atlantic Richfield Company (Atlantic Richfield) to EPA on April 5, 2004, public comments received pursuant to 40 C.F.R. 300.415(n)(4), the NTCRA Memorandum approved on July 12, 2005, planning and construction experiences in implementation of the Removal Action in 2006 and 2007, comments solicited by EPA from all prior commenters on the EE/CA, and the Site administrative record.

EPA had overseen efforts to control and treat known discharges of acidic contamination from the Mine and discovered that most of the standard treatment alternatives could be reliably operated only during the summer. The Draft EE/CA analyzed several approaches to extending the treatment season beyond the summer months. For reasons described in Section V.A. (3) of the July 12, 2005, NTCRA Memorandum, EPA selected a NTCRA at Leviathan Mine to include on-site year-round treatment of known Acid Mine Drainage (AMD) sources. Experience gained in from attempts to design and build such a system has shown that it entails implementation challenges inappropriate for a NTCRA or treatability study. Rather, on-site year-round treatment will be one of the remedial alternatives analyzed in a Long-term Remedial Investigation/ Feasibility Study (RI/FS), which is being implemented concurrently with this NTCRA as required by the Administrative Order signed on June 23, 2008. Meanwhile, the NTCRA continues with the same fundamental goals and a new strategy for achieving these objectives.

The objectives of the NTCRA remain: to expeditiously improve temporary protection of human health and environment from the known AMD discharges while obtaining critical information for selecting a long-term remedy. Based on experience gained and comments received in the past year, EPA has concluded that the best way to further these goals is to modify the NTCRA to implement response action that shall include on-site interception and treatment of AMD from two source areas from early spring through late autumn, when personnel can safely access the site. As described in more detail in Section V of this Memorandum, this NTCRA shall include:

1) Design, construction and operation of an improved on-site three-season treatment system to test the effectiveness and reliability of cold-weather treatment of the AMD from the Channel Underdrain (CUD) and the Delta Seep. To minimize untreated discharge to the stream while maintaining operator safety, the system shall be designed to operate during spring, summer and autumn as long as road conditions allow safe personnel access, even if the site is inaccessible to heavy trucks and equipment.

2) Continuation of year-round treatment of the Aspen Seep through the Bioreactor, including testing and implementation of system and process improvements as warranted.

3) Continued year-round capture and storage of the AMD from the Adit and the Pit Underdrain (PUD) for separate summer treatment.

4) Performance of additional treatability studies which may be required to test the effectiveness and reliability of treatment of combined Adit, PUD, CUD and Delta Seeps, particularly to assess sludge characteristics.

It is anticipated that this NTCRA will be conducted by Atlantic Richfield and the Lahontan Regional Water Quality Control Board (LRWQCB).

This site has been the subject of eight earlier removal action memoranda, dated September 24, 1997; July 19, 2000; July 5, 2001; July 27, 2001; July 11, 2002; July 28, 2003; July 29, 2004; and the July 12, 2005 NTCRA Memorandum. Five of these earlier removal actions were conducted by the LRWQCB, and two were conducted by Atlantic Richfield or by its implementing agent, ARCO Environmental Remediation L.L.C. (AERL). The July 27, 2001 Removal Action Memorandum was issued for Early Response Action activities undertaken by Atlantic Richfield. EPA directed both the LRWQCB and Atlantic Richfield to implement portions of the 2005 NTCRA Memorandum. These activities shall continue except as modified by this Memorandum. As with the previous removal actions, close coordination of concurrent site activities will be necessary for the proposed NTCRA.

Conditions presently exist at the site which, if not addressed by implementing the response action documented in this Memorandum, may lead to off-site migration and release of hazardous substances which may pose an imminent and substantial endangerment to the public health or welfare or the environment.

The actions described herein meet the criteria for a removal action under section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

II. SITE CONDITIONS AND BACKGROUND

Site Status: NPL
Category of Removal: Non-Time-Critical
CERCLIS ID: CAD 980673685
SITE ID: 1A

A. Description of Site and Releases, National Priority List Status, and the Memorandum of Agreement with Natural Resource Trustees

1. Site description

The 656 acre Leviathan Mine property lies within a remote portion of northeastern Alpine County, California, on the eastern flank of the central Sierra Nevada, near the California-Nevada border, approximately 25 miles southeast of Lake Tahoe, and 6 miles east of Markleeville, California. Of the total property, approximately 253 acres evince visible disturbance by mine related activities. With the exception of approximately 21 acres of disturbance on land managed by the United States Department of Agriculture, Forest Service (U.S. Forest Service), the entire surface disturbance is on the mine site owned by the State of California.

Vehicular access to the mine is provided by unpaved roads from State Highway 89 on the southeast and from U.S. Highway 395 south of Gardnerville, Nevada, on the northeast. Vehicular access to the mine is limited by snowfall, steep grades, narrow roads with sharp turns and muddy and rough road conditions, so that the Site may be inaccessible to heavy equipment, supply delivery trucks, emergency personnel and other vehicles from as early as October to as late as July, depending on weather. The California-Nevada border lies approximately three miles northeast of the mine.

The disturbed areas of Leviathan Mine are sparsely vegetated. Although there is some volunteer vegetation, most existing vegetation is due to localized revegetation efforts carried out by the LRWQCB. No external sources of potable water or power are available at this remote mine.

2. Releases or threatened releases into the environment of a hazardous substance, pollutant, or contaminant

There are several sources of AMD at the Site which may impact Leviathan Creek. When a release from the Site occurs, it may flow into the Leviathan Creek/Bryant Creek watershed, which drains into the East Fork of the Carson River. Unless treated, the releases contain elevated concentrations of metals and metalloids, most notably arsenic, as well as iron, aluminum, chromium, cobalt, copper, nickel, and zinc. The low pH and high metals content of the AMD historically limited most aquatic life in Leviathan Creek and portions of Bryant Creek downstream of the mine, until responses activities were initiated. These releases originate in California and, at times, may have flowed into Nevada and into the East Fork of the Carson River, which serves as a major source of water supplies and a habitat for fish, including a historical habitat for the federally-listed threatened Lahontan cutthroat trout.

3. Site ownership

Mining began at the Site in the 1860's and continued on an intermittent basis for nearly 100 years. The Site was initially developed as an underground mine for gold, copper and copper sulfate from approximately 1863 to 1873. There is evidence of sporadic mining activity thereafter until 1933, when a private party acquired the site for sulfur production. Between 1933 and 1951 several companies owned and operated the mine and developed a series of underground tunnels and adits and a sulfur mill on Site. Anaconda Copper Mining Company (which later became The Anaconda Company) ("Anaconda") acquired the Site in 1951 and further developed it between 1952 and 1953. Anaconda extracted sulfur ore through open pit mining until 1962, at which time, mining ceased and the Site was sold to another party. In 1977, Atlantic Richfield purchased all of Anaconda's stock, and in 1981 it merged with Anaconda.

In 1984, the state of California acquired approximately 495 acres of the mine property to pursue cleanup and abatement of the water quality problems associated with historic mining. State jurisdiction over the mine property rests with the State Water Resources Control Board which, in turn, has delegated authority over the mine property to the LRWQCB.

4. NPL status

On May 11, 2000 (65 Fed. Reg. 30482), pursuant to section 105 of CERCLA, 42 U.S.C. § 9605, EPA listed the Site on the National Priorities List, set forth at 40 CFR Part 300, Appendix B.

