UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION IX
75 Hawthorne Street
San Francisco, CA 94105

December 22, 2016

Mr. Anthony R. Brown
Environmental Manager
Atlantic Richfield Company
4 Centerpointe Drive, LPR 4-435
La Palma, CA 90623-1066

Re: E PA comments on Atlantic Richfield Company's (ARC) March 13, 2015 and December 4, 2015 RI/FS Table of Contents (TOC) and Response to EPA comments; June 3, 2016 Remedial Investigation/Feasibility Study Schedule Update, and September 9, 2016 Reporting Options for Upcoming Interim RI Submittals; Leviathan Mine Site, Alpine County, California.

Dear Mr. Brown,

The US Environmental Protection Agency (EPA) has reviewed Atlantic Richfield Company's (ARC) March 13, 2015 and December 4, 2015 RI/FS Table of Contents (TOC) and Response to EPA comments; June 3, 2016 Remedial Investigation/Feasibility Study Schedule Update, and September 9, 2016 Reporting Options for Upcoming Interim RI Submittals; Leviathan Mine Site, Alpine County, California.; Leviathan Mine Site, Alpine County, California. This work is being performed pursuant to the Administrative Order for Remedial Investigation and Feasibility Study (RI/FS), Leviathan Mine, Alpine County, California (CERCLA Docket No. 2008-18, June 23, 2008).

EPA and ARC have made significant progress in completing field work and expediting the completion of the RI/FS. (See Attached Background History). At our last meeting ARC and EPA discussed opportunities for reaching closer agreement on a schedule for submitting the final RI/FS. ARC indicated that the final RI/FS could be completed by December 31, 2018.

EPA provides the following general comments on the three documents reviewed, and summarizes how expedited reporting; along with concurrent development of the RI, the FS and the risk assessments can be accomplished for an inclusive *draft* RI/FS by December 31, 2017 and a complete and *final* RI/FS by August 30, 2018. See Attachment A.

EPA's proposed timeline continues to be reasonable and follows EPA guidance and common practices at other Superfund sites. The RI/FS schedule is based on: ensuring an agreed upon format; consolidated completion of field efforts; timely review, presentation and use of collected data; parallel completion of the Ecological and Human Health Risk Assessments, Remedial Investigation (RI) and Feasibility Study (FS); and final preparation of one approvable integrated final and complete RI/FS report. See EPA guidance (EPA/540/G-89/004) and associated Attachment B.

- **G1: Annotated Table of Contents:** ARC's response remains incomplete. As noted in EPA comments from January 2015: *"Please provide a revised annotated Table of Contents for the RI/FS Report that identifies which of the various FRI work plans and associated addendums/amendments will support each section as outlined. Please include a paragraph under each heading and subheading to describe what information will be included in each section"* This annotated TOC will serve as a template of agreement on the format and contents to be included in the RI/FS and will help ensure agreement and minimize comments and changes to the first and final draft of the RI/FS. Please ensure that all of the workplans (associated addendums and amendments), technical data summary reports, and feasibility options are listed by title and number and date, and included in the annotated summary.

- **G2. Schedule and Gantt Chart** Please update the June 3, 2016 ARC schedule to include delivery of a first inclusive *draft* RI/FS by December 31, 2017 and a complete and *final* RI/FS by August 30, 2018. ARC continues to unnecessarily propose a sequential schedule that seems to follow: (1) first obtain a 'complete' and final data set, then (2) complete risk assessments after full site characterization is completed and approved, and then (3) undertake the FS only after the completion of risk assessments. EPA continues to argue this is unnecessary and requests that ARC develop a schedule that includes completion of the RI, risk assessments, and FS in parallel. EPA guidance (EPA/540/G-89/004) is clear that the RI report includes a baseline risk assessment (Figure 2-4 and Table 3-13).

