State of Idaho
Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706

U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

STATE OF IDAHO
DEPARTMENT OF ENVIRONMENTAL QUALITY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

DATE: July 13, 2011

TO: Toni Hardesty, Director
Department of Environmental Quality

Daniel D. Opalski, Director
Office of Environmental Cleanup
U.S. Environmental Protection Agency, Region 10

Steven Ellis, Idaho State Director
Bureau of Land Management

FROM: Margie English, DEQ Project Manager

Fran Allans, EPA Remedial Project Manager

THRU: Bruce Olenick, DEQ Regional Administrator
Pocatello Regional Office

Chris D. Field, Program Manager
Emergency Management Program, Office of Environmental Cleanup
U.S. Environmental Protection Agency, Region 10

Joe Kraayenbrick, District Manager
Idaho Falls District, Idaho
Bureau of Land Management

SUBJECT: Request for a Non-Time Critical Removal Action to be conducted on the Pedro Creek Overburden Disposal Area of the former Conda/Woodall Mountain Phosphate Mine Site, Caribou County, Idaho

I. PURPOSE

The purpose of this action memorandum is to request and document approval of the selection of the proposed non-time-critical removal action within the boundaries of the Conda/Woodall Mountain Phosphate Mine Site, Caribou County, Idaho (Site). The proposed removal action is described herein and addresses mine wastes contaminated with hazardous substances including selenium and metals located in the un-reclaimed Pedro Creek Overburden Disposal Area (ODA) at the Site. The removal action will be conducted and funded by the J.R. Simplot Company (hereafter referred to as Simplot). Implementation of the removal action will be pursuant to a Settlement Agreement/Consent Order (CO) between the Idaho Department of Environmental Quality (DEQ), the United States Environmental Protection Agency (EPA), the United States Department of the Interior (Interior), Bureau of Land Management (BLM), and Simplot. The removal action will be conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) with oversight by EPA, and oversight by DEQ pursuant its State environmental authorities. BLM will exercise its CERCLA authority on lands at this Site subject to BLM's jurisdiction, custody, or control. In exercising such authority, BLM will participate as a cooperating agency to EPA. This action meets the criteria for initiating a removal action under the National Contingency Plan (NCP), 40 CFR §300.415.

II. SITE CONDITIONS AND BACKGROUND

The CERCLIS ID No. is IDN001002862 and the Site ID No. is 1002862.

A. Site Description

1. Removal site evaluation

The Conda/Woodall Mountain Mine is an inactive phosphate mine located in Caribou County, Idaho (Figure 1). The mine produced phosphate ore under various operators from 1906 to 1984. Mining initially occurred underground, transitioning into open pit mining in the early 1950s. Simplot became the mine operator in 1960. Although the mine is inactive, the mineral leases at the Site are still active mineral leases. The Pedro Creek ODA is contained within mineral lease I-04494.

During open pit mining, surface soils and rock (called "overburden") were excavated from the mining pits to expose the phosphate ore. Overburden was either backfilled into the pits or placed in external ODAs. The overburden rock units generally consist of Rex Chert Member and/or mudstones and shales of the Meade Peak Member of the Phosphoria Formation. These overburden rock units contain naturally elevated levels of selenium and other trace metals. Handling and disposal of overburden accelerated both physical and chemical weathering processes, resulting in releases of selenium and other contaminants (metals) to the environment. Once these contaminants of potential concern (COPCs) are released through this oxidation and dissolution process, those COPCs may be transported by groundwater, surface water, sediments, or by direct plant uptake. Selenium has the widest distribution and greatest exceedances of risk-based benchmark concentrations and is therefore the contaminant of greatest potential impact and highest concern, and the focus of this removal action. Between 1997 and 2003, several

hundred sheep died while grazing the Site. The livestock deaths may have been caused by selenium toxicity.

The Pedro Creek ODA is one of several ODAs located along the eastern side of Woodall Mountain. This ODA has released high levels of contaminants to the surface water and shallow groundwater, as well as elevating concentrations of selenium in surface soils, sediments, and vegetation. Additionally, the ODA has very steep side slopes which are potentially unstable and subject to further erosion and downslope movement, which could result in additional substantial releases to the environment.