5. Memorandum of Agreement with Natural Resource Trustees

On April 9, 1998, EPA entered into the Leviathan Mine Site Memorandum of Agreement among the Washoe Tribe of Nevada and California, The United States Environmental Protection Agency, The United States Department of the Interior, and the United States Department of Agriculture (MOA). The Nevada Department of Environmental Protection and the California Department of Fish and Game subsequently joined the MOA. Section VII of the MOA provides for coordination of efforts of these parties regarding collection of data, assessment of risks, evaluation of alternative possible response actions and natural resource restoration actions, and development and implementation of a strategy to seek to have liable parties perform and/or pay for the costs of response, restoration, compensation for natural resources damages, and operation and maintenance of the Site.

In addition to the parties to the MOA, other stakeholders who have participated in discussions that led to the development of the NTCRA include neighboring property owners, community members, academic researchers, and representatives of the Carson Water Subconservancy District, Alpine County, California, and Douglas County, Nevada.

B. Evaporation Ponds: Construction, Overflow, Treatment, and Enforcement

In an attempt to mitigate releases of AMD, the LRWQCB constructed five lined storage and evaporation ponds and other surface water and groundwater diversion structures on-site between1983 and1985. These ponds collect AMD from an adit and a drainage system built by the LRWQCB under the mine pit ("PUD"). From the time of the construction of the ponds until the first successful season of treatment in 1999, evaporation during the dry summer season would decrease the total volume of AMD and concentrate the contaminants within these ponds. However, the combined flow of AMD and direct precipitation (rain and snow) into the ponds exceeded evaporation losses from the ponds in most years between 1985 and 1999, so that the ponds usually reached capacity (approximately 16 million gallons) and then overflowed into Leviathan Creek. Estimates of the overflow from a particularly wet winter range up to 9 million gallons per year. Without annual preventative action, such overflow could reoccur.

In May 1998, EPA issued an Administrative Order on Consent for Removal Action (1998 AOC) to Atlantic Richfield. Under the 1998 AOC, Atlantic Richfield agreed to remove a certain quantity of liquids collected in the evaporation ponds, to collect specified information on Site conditions, and to reimburse EPA, other agencies of the United States, and the Washoe Tribe of Nevada and California for certain response costs incurred by them, not inconsistent with the NCP. While Atlantic Richfield succeeded in removing millions of gallons of liquid from the evaporation ponds in a manner consistent with the NCP, Atlantic Richfield was not able to achieve the total amount of removal required by the 1998 AOC.

EPA and Atlantic Richfield modified the 1998 AOC on February 18, 2000. The modification to the 1998 AOC required Atlantic Richfield to perform a Riparian Conservation Project, and it provided that Atlantic Richfield's obligations under the 1998 AOC would be terminated after receipt of payment for EPA's response costs incurred in connection with the 1998 AOC between March 1, 1998 and the effective date of the modification to the AOC, which was February 18, 2000. In November, 2001, Atlantic Richfield performed the required Riparian Conservation Project by spending $720,000 to purchase 480 acres of undeveloped land in the Bald Mountain Range in Sierra County, California, donating the land to the Washoe Tribe of Nevada and California, and donating a conservation easement to the Nature Conservancy along with funds for the costs of administering the easement in perpetuity. Atlantic Richfield paid the response costs EPA billed under the 1998 AOC or its modification, except for certain cost items that were specifically disputed.

In the summer of 1999, the LRWQCB conducted a treatability study to evaluate a particular process for neutralizing the AMD held in the evaporation ponds. The process tested by the LRWQCB is referred to as biphasic neutralization. The treatability study demonstrated that biphasic neutralization could be used to treat the AMD to a level acceptable for discharge to Leviathan Creek, considering all of the exigencies of the situation prior to design of further response actions. Operation of this system in the summer of 1999 reduced the level of AMD in the ponds to a significant extent. Further activity in the spring of 2000 prevented overflow that year.

On July 19, 2000, EPA issued an Administrative Abatement Action ("AAA") under Section 106(a) of CERCLA, 42 U.S.C. § 9606(a), to the LRWQCB, pursuant to which the LRWQCB treated the AMD in the evaporation ponds. The LRWQCB successfully treated sufficient quantities of AMD in the summer of 2000 so as to prevent pond overflows in 2001.

The AAA was modified in each of the years 2001, 2002, 2003, and 2004, to provide for the LRWQCB to perform a similar removal action each summer, each of which has succeeded in preventing pond overflows in the following year. EPA, in consultation with the LRWQCB, issued a new AAA in 2005 directing the LRWQCB to provide for treatment of the AMD captured in the evaporation ponds each year until a final remedy is selected and implemented. During each summer from 2001 through 2008, the LRWQCB effectively emptied the ponds of AMD in preparation for capture throughout the subsequent winter and spring. Each year, EPA and the LRWQCB have further developed the treatment system, so as to respond to changing chemistry in the ponds and improve AMD treatment and sludge handling techniques.

During the winters of 2004-5 and 2005-6, total precipitation exceeded 29 and 27 inches of water content respectively. This is somewhat higher than the average over the last 16 years on record but still less than the 37 inches measured in the wet year of 1995. In the spring of 2005 and 2006, the LRWQCB mobilized a portable temporary lime treatment system to the Site in early spring to respond to near-overflow conditions in the evaporation ponds. For several days in mid-April 2006, an uncontrolled overflow of untreated or partially treated pond water discharged to Leviathan Creek before the temporary treatment system was able to draw down the pond water levels sufficiently.

C. Other AMD Releases, Early Response Actions, and Remedial Investigation/Feasibility Study

In addition to the contaminated water collected in the evaporation ponds, other sources of AMD from the Site may contribute year round to the contamination of the Leviathan Creek/Bryant Creek watershed unless they are captured and treated prior to discharge. The CUD collects subsurface water from beneath a portion of the concrete Leviathan Creek diversion channel that was built by the LRWQCB. The CUD usually discharges roughly 15 to 30 gallons per minute ("gpm") into Leviathan Creek, although flows exceeded 40 gpm for several months in 2006 following a second wet winter.

The Delta Seep is an area where surface discharges of AMD exit the lowest portion of the mine waste rock in Leviathan Canyon, known as the Delta Slope, approximately 600 feet downstream from the end of the diversion channel. Prior to 2005, the Delta Seep flow had been typically measured at approximately 10 gpm. The LRWQCB's actions to stabilize the Delta Slope in 2005 added a rudimentary system for subsurface dewatering and drainage of the face of the slope. Prior to 2007, flows from the discharge pipe of these drains and the surface seepage from the toe of the slope were not adequately collected, and flow rates can only be estimated. In 2005 and 2006, the Delta Seep flows appeared to have increased over the flows during the earlier, drier years.

Aspen Seep is a series of surface flows, which at times totals more than 10 gpm from low points of the waste rock in the Aspen Creek drainage. Water quality measurements taken by the LRWQCB and Atlantic Richfield indicate that these sources are somewhat less acidic and less highly concentrated in arsenic and metals than water collected in the evaporation ponds.

On November 22, 2000, EPA issued an administrative order requiring Atlantic Richfield to submit work plans for a phased RI/FS for developing a long-term response to releases from Leviathan Mine ("Administrative Order"). Additionally, the Administrative Order required Atlantic Richfield to plan and implement Early Response Actions ("ERAs") to address known releases from Leviathan Mine that are not captured in the evaporation ponds.

