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

October 15, 2009

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

Comments on 2009 Draft Program Work Plan for Remedial Investigation and Feasibility Study at Leviathan Mine Site, Alpine County, California, July 2009

Dear Mr. Brown:

We have reviewed the 2009 Draft Program Work Plan (PWP) for the Remedial Investigation/ Feasibility Study at the Leviathan Mine Site submitted by Atlantic Richfield Company (ARC) on July 10, 2009. The Work Plan submittal is pursuant to the Unilateral Administrative Order, dated June 23, 2008, and is subsequent to EPA's April 23, 2009, Approval with Comments for Leviathan Mine Data Quality Objectives Report submitted October, 2008, and Direction to Prepare Remedial Investigation and Feasibility Study Work Plan pursuant to Administrative Order for Remedial Investigation and Feasibility Study, Leviathan Mine, Alpine County, California, CERCLA Docket No. 2008-18 ("Order"). The PWP is intended to provide a programmatic overview of a sequence of plans responding to the Scope of Work for a Remedial Investigation/ Feasibility Study (RI/FS) for a long term remedy for the Leviathan Mine Superfund Site.

Pursuant to Paragraph 51 of the Order, EPA requires revisions to the PWP as described below. The PWP must provide a more complete explanation of how the fifty-one components presented in the PWP will be integrated to address the principle objectives of the RI/FS and fulfill the requirements of the Administrative Order. In a meeting between EPA and Atlantic Richfield on September 29, 2009, we discussed four major components that must be included as a revision, supplement or addendum:

1) A cross-reference between the RI/FS components presented in the PWP and the corresponding sections of the Scope of Work included in the Administrative Order.

2) An explanation of how the various work plan components are prioritized and designed to address the fundamental issues of the RI/FS. EPA prepared two draft decision flow charts (attached) as examples of approaches to the major objectives of understanding the source of acid drainage and identification and quantification of the downstream risks to human health and ecological communities. The specific tasks of the PWP can be arranged with a framework such as these flow charts. EPA also provided a set of example Data Quality Objective statements (attached) to show the level of detail expected in the PWP.

3) An index of existing information specific to Leviathan Mine cross referenced to the particular RI/FS components the information may support. EPA understands that not all the information collected to date is of sufficient data quality of completeness to be fully useful. We are interested in identifying existing information sources that may be relevant to the RI/FS process and to possibly avoid unnecessary duplication of effort.

4) A revised schedule that identifies dates and deliverables for the RI/FS activities identified in the work plan.

EPA also requires Atlantic Richfield to revise the PWP to plan for the combination of the many components of the RI/FS into the minimum number of focused RI and FS work plans needed because of sequential dependencies. That is, work should only be separated into separate focused RI and FS work plans to the extent necessary because one stage of planning requires information which will be developed during earlier stages of investigation. This will facilitate review and approval.

EPA notes that significant technical expertise and experience resides with the stakeholders of the Leviathan Mine community. Atlantic Richfield may benefit from formal or informal communication with particular experts during the preparation of the focused work plans.

EPA directs Atlantic Richfield to modify and/or supplement the 2009 Program Work Plan as discussed above. EPA does not expect that the entire draft document will be rewritten. To facilitate implementation of RI/FS tasks in early 2010, EPA directs that the revisions be submitted for EPA review no later than thirty days from receipt of this letter.

If you have any questions, please feel free to contact me at (415) 972-3176.