  To achieve that goal, EPA continues to request parallel preparation of chapters of the RI and FS. ARC has called these chapters or interim media-specific remedial investigation reports "Technical data summary reports (TDSRs)". They include data quality assessment, usability evaluations and a risk assessment. The media currently identified are: mine waste, surface water, stream sediment, floodplain soil, groundwater, and reference materials. These TDSRs allow for completion of the Human Health and Ecological Risk Assessments in parallel to the RI/FS report. The compilation of the 2016 sampling results is expected to be sufficient for completing the RI/FS. These media specific risk evaluations shall incorporate previous EPA comments and follow the procedures described in the Risk Assessment Work Plans. They should be completed immediately following final collection of data, validation, and usability assessment. There is no need to wait for a "complete" data set to finalize the media-specific components of the risk assessment. Sections can be updated and further refined as additional data become available or are added.

  EPA also requests parallel preparation of the feasibility study. While completing the data quality review, and prior to selecting a proposed remedy, there are multiple steps to begin the review of feasibility options. ARC should begin that process now in parallel to the RI. Data have been collected and undergone validation since 2011, and other high quality data are available since the 1980s. Thus, abundant information is available to begin to assess risks and evaluate, screen, and select remedial response actions. As new information becomes available changes can be incorporated into the full RI/FS.

- **G3: Reporting Options and Interim Submittals.** Please update the June 3, 2016 ARC schedule to include and incorporate the media specific Technical Data Summary Reports (TDSR) delivery schedule as part of the interim preparation for incorporation into draft and final RI/FS reports per comment G2 above.

  ARC's proposed schedule dated June 3, 2016 letter states: "*The data usability evaluations and*

other interpretative analyses will require at least 15 months (450 days) following the completion of sampling activities prior to the submittal of the Draft RI Report". ARC also states that *"if the U.S. EPA was to require a more aggressive submission schedule, other options are available*; and that *Atlantic Richfield needs additional direction from U.S. EPA"*.

EPA still holds that up to 6 months or 180 days is reasonable and follows EPA guidance and common practices at other Superfund sites. EPA is not opposed to extending that delivery time to 8 months (240 days). The submittals should be considered Draft RI/FS sections (or "TDSR's") that includes both validated analytical data as well as data interpretation and risk assessment summaries. EPA directs ARC to ensure the interim TDSR submittals are sufficiently scheduled to ensure delivery of a first inclusive draft RI/FS by December 31, 2017 and a complete and final RI/FS by August 30, 2018.

EPA notes that ARC's Attachment B shows revisions of the TDSRs and delivery of some "final TDSRs" in 2018. Rather than revise and submit as individual reports, EPA requests that the second (final) drafts of all TDSRs (all media) be incorporated into the *first draft* of the full and complete RI/FS by December 31, 2017. The purpose for the media specific TDSRs is to identify, discuss and resolve any remaining technical issues; and assist in organizing the data evaluation, presentation and assessment in media specific data sets sufficient to complete the draft and final RI/FS report.

Additional specific comments with history and clarification are provided in Attachment C. Within 30 days or by January 22, 2017 please provide a response to all general and specific comments, an annotated Table of Contents, and an updated schedule that reflects concurrent development of the TDSR's, RI, the FS and the risk assessments for an inclusive *draft* RI/FS by December 31, 2017 and a complete and *final* RI/FS by August 30, 2018.

EPA looks forward to our January 17, 2016 face-to-face meeting in San Francisco to discuss these comments and reach agreement on a final RI/FS schedule.

If you have any questions, please feel free to contact me at (415) 947-4183 or Deschambault.lynda@epa.gov.

Sincerely,

Lynda Deschambault

Lynda Deschambault
Remedial Project Manager

Cc by electronic Email:

Douglas Carey, California Regional Water Quality Control Board, Lahontan Region
Dianne Vitols, Washoe Tribe of Nevada and California
David Friedman, Nevada Department of Environmental Protection
Kenneth Maas, United States Forest Service
Tom Maurer, United States Fish and Wildlife Service
Toby McBride, United States Fish and Wildlife Service Steve
Hampton, California Department of Fish and Wildlife
Marc Lombardi, AMEC
Neil Mortimer, Washoe Tribe of Nevada and California