Atlantic Richfield has implemented ERAs since 2001. The ERAs have emphasized treatment of known sources of AMD, both to develop feasible methods of addressing these releases and to allow examination of whether there are other sources of contamination originating at the Site by measuring how the creeks respond to treatment of the known releases.

During 2001 through 2008, Atlantic Richfield captured and treated flows from the CUD for a portion of each year.

During 2001 and 2002, the LRWQCB conducted a geotechnical analysis of the stability of the mine wastes near the Delta Seep. In 2003 and 2004, Atlantic Richfield captured the Delta Seep flows and pumped them uphill for treatment along with CUD flows. However, slope instability issues and mudflows from rain storms hampered Delta Seep efforts in both 2003 and 2004, and the Delta Seep effort ended early in the 2004 season. A major project sponsored by the LRWQCB to reconfigure and stabilize the Delta Slope was completed during the 2005 field season. Atlantic Richfield resumed partial capture and treatment of the Delta Seep in 2007 consistent with the 2007 -08 Treatability Studies and Interim Treatment Work Plan.

In 1996, University of Nevada - Reno researchers began to partially address the seep of AMD into Aspen Creek by a demonstration biological treatment project. This project was funded by the LRWQCB until June 30, 2001, when Atlantic Richfield assumed the project funding. The Aspen Creek treatment utilizes a biological process to reduce sulfate to sulfide and precipitate metal sulfides which are relatively insoluble. Pursuant to the Administrative Order, Atlantic Richfield expanded and improved this biological treatment system, which began capturing and treating all AMD flowing into the Aspen Creek by the summer of 2003. This system operates through the winter. Development and testing of improvements to the bioreactor process are important components of this early response action and treatability study. In 2007 and 2008, Atlantic Richfield made additional improvements to the Aspen Seep treatment system consistent with the 2007 -08 Treatability Studies and Interim Treatment Work Plan.

An integral part of past and future pond water treatment and other response actions includes assessment of the effectiveness of the action through water quality monitoring at the Site and in downstream waters as well as measurement of streamflow and meteorological conditions throughout the year. The LRWQCB has monitored water quality since its first involvement, and has increased the intensity of the investigation of site characteristics since 1998.

The ERAs to date have demonstrated effective technologies for seasonal treatment of the AMD discharges at the Site and confirmed that the known releases contribute the majority of contaminants affecting the streams during the dry season. Based on what has been learned over the past few years through ERAs performed by Atlantic Richfield, the removal actions performed by the LRWQCB, the initial stages of RI/FS activity, and discussions with the stakeholders, EPA, on November 13, 2003, directed Atlantic Richfield to prepare an EE/CA to evaluate options for capturing and treating the AMD year round to specified discharge criteria.

Atlantic Richfield developed the Draft EE/CA with input from EPA and other stakeholders, and submitted the Draft EE/CA on April 2, 2004. The LRWQCB had a reasonable opportunity to review and comment on the proposed EE/CA pursuant to Section 106(a) of CERCLA, 42 U.S.C. §9606(a), and 40 C.F.R. § 300.500. EPA received comments from the public, in writing and in a public meeting held on May 4, 2004.

EPA signed a NTCRA Memorandum on July 12, 2005, selecting a phased program for testing the effectiveness and reliability of on site year-round AMD treatment. EPA and other stakeholders identified uncertainties of winter treatment at this remote site with no existing power source and without reliable personnel access during periods of deep snow and muddy roads. At the time, active treatment of AMD at an elevation of approximately 7,000 feet, under harsh winter conditions and without day-to-day access, had not been implemented anywhere else in the nation. Consequently the new efforts during the initial years were to focus on flows from the CUD and Delta Seep, which had been allowed to discharge untreated except during the summer treatment season. Subsequent incorporation of the Adit and PUD into a combined year-round treatment system was postponed until the winterized treatment system for the CUD and Delta Seep could be proven reliable, although the pond system did not provide sufficient storage capacity for a year of particularly high precipitation.

An additional objective of the NTCRA was to eliminate untreated AMD discharge to the watershed to provide an opportunity to determine the scope of the subsequent phases of the RI/FS, given that such interception and treatment can be expected to substantially alter the nature and extent of the threats posed by the Site. The elimination of the major known discharges was expected to allow quantification of the effect of sediments and any other remaining sources without the confounding effect of replenishment of contaminated sediments for most of the year, particularly during the start of the lower flow conditions in late spring.

D. Attempts to Implement the 2005 NTCRA Memorandum.

During the latter part of the 2005 construction season, Atlantic Richfield successfully tested a common lime treatment system known as High Density Sludge ("HDS"). This method is often preferred since the treatment solids or sludge form denser particles that more easily dewater than sludge generated from conventional lime treatment, producing significantly lower volumes of waste solids that are easier to handle.

On May 4, 2006, Atlantic Richfield submitted a draft work plan for a winter treatability study to test the effectiveness and reliability of the HDS system for year-round treatment of CUD and Delta Seep flows ("High Density Sludge Treatment System Design and 2006/2007 Winter Operations Work Plan"). EPA approved this work plan with comments on June 2, 2006, and directed Atlantic Richfield to implement the work plan. Atlantic Richfield submitted a second work plan on May 26, 2006, for HDS treatment during the summer of 2006 prior to full implementation of the winterized treatability study. EPA approved and directed implementation of this work plan on July 14, 2006, commenting that EPA expected that Atlantic Richfield would plan to continue to capture flows from the CUD and Delta Seep during the conversion period, even if the summer treatment system would not be able to operate for a number of days.

The design of the winterized treatment system became more complex than initially had been anticipated, including a much larger and more elaborate building than had been envisioned, due in part to the need to enclose and heat more sludge-handling facilities, more power generation, more operator health and safety features and additional snow- and wind-load structural features. The HDS process has not been tested under conditions where operator access is limited for days or possibly weeks at a time. Atlantic Richfield became quite concerned over operator health and safety issues that arose over the need to have personnel present at this remote site for much of the winter.

Construction of the winterized system began on-site in July 2006. Although a great deal of work was done including preparing foundations and routing some of the transmission piping, by October it became clear to Atlantic Richfield that concerns about access and worker safety would prevent the project from being completed during 2006, and the effort was terminated for that year.

On November 17, 2006, EPA sent Atlantic Richfield a letter stating that Atlantic Richfield had failed to comply with EPA directives under the Administrative Order to implement the schedule and AMD capture requirements of the approved work plans, and that EPA intended to seek penalties and punitive damages.

During the following autumn and winter, Atlantic Richfield met with EPA and technical representatives of stakeholder groups to present its analysis of the feasibility of year-round treatment at Leviathan Mine. Atlantic Richfield's mine treatment experts present at the meeting explained that HDS was the preferred option for lime treatment due to the reduced volume of waste solids and simplified handling of this sludge. Because of the remote conditions of Leviathan Mine, it became apparent during the 2006 attempt that the level of design and robustness of construction required for year-round treatment was significantly greater than had

previously been anticipated. EPA determined that any year-round treatment would be more appropriate following a thorough RI/FS and formal Record of Decision ("ROD"). As on-site winterized treatment is now envisioned, it would require capital investment and lasting effects on land use more appropriate to consider as a final remedy. Such a remedy will be analyzed in the RI/FS, where it would be compared to other potential remedies, such as increased biological treatment, off-site treatment or additional pond storage, which were determined by EPA in the NTCRA Memorandum to be inappropriate to implement as interim remedies due to similar challenges.