A large amount of characterization data was collected from the Pedro Creek ODA and down-gradient area between 2001 and 2010, including samples of surface water, groundwater, soils, sediment, vegetation, macroinvertebrates, and fish tissue. The data collected through 2009 are the basis for determining the need for the early action and are summarized in this action memorandum with emphasis on the selenium results. It is likely that actions taken under this removal action to address selenium will also help to mitigate threats posed by the other co-located COPCs.

A Preliminary Assessment (PA) was conducted for the Site in August 2008 by Ecology and Environment under contract to the EPA. The Remedial Investigation/Feasibility Study (RI/FS) for the Site is ongoing and the current schedule targets an RI/FS completion date in 2013. The RI/FS will fully evaluate all of the characterization data, including information pertaining to contaminants other than selenium, to determine the nature and extent of contamination and any associated threat to public health, welfare, or the environment. The RI/FS will also evaluate alternatives for remedial actions to prevent, mitigate, or otherwise respond to releases of contaminants from the Site. The DEQ, EPA, and BLM will determine in a final Record of Decision whether additional clean up actions at the Pedro Creek ODA are necessary to address surface water, groundwater and/or vegetation on the basis of monitoring conducted after completion of the early action, and information generated during the RI/FS.

2. Physical location and setting

Distance to Nearest Populations, Land Ownership, and Surrounding Land Use

The Conda Mine is located approximately 8 miles northeast of the nearest community, Soda Springs, Idaho. The City of Soda Springs has a population of approximately 3,400. The Pedro Creek ODA is located at Latitude: 42° 44’ 50” N Longitude: 111° 30’ 39” W. Releases from the ODA have resulted in exceedances of surface water standards along Pedro Creek during high flow conditions from its headwaters at the base of the ODA to the confluence with Trail Creek, approximately 3.2 miles to the east.

The land underlying the Pedro Creek ODA consists of land owned by Simplot and public lands administered by the BLM (Figure 2). Private property belonging to Ms. Alicia Dredge is located approximately 350 feet east of the toe of the ODA. No residents live year-round within the Pedro Creek sub-basin. The nearest residences are ranch houses, used seasonally, on the Dredge property (a.k.a. Jouglard Ranch) approximately 1.6 miles southeast of the Pedro Creek ODA.

Site Features and Topography

The Pedro Creek ODA is located at the headwaters of Pedro Creek, in the upper reaches of the Pedro Creek canyon. The Pedro Creek ODA (approximately 60 acres) includes an upslope area, two backfilled pits, and an external overburden pile area. The upslope area (approximately 14.2 acres) of the ODA extends from the Woodall Mountain saddle (to the west) to the upper road that crosses the ODA and then continues north along Woodall Mountain (Figure 2). Two backfilled pits extend within the footprint of the Pedro Creek ODA. The backfilled pits and the external overburden pile are located east from the upper road. The area of the ODA east of the upper road covers approximately 46.5 acres. The top of the Pedro Creek ODA has terraces and sloped areas which promote infiltration. Additionally the ODA has steep and potentially unstable slopes. The elevation of the Pedro Creek ODA ranges from approximately 6,830 feet above mean sea level (AMSL) at the toe to approximately 7,200 feet AMSL in the upslope area. A seep (NES-5) flows year round from the toe of the ODA and forms the headwaters of Pedro Creek.

Geology and Hydrogeology

The stratigraphic sequence (from youngest to oldest) along the eastern slope of Woodall Mountain, including the Pedro Creek ODA, is as follows:

- Alluvium/Colluvium (Quaternary);
- Dinwoody Formation (Triassic);
- Phosphoria Formation, Rex Chert Member (Permian);
- Phosphoria Formation, Meade Peak Member (Permian); and
- Wells Formation (Pennsylvanian/Permian).

The ore-bearing rocks mined at the Conda/Woodall Mountain Mine were Phosphatic shales within the Meade Peak Member of the Phosphoria Formation. The ODAs, including the Pedro Creek ODA, generally consist of shales, mudstones, and limestones that were present either between or above ore bodies within the Meade Peak Member, and overlying the Rex Chert Member.

