Atlantic Richfield Compar

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Anthony R. Brown
Project Manager, Mining

February 27, 2017

Mr. Gary Riley
SFD-7-2
U.S. EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

RE: Amendment No.2017-01 – 2017 Annual Amendment
Removal Action Work Plan
Leviathan Mine Site, Alpine County, California
CERCLA Docket No. 2008-29

Dear Mr. Riley:

Atlantic Richfield Company (Atlantic Richfield) is submitting this 2017 Annual Amendment (Amendment No. 2017-01) to the Removal Action Work Plan (RAWP) for the Leviathan Mine Site (site), dated March 1, 2013, in accordance with Paragraphs 50.i.ii and 51 of the Administrative Settlement Agreement and Order on Consent for Removal Action, CERCLA Docket No. 2008-29 (AOC).[1] This Amendment No. 2017-01 provides specific updates and describes certain work-related tasks to be performed in 2017 that are different from or in addition to those set forth in the RAWP (Atlantic Richfield, 2013a), which EPA approved on May 2, 2013 and subsequent approved amendments.

Specifically, this Amendment No. 2017-01 describes the following administrative and technical modifications to the RAWP:

- Summary of Previous Applicable Amendments to the 2013 RAWP
- Storm Water Control Measures;
- High Density Sludge (HDS) Treatment System Modifications;
- Aspen Seep Bioreactor (ASB) Treatment System Modifications;
- Project Schedule Update; and

[1] Effective December 21, 2016, paragraph 61 of the AOC was modified to further extend the AOC's termination date until December 31, 2019 (Second Modification of Administrative Settlement Agreement and Order on Consent for Removal Action, CERCLA Docket No. 2008-29(b)).

- References.

Except as otherwise specified below, this Amendment 2017-01 incorporates the Quality Assurance Project Plan (QAPP) included with the approved RAWP (*see* AOC Paragraph 52). Atlantic Richfield requests EPA's approval of this Amendment 2017-01 pursuant to Paragraph 53 of the AOC.

Summary of Previous Applicable Amendments to the 2013 RAWP

This section summarizes the 2013 RAWP sections that have been previously amended and state which of the prior amended sections remain applicable as part of Amendment 2017-01. This section clarifies which amendment reference is most current to ensure that the most recent version of RAWP text is used for planning and implementation of site water treatment activities.

The 2013 RAWP (Atlantic Richfield, 2013a) presents the scope of water treatment activities to be conducted at the site in accordance with the AOC. All sections of the 2013 RAWP are applicable to Amendment 2017-01, except for the sections modified by previous amendments as described below.

- All references to the *Leviathan Mine Site Health, Safety, Security, and Environment Program Document, Version 4.0* (HSSE Program Document) have been modified in previous amendments and shall be considered modified with Amendment 2017-01 to reference the current version of the HSSE Program Document (Atlantic Richfield, 2017c).

- *Section 1.4 Site Access* of the RAWP has been modified to include the site access provisions presented in RAWP Amendment 2014-01 (Atlantic Richfield, 2014a).

- *Section 3.1 Site Access, LAS Mobilization, and General Pond 4 Area Activities* has been modified to include the storm water monitoring activities presented in RAWP Amendment 2014-01 (Atlantic Richfield, 2014a) and in the Response to Comments to RAWP Amendment No. 2014-01 (Atlantic Richfield, 2014b).

- *Section 3.3.2.1 Modes of Operation*, has been modified to clarify the use of Shutdown Mode rather than Standby Mode during Intermittent Mode Operations as presented in RAWP Amendment 2015-01 (Atlantic Richfield, 2015).

- References to the *HDS Treatment System Operation and Maintenance Manual* (Section 3.3.2.3 System Maintenance; Atlantic Richfield, 2011a) have been modified in previous amendments and shall be considered modified with Amendment 2017-01 to reference the current version of the HDS Treatment System Operation and Maintenance Manual (Atlantic Richfield, 2017b).