EPA invited all interested stakeholders including representatives of all commenters on the EE/CA to participate in the November 2006 Technical Advisory Committee meeting, at which difficulties with the year-round treatment were discussed. Thirty-nine individuals - representing 12 tribal, state, federal and local government agencies as well as several businesses - attended this meeting. At that meeting and in subsequent communication, EPA invited participation of the stakeholders in a January 2007 technical meeting to explore the problems encountered with implementation of year-round HDS treatment and possible solutions to the challenges. Seventeen individuals participated, representing tribal, state, federal and private entities.

EPA considered Atlantic Richfield's presentation, comments of other stakeholders, and the advice of experienced engineers and researchers at EPA. EPA has determined that safe and daily availability of winter access for personnel is necessary for reliable operation of an HDS lime treatment system at this time. EPA has determined not to require implementation of such a system on a year-round basis prior to a thorough RI/FS and ROD process.

Personnel have been able to access the Site by four-wheel drive vehicles at certain times when early spring and late autumn conditions preclude access by large delivery vehicles and other heavy equipment. Although EPA has determined that the requirements for implementing on-site winterized treatment of CUD and Delta Seep flows exceed the scope of the NTCRA, treatment during such limited access periods, to the extent practicable, may provide watershed protection from AMD and accumulation of contaminated sediment during critical low-flow stream conditions. Equally important, treatment during spring and autumn will provide information about operations during cold weather, which can negatively affect treatment chemistry, plant operations and the physical conditions for sludge handling.

Accordingly, EPA has concluded that the best way to further these goals is to modify the NTCRA to stress the importance of lengthening the period for collecting and treating flows from the CUD and Delta Seep and acknowledging that the design and implementation of on-site winterized treatment of CUD and Delta Seep flows are more appropriate for consideration as a long term remedy. The modified NTCRA shall include on-site interception and treatment of AMD from CUD and Delta Seep areas from spring (June 1) through autumn (September 30). During this period weather and road conditions typically permit safe personnel travel to the Site and also allow delivery of the types and quantities of supplies needed to operate a reliable lime treatment system such as the HDS system currently under construction. Capture and treatment of the other three known sources of AMD (Adit, Pit Underdrain and Aspen Seep) shall continue as described.

During the limited access season from October through May, and particularly during the spring and autumn, weather and road conditions may allow some personnel and reduced quantities of supplies and equipment to reach the site safely for limited treatment trials. Under such conditions, the NTCRA shall include capture and treatment of CUD and Delta Seep flows in cold weather trials of the HDS system or a smaller scale alternative such as a portable treatment system.

The remaining tasks for the RI/FS shall continue as required by the Administrative Order issued on June 23, 2008. This early response action shall continue until the final site remedy is fully implemented or as directed by EPA.

E. State and Local Authorities' Roles

1. State and local actions to date

The state of California obtained title to the Leviathan Mine Site in 1984 in order to facilitate access during its efforts to address contamination at the site. The LRWQCB manages the Site, and has undertaken pollution abatement projects described above. In addition to the pond water treatment project, the LRWQCB continues to take other action at the Site, researching AMD treatment methods, monitoring water quality and flow, and conducting site maintenance. There have been no substantive cleanup efforts by other state or local agencies. The states of California and Nevada and the Washoe Tribe of Nevada and California, as well as county and local agencies in both California and Nevada, have expressed their strong desire to see the contamination from Leviathan Mine addressed, and have participated in the cleanup process by attending meetings and submitting written comments.

2. Potential for continued State/local response

In each season since 1999, the LRWQCB has successfully treated the AMD in the evaporation ponds. Continued improvement, optimization and documentation of the treatment process remain objectives for use in decision making for long-term response. This nine year record of successful treatment by the LRWQCB shows a strong potential for a continued State response to the release. It is anticipated that the LRWQCB will continue to capture the Adit and PUD flows in the evaporation ponds and treat this AMD each summer until the final site remedy is fully implemented or as directed by EPA. Work plans for the portion of the NTCRA addressing capture and treatment of Adit and PUD flow by the LRWQCB shall continue to include contingencies for springtime treatment, as needed to prevent pond overflow in wet years.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The threats to public health, welfare, or the environment are those identified in Section III of the Leviathan Mine Hazard Ranking System Documentation Record Review.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances, if not addressed by implementing the response action selected in this Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment. Preliminary monitoring results of biological indicators and stream water quality indicate that a reduced treatment season during 2005 and 2006 has likely resulted in conditions detrimental to ecosystem recovery.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The NTCRA at Leviathan Mine shall consist of on-site interception and treatment of Acid Mine Drainage (AMD) originating at two source areas, CUD and Delta Seep, from June 1 through September 30 when the site typically can be safely accessed by personnel, vehicles and equipment. The collection and treatment system shall be designed, constructed and operated to test treatment methods that could be considered for the final site remedy. Additionally, spring and autumn treatment trials shall be conducted as weather and road conditions safely permit.

Development and operation of the Aspen Seep treatment system and the Pond collection and treatment system for the Adit and PUD shall continue throughout the NTCRA.

The objectives of the NTCRA can be summarized as:

- Improve temporary protection of human health and environment from the known AMD discharges to the extent practicable. EPA remains committed to selecting a protective long-term remedy based on a complete RI/FS.

- Obtain critical information for selecting a long-term remedy.

    1) Eliminate gross discharge during critical low flow periods of the spring, and as much of the summer and autumn as practicable, to allow a more thorough Risk Assessment for long-term risks.

    2) Gain experience in operating systems to capture and/or treat the AMD at Leviathan at low temperatures.

• Implement the Response Action in a timely manner both to optimize health and environmental protection and to allow the Risk Assessment and Feasibility Study data gathering to proceed to the next stage.

The primary activity of this NTCRA will be to design, construct and operate capture systems and a neutralization treatment system during the summer months (June through September) to treat the AMD discharged at the CUD and Delta Seep at Leviathan Mine by raising the pH, reducing the dissolved concentrations of metals in the AMD, and separating the resulting solids from the water. The treated effluent will be discharged to the Leviathan Creek system. The method of treatment and the placement of sludge generated from the treatment shall be addressed in Work Plans for site work at Leviathan Mine submitted by Atlantic Richfield and the LRWQCB to EPA for approval.

In addition, supplementary capture and treatment of the AMD from these two sources shall be implemented during as much of the spring and autumn as EPA determines to be safe and practicable.

Other site activities such as site maintenance and continued monitoring are also elements of this NTCRA, which will be described in more detail in Work Plans which will be submitted for the implementation of this NTCRA.

1. Proposed action description

The major anticipated tasks that will be involved in the proposed response actions include:

a. Continue summer treatment of flows from the CUD.

b. Continue summer treatment of surface flows from the Delta Seep.

c. Design, construct and operate an on-site treatment system to test the effectiveness and reliability of treating the CUD and Delta Seeps from June through September, consistent with NTCRA objectives.

d. Design and implement a supplementary capture and treatment system for CUD and Delta Seep during as much of the spring and autumn as EPA determines to be safe and practicable. Primary factors in this determination will be the judgment of weather and road conditions sufficient for safe access and egress for personnel and equipment.

e. Design and construct capture and transmission pipes for the CUD and Delta Seep appropriate for cold weather conditions expected.

f. Monitor the existing capture systems for the CUD and Delta Seep and propose improvements as necessary and appropriate for a removal action.

g. Continuing Actions - The following activities will continue through implementation of the NTCRA:

i. Continue the existing summer treatment of the flows from the Adit and PUD, captured year round in the existing ponds,

ii. Continue to operate and develop the existing Aspen Seep bioreactor,

iii. Evaluate on-site and off-site solids disposal options,

iv. Develop contingency plans for potential treatment system failure, and

v. Sampling, as described in the following paragraph.