Sincerely,

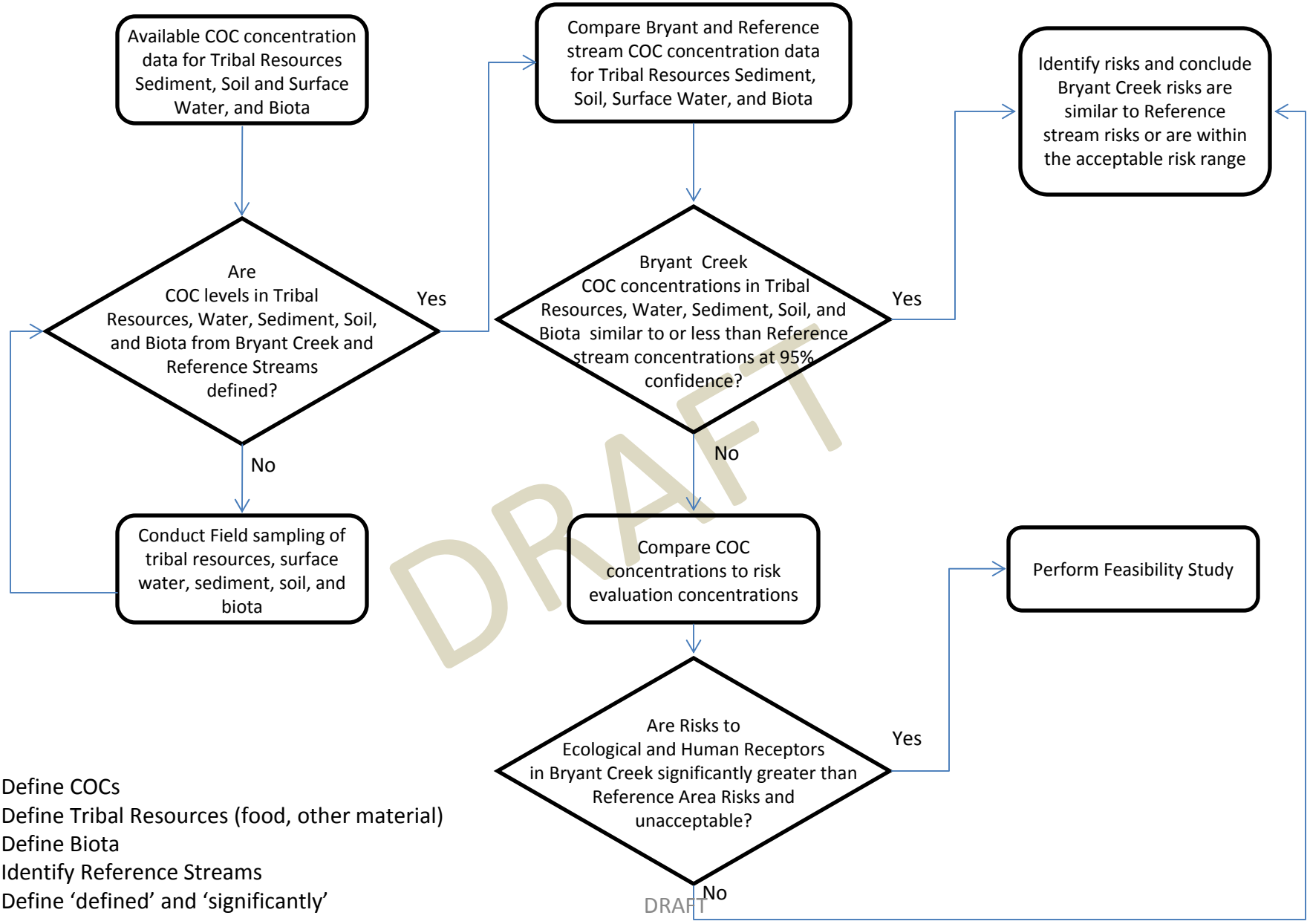
Kevin P. Mayer

Kevin Mayer
Superfund Project Manager

cc: Lynelle Hartway, Washoe Tribe of Nevada and California
Chein Kao, Lahontan Regional Water Quality Control Board
Ken Maas, US Forest Service
Adam Cohen, Davis Graham & Stubbs LLP