- *Section 4.3.2.1 ASB Treatment System Generated Solids* has been modified to more accurately describe passive dewatering technology as described in the Revised RAWP Amendment No. 2015-01 (Atlantic Richfield, 2015)

- References to the *ASB Treatment System Operation and Maintenance Manual* (Section 4.3.1.2; Atlantic Richfield, 2011b) have been modified in previous amendments and shall be considered modified with Amendment 2017-01 to reference the current version of the ASB Treatment System Operation and Maintenance Manual (Atlantic Richfield, 2017a).

- *Section 5.1.2. ASB Treatment System Monitoring and Sampling Plan* has been modified to include provisions presented in the 2013 Amendment #2 to the RAWP (Atlantic Richfield, 2013b) that describes enhanced quarterly sampling for sulfate, total sulfide, and ethanol in order to monitor system performance.

- *Section 7.1 Project Managers* has been modified as presented in the Revised RAWP Amendment No. 2015 -01 (Atlantic Richfi eld, 2015) to reflect that the EPA Remedial Project Manager to receive a copy of regulatory communications changed from Lily Tavassoli to Lynda Deschambault.

- *Section 7.2 Site Operations* has been modified as presented in RAWP Amendment No. 2014-01 (Atlantic Richfield, 2014a) to reflect that the primary contact for Atlantic Richfield treatment -related activities, including site logistics and operations, and regulatory reporting changed from Marc Lombardi of AMEC Environment & Infrastructure, Inc. to Mike Johnson of Copper Environmental Consulting.

- *Section 7.3 HSSE Coordination and Oversight* has been modified as presented in RAWP Amendment No. 2014-01 (Atlantic Richfield, 2014a) to reflect that Broadbent & Associates, Inc. will provide HSSE coordination bet ween Atlantic Richfield, U.S. EPA, LRWQCB and site visitors.

- *Section 9.0 References* has been modified for each yearly amendment revision to reflect the proposed schedule for water treatment activities, and a revised section is included in this RAWP Amendment 2017-01.

- *Figure 3* has been modified as presented in RAWP Amendment No. 2014-01 (Atlantic Richfield, 2014a) to illustrate conveyance pump and low flow pump locations.

- *Figure 9* has been modified for each yearly amendment to reflect the proposed schedule for water treatment activities for 2017. A revised Figure 9 is included as Attachment A to this Amendment.

- *Appendix A – HSSE Program Document* has been modified in previous amendments and is again modified with Amendment 2017-01 to include the current version of the HSSE Program Document (Atlantic Richfield, 2017c).

- *Appendix C – Data Quality Objective Process Worksheet* has been modified as presented in RAWP Amendment No. 2014 -01 (Atlantic Richfield, 2014a) to indicate the Project Quality Assurance Manager will be a Copper Environmental Consulting employee.

- *Appendix D – Quality Assurance Project Plan* has been modified as presented in RAWP Amendment No. 2014 -01 (Atlantic Richfield, 2014a) to modify the roles and responsibilities for the Project Quality Assurance Man ager and the Data Review Chemists. In addition, Figure D-1 (Attachment B) was updated to show a revised site operations organization.

Storm Water Control Measures

Additional storm water management control measures are planned for construction in 2017 near Pond 4 related to the Interim Combined Treatment (ICT) Treatability Test construction activities. Atlantic Richfield will continue to manage and monitor storm water in and around the HDS Treatment System and the ASB Treatment System in 2017 consistent with the methods described in Amendment No. 2014-01 (Atlantic Richfield, 2014a and 2014b).

HDS Treatment System Modifications

Capture and Conveyance System Piping Improvement and Secondary Containment Level Switch

To further improve reliability of the Channel Underdrain (CUD) and Delta Seep (DS) capture and conveyance system, stainless steel pump discharge piping was installed in 2016. The stainless steel discharge piping connected to each conveyance pump is currently joined by two Victaulic groove couplings for easier assembly/disassembly for routine pump inspection and maintenance activities. To reduce the potential for accidental uncoupling, one of the Victaulic couplings will be replaced with a flange fitting and the other will be replaced with a welded connection. To provide further protection in the event of a leak from the piping, a high level switch will be installed in the Delta Seep Transfer (DST) secondary containment tank. These modifications are anticipated to be implemented during 2017 spring commissioning.