Environmental sampling of water quantity and quality for intake and discharges into Leviathan Creek from the treatment system shall be performed. In addition to monitoring water quality and system performance data collection, sampling will be performed as described in the applicable Work Plans submitted to and approved by EPA, to assure that each treatment system's effluent is in conformance with the standards set forth in Table 1, below, or other standards identified in writing by EPA.

2. Contribution to long-term cleanup performance

The proposed NTCRA will contribute to the RI/FS required by the Administrative Order issued on June 23, 2008. The NTCRA will address the imminent threat posed by the identified sources of AMD discharge, including the overflow of the AMD evaporation ponds. The information gathered pursuant to the NTCRA will be used to inform the long-term RI/FS, and extended treatment of the identified sources of AMD discharges will assist EPA to identify remaining impacts to be addressed in the long-term RI/FS.

The immediate threats of pond overflow and other direct AMD discharges that are addressed in this NTCRA require attention prior to, or concurrent with, the start of a long -term cleanup. To ensure that the immediate threats are adequately abated, the removal action will address only the immediate hazards of untreated AMD discharges from the identified sources, namely the Adit, PUD, CUD, Delta Seep and Aspen Seep. The information that will be gathered to assess the effectiveness and reliability of the action will be used for developing future responses, including long-term response actions.

3. Description of alternative technologies, response to comments, and discussion of decision

The analysis of alternative technologies and response to comments in Section V.A.(3) of the July 12, 2005 NTCRA Memorandum, remains applicable to this modified NTCRA. In the 2005 NTCRA Memorandum, EPA commented:

> EPA agrees that technical and administrative hurdles face the successful implementation of a combined flow, year-round system at Leviathan Mine. Any winterized treatment of AMD at Leviathan Mine presents challenges that have not previously been surmounted elsewhere, because of the remoteness of the Site.

Atlantic Richfield's attempt to design and construct a year-round treatment system in 2006 encountered challenges that called into question many of the assumptions inherent in the EE/CA. For example, EPA had expected that the need for on-site personnel would be greatly minimized through a system of remote operation and control. During the design effort in 2006, major issues of assuring operator safety became paramount. At a January 25, 2007 technical meeting, Atlantic Richfield discussed the rationale for designing an HDS lime treatment system for Leviathan and the need for operator access for a greater on-site presence than had been assumed. EPA determined that the level of construction necessary for operation throughout the winter is beyond the scope of the effort anticipated in the 2005 NTCRA Memorandum.

In the springs of 2005 and 2006, the LRWQCB has successfully mobilized a temporary treatment system to the site to prevent pond overflow, using standard 4 wheel drive vehicles for personnel and equipment transport. EPA has determined that it is reasonable to design and operate a supplementary capture and treatment system for CUD and Delta Seep during as much of the spring and autumn as EPA determines to be safe and practicable. Primary factors in this determination will be the judgment of weather and road conditions sufficient for safe access and egress for personnel and equipment.

EPA has determined that NTCRA objectives can best be addressed through a treatment approach for CUD and Delta Seep that provides certain operation during the summer and extends operation into the spring and autumn as safe and practicable. Protectiveness of the downstream ecological and human receptors will increase during biologically important periods and periods when lower creek flows magnify the impact of AMD discharge. Safe access for personnel via standard 4-wheel drive vehicles typically coincides with the later stages of high spring runoff flows in the Leviathan Creek Drainage. As the flow rate declines in the spring, we have observed increasing water quality degradation and precipitation of contaminated sediment due to untreated AMD releases from CUD and Delta Seep. The same phenomenon has been observed at the end of the summer treatment system when untreated AMD is allowed to discharge when the creeks are in a relatively low flow condition.

Additionally, operators with experience at Leviathan Mine have pointed out that low-temperatures can negatively affect treatment effectiveness. Extending the treatment system into periods of cold weather will develop information on reliability, effectiveness and cost of lime treatment systems critical to analyzing long-term remedial options.

4. Applicable or relevant and appropriate requirements

A removal action shall, to the extent practicable, considering the exigencies of the situation (e.g., the urgency of the situation and the scope of the removal action to be performed), attain applicable or relevant and appropriate requirements (ARARs) under federal or state environmental laws. 40 C.F.R. § 300.415 (j). Potential ARARs include the Clean Water Act (CWA), state water quality laws, RCRA requirements, the California Hazardous Waste Control Law, and state water quality laws for sludge disposal. Other federal and state advisories, criteria, or guidance may, as appropriate, be considered in formulating the removal action.

This Section of the Memorandum explains the extent to which it is practicable to meet ARARs and establishes Discharge Criteria for the effluent which will be released pursuant to the NTCRA. These Discharge Criteria, which are listed in Table I, are based on current exigencies and information, and they may be modified, as necessary, as the situation changes and as more information becomes available. Previous removal action memoranda for the Site have included the same criteria for the same substances, and these criteria were attained for effluent from treatment systems operated at the Site through the most recent treatment season in 2006. Final long-term remediation goals will be determined during the remedy selection process as described in 40 C.F.R. § 300.340. Long-term remediation goals establish acceptable site-specific exposure levels that are protective of human health and the environment.

Water Quality in Receiving Waters. A primary adverse environmental impact from the Leviathan Mine discharges is on surface waters and the species which live in those waters. The CWA and the California Water Code contain requirements for control of discharges into surface waters. In setting the goals for any final remedy, EPA will consider whether any discharge from the mine to surface waters should comply with the water quality objectives, including those set forth in the Lahontan Regional Water Quality Control Basin Plan and the Numeric Criteria for Priority Toxic Pollutants for the State of California (Numeric Criteria), promulgated by EPA for the state of California in 40 C.F.R. § 131.38(b)(2) (May 18, 2000).

The NTCRA is intended to respond to all identified releases of AMD from the Site into Leviathan, Bryant and Aspen Creeks while the site is safely accessible to operators, including those collection and treatment systems that are capable of running through the winter months. Until a final remedy to capture and treat all sources throughout the year can be selected and implemented, unmitigated releases during portions of the year will prevent reliable attainment of water quality standards in Leviathan and Bryant Creeks. Furthermore, during significant portions of the year, streamflow originating upstream of Leviathan Mine is minimal and the water quality of Leviathan and Bryant Creeks may be dominated by the discharge of treated water from the treatment systems. Also, during periods when the site is inaccessible, it may not be possible to safely detect or undertake timely corrective actions to address any system failures. Thus, under all of the exigencies of the situation, it is not practicable by this NTCRA to attain compliance with all ARARs for the water quality of receiving waters. However, Discharge Criteria for the effluent are either based on or in addition to the Numeric Criteria.

Effluent standards. The CWA regulates, among other matters, the discharge of pollutants from point sources into navigable waters of the United States. The discharge of effluent from a treatment system at Leviathan Mine into Leviathan Creek is a discharge of pollutants from a point source into navigable waters of the United States.