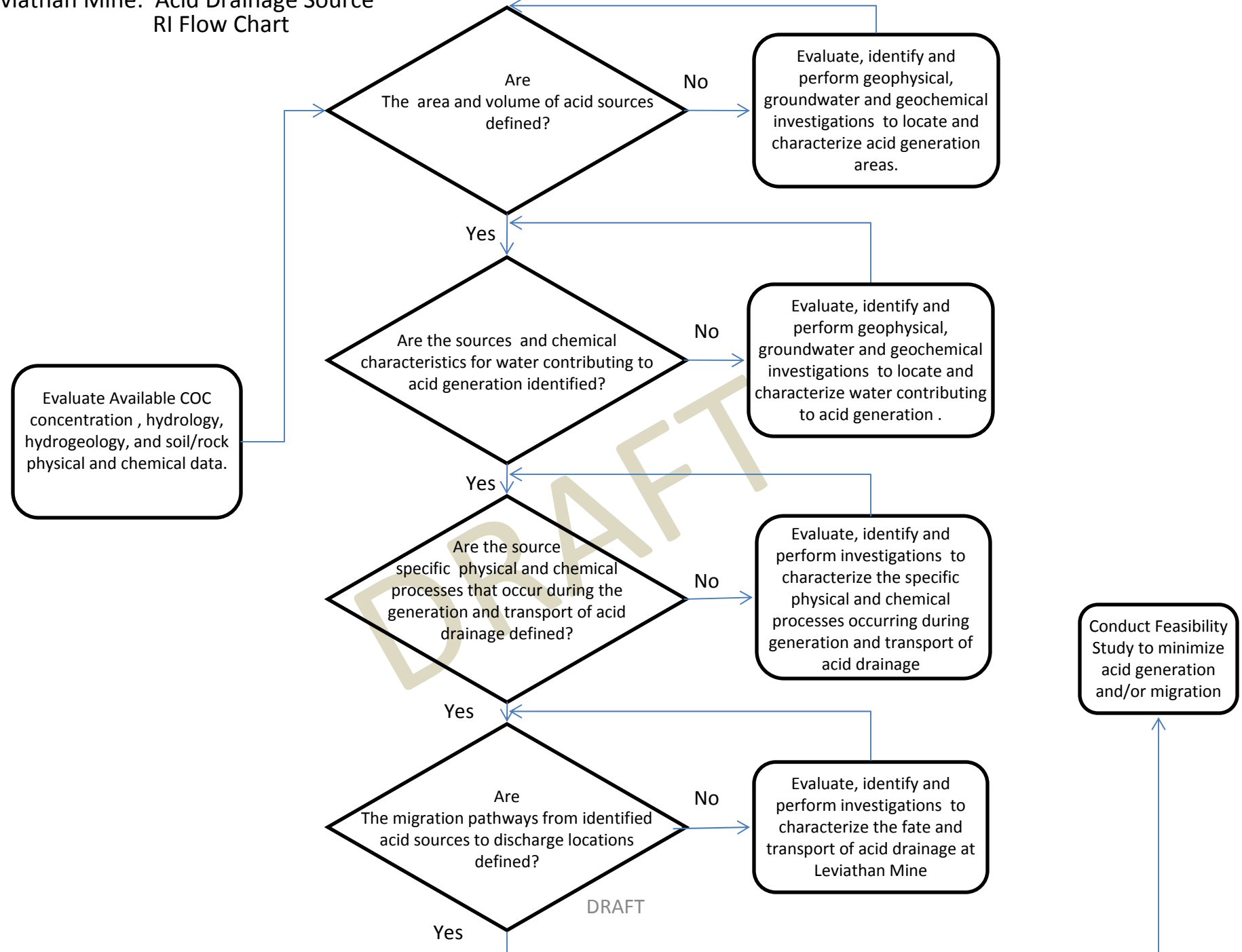
Attachments: Two Decision Flow Charts; DQO Summary Tables

Leviathan Mine: Downstream Risk RI Flow Chart



Define COCs
Define Tribal Resources (food, other material)
Define Biota
Identify Reference Streams
Define 'defined' and 'significantly'