Capture and Conveyance Tanks - High Level Switch Replacement

The CUD, DS, and DST capture and conveyance tanks are identical, each consisting of a 400 gallon capture tank and two submersible pumps. Under normal operation, each tank fills with water to a high level set point which triggers one of the pumps to pump the water level down to a low level set point where the pump then turns off. As part of the intelligent variable frequency drive (iVFD) replacement work completed in 2016, the existing high level switch in each capture tank was proposed to be replaced with a similar switch with two sets of contacts which will further improve system reliability. This will provide a dedicated set of high level switches for each iVFD. As these switches were not replaced in 2016, they are now anticipated to be installed during 2017 spring commissioning.

Lime Feed System Increased Capacity

Performance of the ICT field demonstration in 2017 may require additional feed capacity of the lime addition system. This will be achieved through one or more of the following modifications: increasing the pitch of the auger that feeds lime into the lime sludge mix tank, changing the

Programmable Logic Controller(PLC) programming to allow for continuous lime addition, and/or increasing the rotational speed of the auger. These modifications are anticipated to be implemented, if necessary, prior to the 2017 ICT field demonstration depending upon field conditions (anticipated flow rate, acidity, etc.)

Flocculant Metering Pumps

During the ICT field demonstration anticipated in 2017, additional flocculant dosing may be required beyond what can be achieved using the existing flocculant metering pumps unless the flocculant concentration is increased. Larger flocculant metering pumps will be installed to provide an increased range of flocculant flow rates while maintaining the same flocculant concentration. Maintaining the flocculant concentration provides higher operational efficiency. The new pumps would be able to increase pump rates to 0.53 Liters per min (L/min) while the existing pumps provide 0.37 L/min. This modification is anticipated to be implemented during 2017 spring commissioning

ASB Treatment System Modifications

Ethanol and NaOH Flow Meters

The ethanol and sodium hydroxide (NaOH) dosing rates are verified manually by accessing manholes approximately weekly during the Atlantic Richfield Work Season (ARWS) and monthly during the Limited Access Season (LAS). The Human Machine Interface (HMI) re gisters the pump speed, but the dosing systems are not equipped with flow meters to adjust and verify dosing rates remotely which is important during the LAS when the influent flow rate into the system can vary. By installing flow meters to the ethanol and NaOH lines, there would be an increase in system reliability by allowing remote monitoring of the chemical dosing rates. In addition, by installing flow meters, the frequency of manhole access could be reduced, decreasing the likelihood of hydrogen sulfide gas exposure to the operators. It is anticipated that flow meter improvements will be implemented during the 2017 ARWS.

Propane Tank Pressure Relief Valve (PRV) Replacement

Four 1,000 gallon underground propane tanks supply fuel to the generators that supply power to the ASB Treatment System. Each tank has a pressure relief valve (PRV) to ensure that the propane tank does not become over-pressurized. Guidelines suggest that propane tank PRV replacement should occur every five to ten years to ensure they are functioning properly. The propane tanks were installed in 2008, and the PRVs have never been replaced. In order to replace the PRVs, the propane tanks will be emptied and isolated, as necessary, to allow PRV

replacement on one or more isolated tanks while the generators continue to operate using the remaining tank(s). It is anticipated that the modification will be implemented during the 2017 ARWS.

Aspen Seep Collection Area Maintenance

The Aspen Seep Collection Area is comprised of rock matrix wrapped in geosynthetic fabric. Maintenances activities have been performed intermittently in previous years to maintain seep flow through the rock matrix. In 2016, the lower portion of the Aspen Seep Collection Area was reconstructed and subsurface flow in this portion of the collection area was improved. Seep water continues to pond at the upper end of the Aspen Seep Collection Area; therefore, this upper area will be reconstructed to improve seep water drainage. It is anticipated that the modification will be implemented during the 2017 ARWS following seasonal flow rate decline.

Project Schedule

The following paragraphs provide a brief discussion of the anticipated 2017 schedule for treatment-related activities.

The following 2017 schedule projections for treatment-related activities are approximate and subject to change in the event of delays related to construction, administrative approvals, design changes, access restrictions, weather-related equipment problems, other circumstances inherent to working at a high altitude mine site with limited access, or other force majeure. A conceptual schedule showing the sequence and anticipated time frames for planned activities is attached to this letter as Attachment A – Revised RAWP Figure 9 – General Schedule for Treatment Activities.