Clean Water Act controls are imposed on industries through National Pollutant Discharge Elimination System (NPDES) permits, or Waste Discharge Requirements, which are permitted on a case by case basis. No permit is required for this NTCRA since the discharges from the treatment systems will occur on-site pursuant to a removal action selected and carried out under CERCLA. 42 U.S.C. § 9621(e)(1). However, to the extent practicable under all the exigencies of the situation, a discharge must meet the substantive requirements of such a discharge permit.

In establishing discharge limits for a point source, the permitting agency considers guidelines based on both the technology available to control the pollutants for the specific industrial category of the discharger, as well as standards that are protective of the water quality. NPDES permits must include conditions necessary to achieve water quality standards established under Section 303 of the CWA, where these are more stringent than promulgated effluent limitation guidelines. 40 C.F.R. § 122.55(d). In the event there are no specific effluent limitation guidelines for the type of discharge at issue, the CWA provides that the permit shall contain "such conditions as the Administrator determines are necessary to carry out the provisions of this chapter." 33 U.S.C. § 1342(a)(1)(B). EPA uses "best professional judgment" to establish the effluent limitations if there is no effluent guideline regulation for the specific discharge category.

There are no technology-based effluent limitations specifically identified for inactive sulfur or copper mines. There are technology-based limitations for active metal mines, including copper mines (40 C.F.R. §§ 440.102 and 440.103), iron mines (40 C.F.R. §§ 440.12 and 440.13), and aluminum mines (40 C.F.R. §§ 440.22 and 440.23). Because the problems of AMD from historic mining at the Site are similar to the problems of existing active metal mines, the effluent limitation guidelines for such mines may be relevant and appropriate at the Site. However, for the relevant metals classified under the CWA as Priority Toxic Pollutants, the Numeric Criteria are more stringent than the effluent limitations guidelines for active metal mines. Consequently, the Discharge Criteria for the Priority Toxic Pollutants are based on the Numeric Criteria, while other Discharge Criteria are derived from the effluent limitations guidelines for active metal mines and EPA's best professional judgment based on the results from the last four years of operation of the treatment systems at Leviathan Mine.

EPA determines that it is practicable for all discharges to meet the Discharge Criteria set forth in Table 1 during periods when the Site typically is fully accessible from June 1 through September 30, except during the initial implementation of the treatment (start-up period) or during optimization trials intended to ultimately improve treatment performance. EPA recognizes that it currently may not be practicable to attain these Discharge Criteria at other times and during cold weather.

Table 1 presents both Maximum and four-day Average Discharge Criteria for the protection of aquatic life from acute and chronic exposure effects, respectively. The Maximum concentration equals the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time without deleterious effects. The Average concentration equals the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects. Effluent meets the Discharge Criteria when no sample exceeds a Maximum criterion and the average of samples taken over a four day period does not exceed an Average criterion.

When the Site is accessible, the effluent shall be sampled and analyzed according to the methods and schedule provided in the footnotes of Table I, unless and until EPA determines that a less intensive monitoring program provides adequate and protective process control. The relevant Work Plans shall describe sampling and analysis techniques appropriate for cold weather operations. Both Maximum and Average Discharge Criteria in Table 1 are to be measured at a point before the treated water is discharged.

There are eight minerals released from the Site which are Priority Toxic Pollutants for which Numeric Criteria are established in 40 C.F.R. § 131.38(b)(2): arsenic, cadmium, chromium, copper, lead, nickel, selenium and zinc. For these Priority Toxic Pollutants, the Discharge Criteria in Table 1 are derived from the Numeric Criteria, which are more stringent than any effluent limitations guidelines for discharges of these minerals from active metal mines, as provided in 40 C.F.R. Part 440.

Freshwater Aquatic Life Numeric Criteria for some metals are a function of the total hardness of the receiving water body. Hardness is a measure of dissolved calcium and magnesium expressed in mg/L. The presence of these minerals in water tends to decrease the toxicity of certain metals, such that a concentration of metals that are toxic to aquatic life when the hardness is 50 mg/L might not be toxic in water at 400 mg/L of hardness.

The Discharge Criteria in Table 1 are calculated for receiving water with a hardness of 200 mg/L ($Ca\ CO_3$). The hardness measured in Leviathan and Bryant Creeks below the mine during July and August of 2000 during low flow conditions ranged from well above 400 mg/L (very hard) to approximately 200 mg/L (moderately hard, in Bryant Creek). Hardness values in Leviathan and Bryant Creeks also tend to decrease with dilution from snowmelt during higher flow periods. Although a specific point of compliance has not been formally established, it is EPA's goal to protect aquatic life that has been observed in Bryant and Leviathan Creeks in recent years. Given all the exigencies of the situation, it will not be practicable to fully restore the aquatic community in Bryant and Leviathan Creeks until year-round capture and treatment is successfully implemented at all known sources of AMD. Therefore EPA's best professional judgment is to use the moderate hardness value of 200 mg/L, as measured in the upper reaches of Bryant Creek, to calculate the Discharge Criteria for this NTCRA.

TABLE I
DISCHARGE CRITERIA

Water Quality Parameter	Maximum f2	Average f4
pH	Between 6.0 and 9.0 SU f1	
Arsenic (dissolved)	0.34 mg/l	0.15 mg/l f3
Aluminum (dissolved)	4.0 mg/l	2.0 mg/l f3
Cadmium (dissolved)	0.009 mg/l	0.004 mg/l f3
Chromium (dissolved)	0.97 mg/l	0.31 mg/l f3
Copper (dissolved)	0.026 mg/l	0.016 mg/l f3
Iron (dissolved)	2.0 mg/l	1.0 mg/l f3
Lead (dissolved)	0.136 mg/l	0.005 mg/l f3
Nickel (dissolved)	0.84 mg/l	0.094 mg/l f3
Selenium (total recoverable)	Not Promulgated	0.005 mg/l f3
Zinc (dissolved)	0.21 mg/l	0.21 mg/l f3

f1 pH measurement based on 24_hour (single day) average discharge.
f2. Concentrations based on daily grab samples, each grab sample field-filtered and acid fixed promptly after collection.
f3 Concentrations based on four daily grab samples, each grab sample field-filtered and acid fixed promptly after collection.
f4 If the concentration detected by the contract laboratory is less than the detection limit, ½ the detection limit shall be used in calculating the Average concentration.

For water quality parameters that are not Priority Toxic Pollutants, the Discharge Criteria are based on the effluent limitations guidelines provided in 40 C.F.R. Part 440 or on EPA's best professional judgment based on experience at the Site. The range for pH in Table 1 is equal to the range for pH for effluent from active copper mines set forth in 40 C.F.R. §§ 440.102(a) and 440.103(a). The Discharge Criteria in Table 1 for dissolved iron are consistent with those provided for effluent from active iron mines set forth in 40 C.F.R. §§ 440.12 and 440.13, and also consistent with guidance for water quality from Quality Criteria for Water, EPA 440/5_86_001 (Washington, D.C. 1986).

The Discharge Criteria for aluminum in Table 1 are based on results from the LRWQCB's Leviathan Mine treatment system operational data for six years (1999-2004). These Discharge Criteria for aluminum are not as protective as the limits for effluent from active aluminum mines set forth in 40 C.F.R. §§ 440.22 and 440.23, which may be relevant and appropriate. In past trials, efforts to maintain low aluminum concentrations resulted in less efficient removal of nickel, and higher standards were necessary to ensure the promulgated aquatic life standards for nickel were achieved. Future discharge criteria for aluminum will consider treatment system effectiveness and risk-based goals in light of site-specific operating experience.