Leviathan Mine: Acid Drainage Source RI Flow Chart



Problem Statement	Identify the Decision	Inputs to the Decision	Define Study Boundaries	Decision Rule	Tolerable Limits on Decision Errors	Optimize the Sampling Design
Give a concise description of the problem that necessitates the study and develop a conceptual model of the environmental hazard to be investigated.	*Identify principal study question, consider alternative outcomes, develop decision statements, organize multiple decisions.*	*Identify types and sources of information needed to answer study questions, identify the basis of information, and select appropriate sampling and analysis methods for generating the information.*	*Specify the target population, determine spatial and temporal limits, identify practical constraints, and define the scale of inference.*	*Specify appropriate population parameters for making estimates and specify the statistical function and the estimation procedure.*	*Specify the decision rule as a statistical hypothesis test, examine consequences of making incorrect decisions from the test, and place acceptable limits on the likelihood of making decision errors.*	*Select the resource-effective sampling and analysis plan that meets the performance or acceptance criteria.*
Downstream Risk						
Releases of sediment, acid solutions, and metals from Leviathan Mine may pose an unacceptable risk to biota, humans and water quality in the Bryant Creek Watershed.	Determine whether releases from the Leviathan Mine pose a potential threat to human health and the environment outside of acceptable limits and above ambient levels requiring further investigation and response action, or recommend that no further investigation is necessary.	• COCs released from Leviathan Mine. • Identification of biota and Tribal resources to be collected for laboratory analysis. • Information about the occurrence and life cycle of biota and Tribal resources to be collected for analysis. • Information about the hydrology of Bryant Creek and Reference Streams. • Reference stream reaches to be sampled for comparison. • Surface water COC analytical data from the Bryant Creek watershed and reference streams. • Sediment COC analytical data from the Bryant Creek watershed and reference streams. • Biota and Tribal Resources COC analytical data from the Bryant Creek watershed and reference streams. • Risk based concentrations of concern for surface water, biota, and tribal resources.	The study area will include Leviathan and Bryant Creeks downstream from Leviathan Mine, East Fork Carson River from River Ranch to Ruenstroth Dam, and appropriate reaches of reference streams. The study duration will extend from Fall 2009 through Fall 2010 and may extend to later time periods if additional information is determined to be necessary based on evaluation of initial samples. Samples will be collected to coincide with traditional uses of Tribal resources (spring and fall), and with modern recreational uses (spring, summer, fall). Winter time exposures to COCs from Leviathan Mine for human and ecological receptors are assumed to be negligible.	• If COC concentrations in surface water, Tribal resources, or biota from Bryant Creek are similar to or lower than COC concentrations in surface water, Tribal resources, or biota from reference streams (with 90% to 95 % confidence), then Bryant Creek risks are similar to reference stream risks, or are within the acceptable risk range, and no action may be acceptable. If COC concentrations in surface water, Tribal resources, or biota from Bryant Creek are significantly greater than COC concentrations in surface water, Tribal resources, or biota from reference streams, then Bryant Creek risks are higher than reference stream risks, and risks should be assessed. • If risks from exposure to surface water, Tribal resources, or biota from Bryant Creek are outside of the acceptable risk range, additional investigations and response activities will be necessary. If risks from exposure to surface water, Tribal resources, or biota from Bryant Creek are within the acceptable risk range, additional investigations and response activities may not be necessary.	Sampling of biota and Tribal resources will be performed opportunistically and professional judgment will be used to assess the suitability of initial sampling results. As additional data are available (for example n≥10 from a sub area), statistical analysis will be applied to assess concentration data and the goal will be 90% to 95% confidence. Sampling of surface water will be performed in accordance with on-going surface water monitoring augmented (locations, analytes, analytical methodology) as necessary to achieve project objectives. Sediment samples will be collected in proximity to biota and Tribal resource sampling locations. Analytical data will be evaluated in accordance with PARCC parameters through use of laboratory control samples, calibration data, and results of MS/MSD samples. These evaluations will result in quantification of the reliability of the analytical data. The goal is to produce defined data suitable for use in risk assessment.	Sampling will occur during specific time ranges determined by the hydrology of the watersheds for surface water and sediment sampling, and the life-cycle and traditional use patterns for biota and Tribal resources. Sampling will occur in discrete areas identified within the study area. Opportunistic collection of at least 10 samples of each material from each area (Bryant Creek, reference stream reaches) will be attempted for biota and Tribal resources. Additional sampling will be performed as needed to support requirements for risk assessment.
Acid Drainage Sources						