Implementation of 2017 work began in January with ongoing O&M activities at the ASB Treatment System. Solids management activities at the ASB Treatment System are anticipated to begin in July.

Site accessibility monitoring and evaluation is anticipated to begin in March, with mobilization of equipment and initiation of HDS Treatment System spring commissioning activities beginning in April, weather permitting. Operation of the CUD and DS collection and conveyance equipment will begin following the improvements to the Capture and Conveyance systems outlined in the HDS Treatment System Optimization section. Operation of the HDS Treatment System is anticipated to begin in April or May, depending on weather and access conditions.

Similar to operations in past years, the HDS Treatment System will operate through the end of the ARWS and potentially into mid to late October, depending on weather and access conditions. Sludge will be generated and properly disposed of during the operation of the HDS Treatment System. Preparation for winter shutdown and storage of the HDS Treatment System is anticipated to occur in late October to early November.

References

This Amendment No. 2017-01 modifies the references in Section 9.0 of the RAWP to the following current document versions:

Atlantic Richfield, 2013a, Removal Action Work Plan Leviathan Mine, Alpine County, California, prepared by AMEC Environment & Infrastructure, Inc., March 1.

Atlantic Richfield, 2013b, Amendment #2 – 2013 Aspen Seep Bioreactor Treatment System Enhanced Sampling for Performance Monitoring 2013 Removal Action Work Plan, Alpine County, California, prepared by AMEC Environment & Infrastructure, Inc., April 18.

Atlantic Richfield, 2014a, Amendment No. 2014-01 – 2014 Annual Amendment Removal Action Work Plan Leviathan Mine Site, Alpine County, California CERCLA Docket No. 2008-29, prepared by Copper Environmental, February 28.

Atlantic Richfield, 2014b, Response to Comments Amendment No. 2014-01 – 2014 Annual Amendment Removal Action Work Plan Leviathan Mine Site, Alpine County, California CERCLA Docket No. 2008-29, prepared by Copper Environmental, May 6.

Atlantic Richfield, 2015, Response to U.S. EPA Comments and Revised Amendment No. 2015-01 – 2015 Annual Amendment Removal Action Work Plan Leviathan Mine Site, Alpine County, California CERCLA Docket No. 2008-29, prepared by Copper Environmental, May 6.

Atlantic Richfield, 2017a, Aspen Seep Bioreactor Operations and Maintenance Manual, prepared by Copper Environmental Consulting, February.

Atlantic Richfield, 2017b, High Density Sludge Treatment System Operations and Maintenance Manual, prepared by Copper Environmental Consulting, February.

Atlantic Richfield, 2017c, Leviathan Mine Site Health, Safety, Security, and Environment Program Document, Version 8.0, prepared by Amec FW, February.

If you have any questions regarding this Amendment No. 2017-01 to the RAWP, please feel free to contact me at (657) 529-4537 or via email at Anthony.Brown@bp.com, or Mike Johnson at (406) 563-2700 or via email at mike.johnson@copperenv.com.

Sincerely,

Tony Brown
Project Manager Mining

Attachments:

Attachment A – Revised RAWP Figure 9 – General Schedule for Treatment Activities

cc: Lynda Deschambault, Region 9 U.S. EPA – via electronic
Doug Carey, Lahontan Regional Water Quality Control Board – via electronic
Nathan Block, BP America Inc. – via electronic
Reginald Ilao, Atlantic Richfield Company – via electronic
Brian Johnson, Atlantic Richfield Company – via electronic
Adam Cohen, Esq., Davis Graham & Stubbs LLP – via electronic
Marc R. Lombardi, AMEC – via electronic
Sandy Riese, EnSci – via electronic
Mike Johnson, Copper Environmental – via electronic
Jeremy Boucher, Broadbent & Associates, Inc. – via electronic