Appendix A: Background History

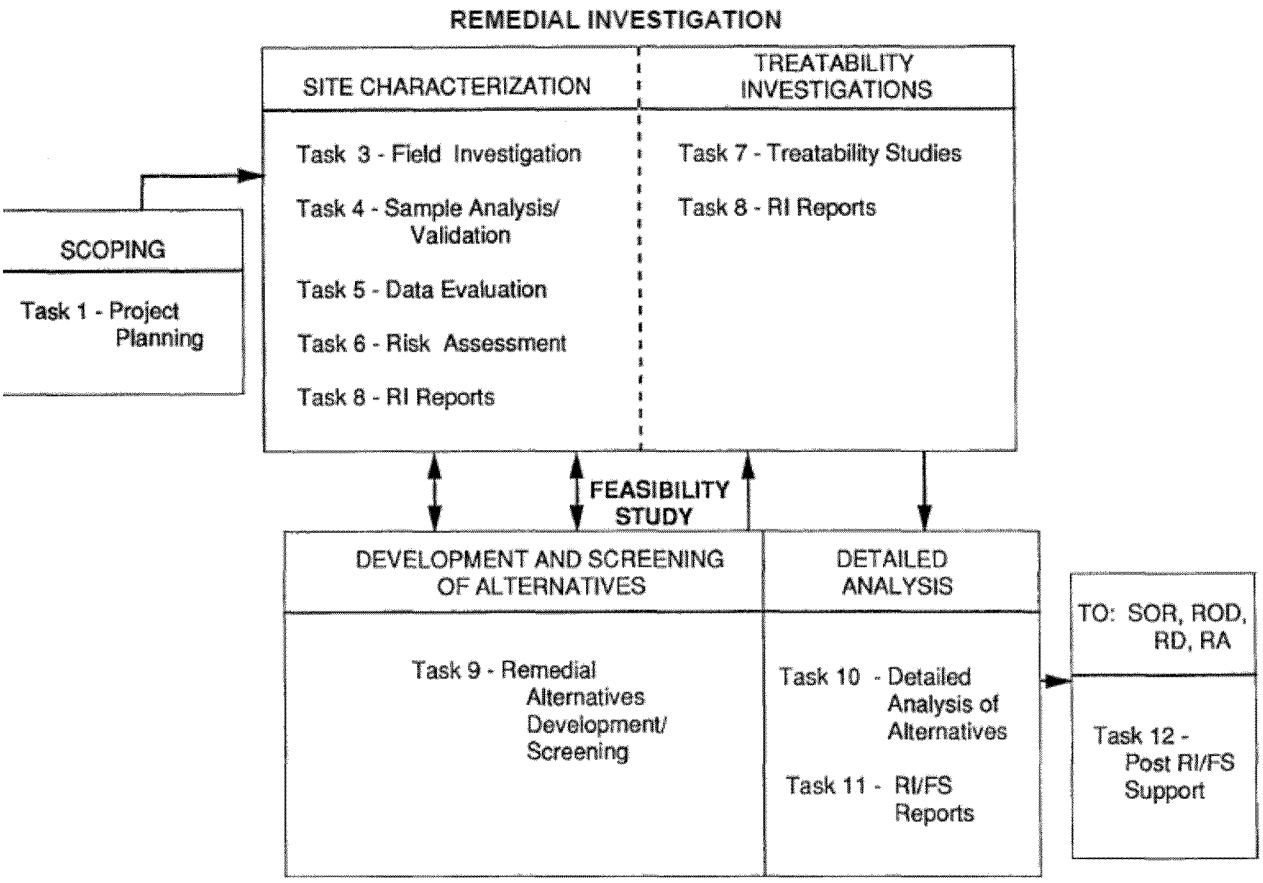
- EPA requested an annotated table of contents September 8, 2014 and in an email dated November 4, 2014.
- On December 12, 2014 ARC provided EPA with a response.
- On January 15, 2015 EPA provided comments on ARC's proposed schedule with respect to the November 2009 Programmatic Work Plan (PWP) and the volume of information already gathered under twenty-one various ARC RI/FS work plans since 2009.
- EPA's proposed timeline was based on consolidation of field efforts in calendar years 2015 and 2016; parallel completion of the Ecological and Human Health Risk Assessments, Remedial Investigation (RI) and Feasibility Study (FS); and preparation of one integrated final and complete RI/FS report (including the risk assessments). This approach anticipated delivery of a final RI/FS report in 2017 vs. ARC's 2020.
- ARC responded dated March 13, 2015; agreeing to a collaborative review of existing datasets (e.g., groundwater) and certain preliminary risk assessment tasks to begin in 2015. ARC proposed a Draft RI Report by the end of 2017 consistent with their original December 12, 2014 letter—the submittal however still would not include risk assessments or the feasibility study.
- EPA provided additional clarification in a June 17, 2015 email. EPA's concern remains that despite six years of substantial information gathering to implement the 2008 Administrative Order, ARC proposed an additional six years of investigations and studies to complete the RI/FS. While the development of RI/FS work plans took longer than anticipated, the field work and RI/FS reporting should now proceed in parallel.
- On August 21, 2015 EPA provided an additional email stating the expectation is for ARC to comply with EPA's January 15, 2015 letter: "*EPA still holds that this schedule is reasonable and is of the opinion that ARC shall schedule its field crews and resources as necessary to ensure field work is conducted and completed in such a way, that the outlined schedule will be met and adhered to. If any work plans are contingent upon EPA approval to meet this deadline, the responsibility is on ARC to request necessary approvals to complete the work as outlined.*"