Sludge disposal. Sludge produced from the treatment of AMD at Leviathan is excluded from regulation under RCRA Subtitle C pursuant to the Bevill Amendment. 42 U.S.C. § 6921(b)(3)(A)(ii). Additionally, any sludge produced as part of this removal action is not expected to exceed any federal hazardous waste characteristics. Wastes from the extraction, beneficiation, and processing of ores and minerals that are not subject to regulation under Subtitle C are exempt from regulation as hazardous waste under California's Hazardous Waste Control Act. H&SC § 25143.1.

The sludges will be regulated under section 13172 of the California Water Code, which specifically covers mining waste, and the Code's implementing regulations found at 27 CCR 22470 et seq.

Should any sludge that exhibits hazardous waste characteristics be disposed of off-site, the disposal will comply with CERCLA's Off-Site Rule found in section 300.440 of the NCP.

Other Potential ARARs. It is not anticipated that this NTCRA will negatively implicate other potential ARARs, such as the Endangered Species Act, the Archeological and Historic Preservation Act of 1974, the National Historical Preservation Act, or the Hazardous Materials Transportation Act.

5. Project schedule

During the summer 2008, CUD and Delta Seep flows have been captured and treated using modifications of existing equipment while the design and construction of a more robust HDS treatment system commences on a parallel schedule. The work plans submitted to EPA shall ensure that treatment will resume in the spring of 2009 as early as the site is safely accessible to personnel. These work plans anticipate that the completed HDS treatment system will be fully operational during 2009. Certain adjustments for system optimization may be expected in subsequent years of operation. Construction schedules at Leviathan Mine are limited by weather-related site access conditions for heavy trucks and equipment, with mobilization typically expected by June and demobilization in October.

The operation of the NTCRA shall continue until selection and implementation of relevant aspects of the long-term Remedial Action. For the purpose of cost estimation, a five year operation period is assumed.

6. Exemption from twelve month statutory limit for Removal Actions

Consistent with 42 U.S.C. § 9604(c)(1)(A) and 40 C.F.R. Section 300.415(b)(5)(ii), EPA response staff believe that an exemption from the twelve month statutory limit for removal actions is warranted for the following reasons:

a. There is an immediate risk to public health or welfare or the environment. The actual or threatened releases of hazardous substances present a threat of exposure to the public from AMD from the Site. The Site continues to present an immediate threat to human health and the environment and an emergency exemption is warranted based on the threats posed by conditions at this Site.

b. Continued response actions are immediately required to prevent, limit, or mitigate an emergency. If response actions are not continued to reduce, abate, and prevent discharges from the Site, then further damage to the environment will continue, including the continued contamination surface water.

c. Assistance will not otherwise be provided on a timely basis. An ongoing threat to the public health, welfare, and the environment continues due to the lack of resources available by the state and local governments.

An exemption from the twelve month time limit for removal actions is justifiable under the criteria of 42 U.S.C. § 9604(c)(1)(A) and 40 C.F.R. Section 300.415(b)(5), which provide that the exemption is appropriate when continuation of a response action is immediately necessary to prevent, limit or mitigate an emergency, there is an immediate risk to public health or welfare or the environment and assistance will not otherwise come on a timely basis. As stated above, there is an immediate risk posed by the conditions at the Site and an exemption to the twelve month statutory limit is necessary to abate these threats.

For the reasons described in this Memorandum, immediate response action is necessary to prevent AMD from being released into the creeks, especially during low-flow periods, and continued response action will be necessary to minimize the impacts of AMD releases until implementation of a final remedy. The extent of actions planned by other stakeholders is described also in the Memorandum, and the record indicates that certain releases will not be addressed by other parties absent continued response directed by EPA.

B. Estimated Costs

Cost Projection Summary

Removal Action Implementation Costs $ 5,300,000
These are estimates for Capital costs plus Operation for years 0 through 4, extramural to EPA, based on EE/CA Alternative 1 with off-site disposal (Tables 8A and 8D). Costs included for year round treatment, wind turbine construction and winter plowing are offset by various increased construction costs. Estimates for years 1 through 4 were not discounted for Present Value to allow for inflation since the EE/CA was originally written.

EPA Total $ 300,000
(EPA contractor oversight, five year estimate)

Project Total $ 5,600,000

VI. EXPECTED CHANGE IN SITUATION IF ACTION BE DELAYED OR NOT TAKEN

Current and past removal actions at the Leviathan Mine have not addressed releases of AMD from CUD and Delta Seep that occur annually during the months of October through June and degrade water quality in the Carson River watershed. If this NTCRA is delayed or not taken, these releases will continue, even if the past removal actions were extended. Furthermore, if no action is taken, the AMD evaporation ponds will continue to collect and concentrate AMD. If the ponds reach their holding capacity, the AMD may overflow and cause an uncontrolled release of AMD to the Carson River watershed. Any such uncontrolled release would adversely impact water quality, potentially threatening biota and humans. Removal of pond water and control of the other identified AMD releases provides flexibility to conduct any engineering studies or field trials of long-term treatment alternatives, which may not be implemented effectively if the action is delayed or not taken. Minimization of the release of AMD or sediment to Leviathan, Bryant and Aspen Creeks allows the final stages of the Remedial Investigation to proceed to assess the remaining risks at the Site, minimizing the confounding effects of the untreated AMD discharges.

VII. OUTSTANDING POLICY ISSUES

The Draft EE/CA highlighted several outstanding issues which will be addressed during the long-term RI/FS. Among these is the question of whether more of the treatment solids can and should be placed on-site in a properly designed repository in the future. Resolution of this issue requires complete physical and chemical characterization of the solids, analysis of several federal and state requirements, and consideration of questions of land management policy. For purposes of the NTCRA, EPA has concluded that it is appropriate to bring certain wastes to an approved off-site repository. Whether this is the best solution for a long-term remediation is an issue that will require careful consideration during the RI/FS.

Similarly, the Draft EE/CA identified potential advantages of several alternatives including off-site treatment, on-site storage with summer treatment for more of the AMD sources, and biological treatment for more of the AMD sources. While EPA has concluded that such systems could not be implemented as a removal action, EPA will continue to work with the stakeholders including the State of California and U.S. Forest Service in the development of the RI/FS to address challenging technical, administrative, legal, and policy issues presented by these options. The U.S. Forest Service would be a key player in off-site treatment, because it would be necessary to build a pipeline across U.S. Forest Service land to bring the AMD to a low elevation off-site treatment plant. Siting of an off-site treatment plant, extended bioreactors or increased storage ponds plant would also be an issue of concern to the State of California, U.S. Forest Service and other stakeholders. This issue can also be viewed as an example of a larger phenomenon: as EPA reaches the long-term issues of remediation of releases from Leviathan Mine, close coordination with natural resource trustees and the community will become ever more essential.

VIII. ENFORCEMENT

A confidential Enforcement Addendum is attached.

IX. RECOMMENDATION

This decision document represents a modification to the selected removal action for Leviathan Mine Site, in Alpine County, California, and was developed in accordance with CERCLA, and is not inconsistent with the NCP. This decision is based on the administrative record file for the Site.

Conditions at the Site meet the NCP section 300.415(b)(2) criteria for a removal action and I recommend your approval of the proposed removal action. The total project ceiling, most of which will be incurred by Atlantic Richfield and/or the LRWQCB, will be $5,600,000. Of this, an estimated $ 300,000, mostly for oversight, comes from the Regional budget. EPA's costs will be sought through negotiations with potentially responsible parties.