Problem Statement	Identify the Decision	Inputs to the Decision	Define Study Boundaries	Decision Rule	Tolerable Limits on Decision Errors	Optimize the Sampling Design
Give a concise description of the problem that necessitates the study and develop a conceptual model of the environmental hazard to be investigated.	*Identify principal study question, consider alternative outcomes, develop decision statements, organize multiple decisions.*	*Identify types and sources of information needed to answer study questions, identify the basis of information, and select appropriate sampling and analysis methods for generating the information.*	*Specify the target population, determine spatial and temporal limits, identify practical constraints, and define the scale of inference.*	*Specify appropriate population parameters for making estimates and specify the statistical function and the estimation procedure.*	*Specify the decision rule as a statistical hypothesis test, examine consequences of making incorrect decisions from the test, and place acceptable limits on the likelihood of making decision errors.*	*Select the resource-effective sampling and analysis plan that meets the performance or acceptance criteria.*
Acid drainage from Leviathan Mine discharges from the site at multiple locations and degrades surface water quality.	Determine if measures to reduce or eliminate the quantity of acid drainage created and discharged from the site would reduce surface water impacts, and reduce the effort and resources needed to intercept and treat the acid drainage.	• Location (including area and volume) of acid creating material • Sources of water contributing to acid creation • Chemical characteristics of acid generating material • Chemical characteristics of water contributing to acid creation • Physical processes contributing to acid creation • Chemical processes contributing to acid creation • Migration pathways from sources to discharge locations. • Physical transport processes from acid sources to discharge locations. • Chemical processes occurring along the migration pathway from acid sources to discharge locations. • Volume of acid drainage and associated COCs created and discharged from each source.	The study area includes areas disturbed by mining at Leviathan Mine. These areas include the current locations of mine waste and mining related disturbances at the surface, and the volume and extent of in-situ rock that contributes water and acid drainage from underground. The study duration will extend from Fall 2009 through at least two complete hydrologic cycles and may extend to later time periods if additional information is determined to be necessary based on evaluation of initial information.	• If the creation of acid drainage can be stopped or minimized the impacts to surface water would be reduced and the effort to intercept and treat acid drainage could be reduced If the creation of acid drainage cannot be stopped or minimized impacts to surface water would not be reduced without continued efforts to intercept and treat acid drainage.	Physical and chemical data will be collected to support engineering design and risk assessment. Location of acid generating materials will be by remote geophysical techniques and field sampling. Modern remote detection techniques are accurate to a few meters, field sampling will be used to confirm remote detection and will be accurate to within less than one meter (vertically and horizontally). The goal of analytical data will be 90% to 95% confidence in COC concentrations and chemical properties. Analytical data will be evaluated in accordance with PARCC parameters through use of laboratory control samples, calibration data, and results of MS/MSD samples. These evaluations will result in quantification of the reliability of the analytical data. The goal is to produce defined data suitable for use in risk assessment, and engineering design.	Sampling of geological materials and groundwater will proceed initially using professional judgment to provide location information suitable for supporting engineering design. Evaluation of initial information will be used to design a sampling strategy to quantify physical and chemical parameters sufficiently to support risk assessment. Groundwater samples will be collected quarterly to coincide with the hydrologic cycle at the site, and as necessary based on review of new information as it is acquired.