- ARC provided a response dated August 24, 2015 further clarifying its position on the timing of the RI/FS schedule. EPA provided written comments to ARC on November 4, 2015 and provided a draft agenda clarifying the need to discuss data deliverables and the Risk Assessments at a meeting to be held on December 10, 2015. On December 4, 2015 ARC provided a much revised agenda that did not allow for full two-way discussion. The meeting instead focused primarily on a field update and re-stating ARC's position.
- EPA provided a written response to ARC on December 22, 2015, and noted that it was necessary to also review the RI/FS Outline/ Table of Comments.
- A second meeting was held on January 19, 2016, to review EPA's request to discuss the need to expedite interim data deliverables and use an iterative approach to complete the risk assessments.
- On March 21, 2016, EPA agreed to pushing out the complete RI/FS to early 2018 and requested an updated schedule based on discussions at the December 2015 and January 2016 meetings.
- On June 3, 2016, ARC provided a response showing completion of the RI and risk assessments late in 2018. The June 3 submittal does not seem to identify a completion date for the FS.
- Over the past two years, EPA has worked with ARC to provide draft summary reports that include presentation and interpretation of results collected. The goal of these interim documents is to expedite the completion of sections of the RI/FS, and to ensure that ARC is prepared to provide a Draft RI/FS Report by December 31, 2017--and a final RI/FS by August 30, 2018. In order to meet that goal, EPA has provided clear instructions on the importance of completing full Data Quality Assessments and Baseline Risk Assessments in those reports.
- On September 9, 2016, ARC provided a memo to EPA titled "Reporting Options for Upcoming Interim RI Submittals; Leviathan Mine Site, Alpine County, California. ARC calls the requested media-specific interim data submittals "Technical Data Summary Reports" or TDSRs. The intent of these reports is to begin to identify of the nature and extent of constituents of potential concern (COPC).
- On December 13, 2016, ARC & EPA met and ARC indicated December 2018 for delivery of the final RI/FS Report. EPA still prefers a schedule with an earlier draft submittal to allow for review and discussion.