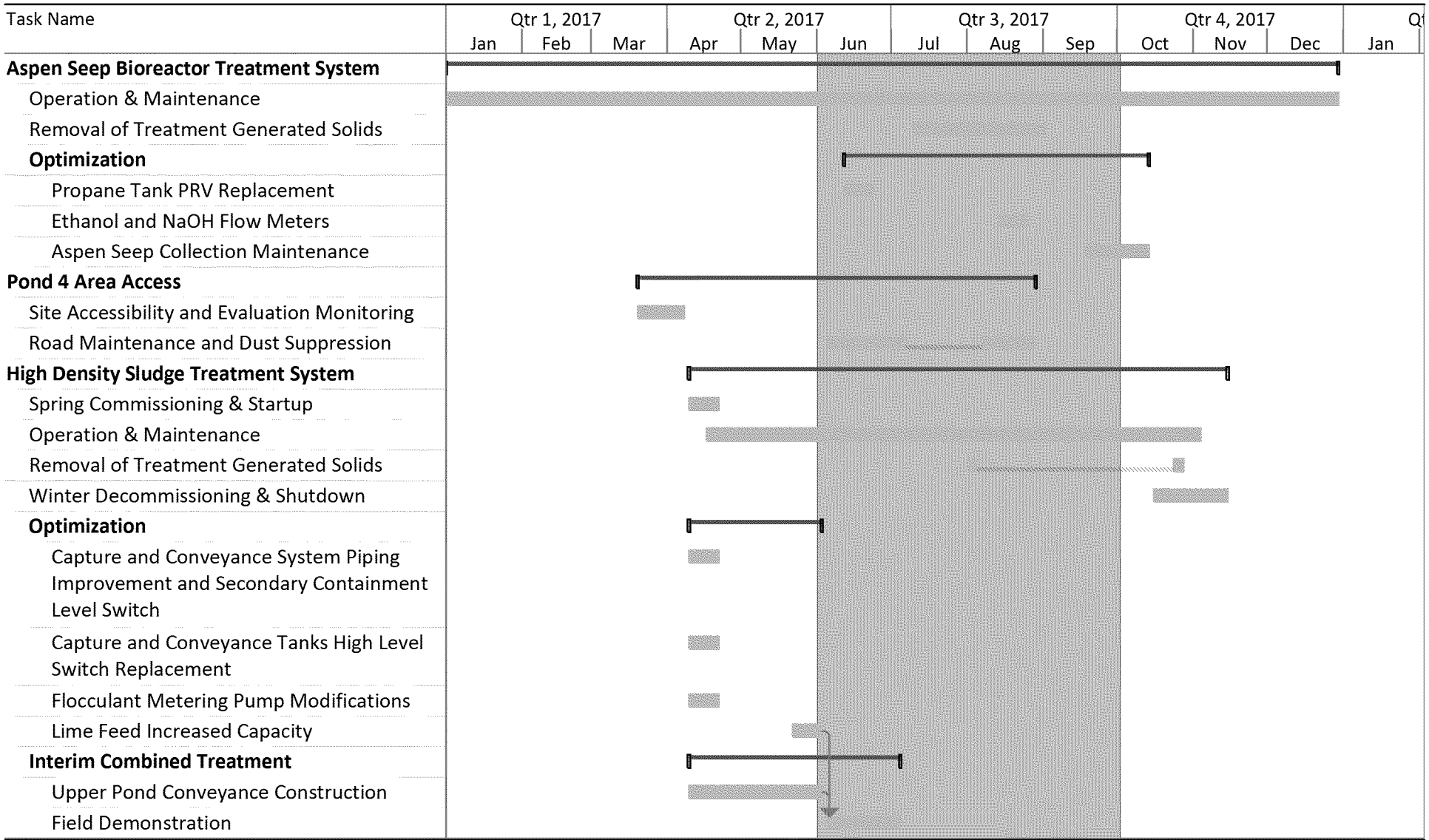
Revised RAWP Amendment No. 2017-01

ATTACHMENT A:
REVISED RAWP FIGURE 9 – GENERAL SCHEDULE FOR TREATMENT ACTIVITIES

Leviathan Mine
Alpine County, California

February 2017

Figure 9 - General Schedule for Treatment Activities



Removal Action Work Plan
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Task | Summary | ARWS

Copper Environmental Consulting

Notes: 1) The ARWS runs from June 1 through September 30.

2) All schedule projections are estimated and subject to change in the event of construction delays, need for administrative approvals, required design changes, site accessibility, and other problems inherent to working at high elevation and in a limited access environment.