Kathleen Salyer 9/26/08

Approval Signature Date

Disapproval Signature Date

Supplemental Environmental Project (SEP)

Habitat Restoration and Protection on the River Fork Ranch

(Douglas County, Nevada)

INTRODUCTION

Atlantic Richfield Co. (Atlantic Richfield) will conduct the Supplemental Environmental Project (SEP) as described herein on the River Fork Ranch, one of the most ecologically important sites in the Carson Valley.

Located in Douglas County, Nevada, the River Fork Ranch is a 788-acre site nestled south of Genoa at the confluence of the two forks of the Carson River. In addition to the two forks of the Carson River, the River Fork Ranch contains two channels of the Brockliss Slough, making it one of the area's premiere nesting and migratory water bird sites.

The Nature Conservancy has acquired the River Fork Ranch, and protected it with a conservation easement which is now held by the United States Department of Interior, Bureau of Land Management. Atlantic Richfield's proposed SEP will enhance the biological value of the area through revegetation, riparian restoration, and habitat protection.

The discrete and primary habitat protection and restoration elements of the SEP, as described in Table 1 below, are: construction of approximately 15,000 feet of cattle exclusion fencing in sensitive riparian habitat of the West Fork of the Carson River; restoration of approximately 15.5 to 20.5 acres of cottonwood/willow riparian habitat along ~1 mile of the West Fork of the Carson River; and creation of approximately 2 acres of wetland habitat along approximately 1/10 mile of the East Channel of Brockliss Slough. In addition, baseline monitoring of avifauna and plant communities and post-restoration monitoring to document biological community status and condition will be conducted. It is expected that the construction, restoration and post-restoration monitoring activities in this SEP proposal will be concluded within a 3-year time frame. Atlantic Richfield will submit annual reports summarizing and presenting SEP activities including photodocumentation of habitat protection and restoration projects and site conditions during SEP implementation and post-restoration monitoring.

Atlantic Richfield estimates that $400,000 will be required to complete the project.

Table 1. SEP elements, projected costs ($400,000 total) and implementation schedule.

SEP Element	Description	Projected Cost	Implementation Schedule
Restoration of native riparian/wetland vegetation (cottonwood/willow and native wetland vegetation; see **Table 2** for details)	Planting of approximately 15.5 to 20.5 acres of riparian willow and cottonwood (along ~1 mile of W. Fork Carson River); Creation of approximately 2 acres of wetland habitat (along 1/10 mile of Brockliss Slough)	$185,000 - $200,000	To be implemented within 24 months
Cattle exclusion fencing	Construction of ~ 15,000 ft. of cattle exclusion fencing (**Figure 1**) to prevent grazing-related impacts to vegetation and riparian/aquatic habitat	$75,000 (~$5/ft)	To be implemented within 24 months
Baseline and post-restoration monitoring: -Plant community -Avifauna	Baseline and post-restoration plant and avian community assessments	$80,000	Pre-restoration baseline after funding approval; post-restoration reporting as required
Administration costs: Overhead costs charged by contractors or easement holder for implementing the SEP; costs of SEP documentation and reporting.	Brief, photodocumented reports, describing accomplished project objectives and post-implementation results	$45,000 - $60,000	Years 1, 2, and 3

PROJECT DESCRIPTION

The primary and discrete elements of the SEP are set forth in Table 1. The proposed locations for fence construction and riparian habitat restoration are shown on Figure 1. A portion of the SEP funds (~10 to 15%) will be committed to indirect costs for project contracting, administration, implementation, and reporting.

Proposed native plant restoration activities are summarized by specific area in **Table 2**, below. Riparian area planting will include the use of cottonwood nursery stock supplemented by cottonwood and willow poles and cuttings. Riparian areas will also be understory-seeded with native seed mix. Wetland area planting will be accomplished with supercell plugs. Planting and seeding activities will generally comply with the following methods:

- cottonwood nursery stock will be planted using a backhoe with planting depth determined relative to groundwater depth,
- cottonwood and willow poles will be planted using a backhoe-mounted stinger
- cottonwood and willow cuttings will be planted using a handheld waterjet stinger,
- wetland plants will be hand planted using planting bars, and

- riparian seed will be disbursed using hand broadcasters and an ATV-mounted broadcast seeder followed by an ATV-towed chain harrow.

Table 2. Summary of specific plant community restoration areas including location, dimensions, degraded conditions and restoration goals/actions (**Figure 1**).

Restoration Area (dimensions)	Degraded Habitat Conditions	Restoration Goals/Actions
Area 1 (approximately 0.5 acres; 0.1 mile along W. Fork Carson River)	Currently unfenced and overgrazed wet meadow and riparian habitat	**Goal:** restore willow and create small gallery cottonwood forest as habitat and seed bank for downstream **Action**: exclude grazing, allow natural willow recruitment and plant cottonwood
Area 2 (approximately 5 acres; 0.2 mile along W. Fork Carson River)	Currently unfenced, covered with dredged material and non-native vegetation	**Goal:** restore overbank flows, create gallery cottonwood forest as habitat and seed bank **Action:** exclude grazing, remove dredged material to lower topography, plant cottonwood and native understory vegetation
Area 3 (approximately 10 acres; 0.7 mile along W. Fork Carson River)	Currently unfenced, covered with dredged material and non-native vegetation	**Goal:** create gallery cottonwood forest as habitat and seed bank, allow river to reconnect to floodplain **Action:** exclude grazing, align topography with river to E and meadow to W, plant with willow along E, cottonwood planting in center and native grasses/forbs to W
Area 4 (approximately 2 acres; 0.1 mile along E. Channel Brockliss Slough)	Currently unfenced, covered with dredged material and non-native vegetation	**Goal:** expand existing wetlands **Action:** exclude grazing, removed dredged material, breech berm, align topography with W channel, wetlands to N and wet meadows to E and S, plant sedges, cattail, bulrush and native grasses

Post-planting herbivore management will include protection from meadow voles, mule deer, beaver, rabbits and Canada geese. Primary herbivore management techniques will include the use of temporary fencing, plant collaring and wrapping and painting of poles with paint and sand. In addition, remedial revegetation will be accomplished as part of the broader Ranch post-restoration management objectives.

Construction of cattle exclusion fencing at the projected and unit costs presented in **Table 1** will prevent grazing damage to restored riparian and wetland plant communities as well as riverbank/aquatic habitat. Maintenance of exclusion fencing will be accomplished as an element of broader Ranch management objectives.

The SEP will include monitoring, assessment, and photodocumentation of the SEP as described below. The SEP will include monitoring of avian and plant communities at locations to be specified. Some combination of point count surveys and related area

search techniques will be used to establish baseline as well as post-implementation bird community conditions. Quantitative plant community assessments will be conducted to establish baseline (pre-construction conditions) as well as post-construction biological community status. Ground-truthed, remote sensing data will be used to establish baseline and post-restoration plant community status. Plant cover and abundance data will be developed, and the representative plant community condition will be photodocumented.

Atlantic Richfield will submit annual reports, by April 1 of each year, during the three-year period of SEP implementation and post-restoration monitoring. The annual reports will describe SEP implementation, other work performed, and biological assessment information developed during the reporting year.

Figure 1. TNC Carson River pdf file.

River Fork Ranch Figure 1