Attachment A: History and Revised Updated Proposed Schedules

Comparison of RI/FS Schedules

	2014	2015	2016	2017	2018	2019	2020
ARC Proposed December 12, 2014							
RI (could extend to 2018 with associated telescoping of Risk Assessments and FS)					•		
Risk Assessment					•		
FS							•
EPA Schedule (per the 2009 PWP) January 2015, Attachment A							
RI Sampling, Data Collection							
RI Project Scoping; analysis, nature and extent							
RI Draft Report							
RI Eco and Human Health Assessment							
FS Treatability Studies; and analysis of alternatives							
RI/FS Final Report					•		
ARC Proposed June 30 2016; and understood from Meeting 12/13/16. Please confirm.							
RI Draft Report Data Only 12/31/17					•		
RI Eco and Human Health Risk Assessment					•		
RI/FS Final Report 12/31/18?						?	
EPA Extension Added. Revised Schedule							
RI Sampling, Data Collection							
RI Project Scoping; analysis, nature and extent							
RI/FS Draft Report 12/31/17 Including;					•		
RI/FS Draft Eco and Human Health Risk Assessment					•		
RI/FS Draft Treatability Studies; and analysis of alternatives					•		
RI/FS Final Report.8/30/18 Complete with Risk Assessments and FS					•		

ATTACHMENT B: EPA/540/G-89/004OSWER Directive 9355.3-01 October 1988
Figure 2-4 and Table 3-13



RI/FS WORK PLAN
STANDARD TASKS

ATTACHMENT C: USEPA Specific Comments on the RI/FS Completion Schedule

For purposes of clarification and maintaining historical conversations, EPA provides the following Specific Comments regarding the three reviewed documents:

I. ARC's RI/FS Table of Contents (TOC); March 13, 2015 & December 4, 2015

- **S1: Incomplete:**

    - EPA finds that ARC's December 4, 2015 responses to comments G8.2 through G8.9 are adequate, however no revised TOC was included for review. Please include a revised and updated table of contents.

    - EPA provided the following "Comment G81" in our written comments dated January 15, 2015. *EPA appreciates the receipt of the Table of Contents (dated March 13, 2015). In addition to the changes noted above to ensure that all various workplans and their associated data submissions are included, along with additional analysis and interpretation, please provide a revised annotated Table of Contents for the RI/FS report that identifies which of the various FRI work plans and associated addendums/amendments will support each section as outlined. Please include a paragraph under each heading and subheading to describe what information will be included in each section.* **ARC Response dated March 15, 2015***:* ARC's response was incomplete: ARC provided a summary of title headings and focused on Remedial Investigation. The Feasibility Study outline was not included. **EPA Response:** Please provide the additional requested information, and now also include references and paragraph summaries of the Technical Data Summary Reports that are currently under production and will become part of the RI/FS. **ARC Response dated December 4, 2015**: ARC provided a response to comment (RTC). An updated Table of Contents was not provided.

- **S2: Format:** EPA provided the following Previous comment G81: *The Annotated outline identified four volumes to the RI/FS report (Remedial Investigation, Human Health Risk Assessment, Ecological Risk Assessment, and Feasibility Study). The outline appears to consider that each of the volumes would be a stand-alone document. EPA directs ARC to ensure all volumes are prepared in parallel with the other documents, without delaying the development of one complete and final RI/FS with four volumes.* **ARC Response:** It seems that ARC continues to focus on the need for sequential development of an RI report, followed by risk assessments, followed by a feasibility study. **EPA Response:** This is unnecessary and time consuming. Please See General Comments above. Please provide an updated TOC for one complete and final document.

- **S3: Feasibility Study and Remedial Actions for Consideration**: Please include the feasibility study and associated sections. The annotated table of contents is the first draft of a blueprint for one complete RI/FS. Please begin to identify and list those aspects of the site that will likely require a remediation response based on current available information and allow initiation of review of feasible options to proceed now in parallel. For example, a final remedy at the site will likely need to address acid drainage year-round. Similarly, mine waste at the site will likely require a response action to protect human health and the environment. Please include Development and Screening of Alternatives in the table of contents and initiate that work now. In the annotated outline include a section to identify preliminary remedial action objectives and goals for each of the matrices of concern at Leviathan Mine Superfund

Site. EPA guidance EPA/540/G-89/004OSWER Directive 9355.3-01 October 1988, provides for this in to occur prior to the start of site characterization. Section 2.3: Develop Preliminary Remedial Action Alternatives

Please provide an updated table of contents incorporating all EPA comments.

II. ARC's RI/FS Schedule Update, dated June 3, 2016

- **S4: Progress in Field Sampling:** ARC has made significant change and progress in regards to field work, collecting data, technical meetings and presentation of technical data. And yet, the June 3, 2016 updated schedule reflects no change (and/or perhaps a delay) to ARC's earlier timelines showing the RI/FS submittal in 2020. ARC still shows the RI completed by late 2018, and no completion date for the FS is provided. Please provide additional detail and a final RI/FS revised completion date. See also General comment above. Given the significant progress in field sampling during 2016, please update and revise the RI/FS schedule to show a shortened schedule.

- **S5: Risk Assessments and EPCs**: EPA remains confident that given the significant progress in field sampling during 2016, the RI/FS schedule can be further shortened by conducting screening risk assessments as part of the technical data summary reporting. The screening risk assessments would include estimation of exposure point concentrations (EPCs) based on then available information. Should any changes to the exposure point concentrations used in the screening risk assessment become necessary, the required modifications to the relevant spread sheets could then readily be made. This approach is essential to allow dialogue between EPA, ARC, and stakeholders regarding the estimation of EPCs as the report is being prepared. EPA disagrees with the ARC approach to wait until after the RI report is prepared. ARC shall implement the estimation of EPCs approach to streamline the decision making process; This will allow for identification and resolution of differing opinions as the final RI/FS (including both Eco Risk and Human Health Risk Assessment) is being prepared. This will also result in completion of the risk assessments in parallel with preparation of the RI and FS. The most recent submittal from ARC fails to mention a date for the FS portion of the RI/FS. Please provide an updated schedule and include a date for completion of the combined final RI/FS.

III. ARC's Reporting Options for Interim RI Submittals; dated September 9, 2016

- **S6: Interim Reports Compliance with the QAPP:** EPA agrees with ARC, that the media Specific Technical Data Summary Reports (TDSRs) are not intended to be a process and deliverable of their own. Rather the intent is that these documents are streamlined media specific summaries prepared for incorporation as appendices to the draft and final RI/FS reports. The TDSRs are intended to allow for timely discussion and interpretation of the data as the RI/FS report is concurrently prepared. See General comment above. The DQA section (as shown in ARC's Figure 3) in support of each of the individual TDSR's should follow the steps outlined in the approved QAPP. As noted in general comment above: Please ensure that the full QC and DQA steps are completed in a report to EPA within 120 days of each sampling event. The submittal that ARC's proposes for 180 days after field sampling should be a Draft RI/FS section, that includes both validated analytical data as well as data interpretation.

- **S7: Remaining/Additional Sampling Plans**: EPA Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004) in Chapter 2, Scoping of the RI/FS at Section 2.2.6 Identify Data Needs clearly indicates that ARC, in advance of characterization, shall identify the expected data needs. In recent months, EPA has received additional sampling plans (i.e. biomass availability submitted in an email 09/09/16; In Vitro Bioaccessibility Testing submitted

11/29/16 and we've been notified that ARC will soon provide a SAP for further investigation of the floodplains in the beaver dam area). Please ensure that all data needs have been completely identified. Please provide an updated and revised schedule that clearly lists and articulates any remaining or anticipated field work for completion of a draft RI/FS by December 31, 2017.

S8: Outstanding work previously requested. EPA has provided significant comment and discussion in separate EPA comments on separate workplans. In at least a few instances, EPA approved for field work to proceed, but noted that additional work was necessary for completion of the RI/FS. For example, but not limited to, EPA requested additional investigation on the following workplans: geotechnical (See EPA comments dated July 8, 2016), Hydrocarbon investigation (see EPA comments dated April 20, 2016, and revegetation (see EPA comments dated July 7, 2016). Please ensure that all EPA requested investigations are included in a revised and updated schedule to show that this, and other requested remaining field work will be completed in time for preparation of a draft RI/FS by December 31, 2017.