The most significant structural features along the Woodall Mountain ridgeline are a northwest-trending anticline and syncline and associated fault zones. Woodall Mountain is part of the eastern limb of the north-northwest trending Conda Anticline and the western limb of the Trail Creek Syncline. The anticlines and synclines in this area plunge to the north. The bedrock units underlying the Pedro Creek ODA generally dip in an easterly direction at 40 to 60 degrees.

Groundwater on the east side of Woodall Mountain, including the Pedro Creek ODA, occurs in unconsolidated deposits (alluvium/colluvium) as well as in all of the deeper consolidated

formations (i.e., the bedrock). The bedrock formations are generally the most capable of yielding the amount of groundwater necessary for potential domestic or industrial water-supply use. Shallow alluvium/colluvium groundwater contributes to baseflow in the creeks (predominantly in the lower reaches) and water in livestock watering ponds.

The uppermost water-bearing zone down-gradient from the Pedro Creek ODA is within the alluvium/colluvium. Within the underlying bedrock, the Dinwoody Formation forms the uppermost water-bearing zone. Deeper water-bearing zones stratigraphically below the Dinwoody Formation exist in the Phosphoria Formation (primarily within the Rex Chert) and the Wells Formation. The Wells Formation is the major "regional" aquifer in the area and is most capable of yielding significant amounts of groundwater.

Groundwater flow directions in the region are controlled by geologic, hydrogeologic, and topographic conditions. Flow directions in alluvial groundwater systems generally follow topography and are closely linked to stream discharges. Shallow groundwater contaminated by releases from the Pedro Creek ODA flows eastward from the ODA and discharges both at the NES-5 seep located at the toe of the ODA and in a gaining reach of Pedro Creek, approximately 1.25 miles downstream from the toe. Groundwater flow directions in the bedrock aquifers are affected by structural geology and stratigraphy. Site-wide, groundwater in the bedrock flows to the north following the plunge of the Conda Anticline and Trail Creek Syncline. However, locally there may be a component of eastward flow.

Pedro Creek flows intermittently from the headwaters to the mouth, with most of the flow occurring during spring snow melt. During baseflow conditions, flow in Pedro Creek is generally lost to the subsurface in the uppermost reaches and resurfaces downstream in the lower reaches. Pedro Creek does not have a defined creek channel down-gradient from the ODA until approximately 2200 feet below the toe of the ODA. Pedro Creek flows into Trail Creek approximately 3.2 miles downstream of the ODA, and then almost immediately enters the braided channel of the Blackfoot River. The Blackfoot River flows into the Blackfoot River Reservoir which is located approximately 10 miles northwest of the Site. Below the reservoir, the Blackfoot River joins the Snake River, which ultimately enters the Columbia River.

Climate

The climate is dominated by cool and dry weather, with prevailing winds and weather patterns moving from west to east. The area in which the Site is located receives an average of 19 inches of precipitation annually. In the winter months, total snowfall averages almost 110 inches each year, and snow cover typically remains on the ground from November through March. Snow accumulation is greatest along the east-facing slopes as compared to the west-facing slopes, primarily as a result of prevailing winds which cause drifting. Summer temperatures are mild, normally ranging from 42 to 80 degrees Fahrenheit, while winter temperatures normally range from 9 to 40 degrees Fahrenheit. Streamflow in area streams, including Pedro Creek and the Blackfoot River, is controlled by snow melt, precipitation, and groundwater discharge. Peak

flows generally occur in April through June, during spring runoff, and decline to low-flow conditions by mid- to late summer. As a result of temperatures and resulting snow melt, peak flows generally occur a few weeks earlier in streams flowing at lower elevations (such as the Blackfoot River) than those tributaries at higher elevations (such as Pedro Creek).

Vulnerable or Sensitive Populations, Habitats, and Natural Resources

Pedro Creek is subject to DEQ's water quality criteria (standards) for designated cold-water biota use. The Blackfoot River is designated for cold water aquatic life, salmonid spawning, primary recreation, and domestic water supply. The mainstem of the Blackfoot River from the confluence of Lanes and Diamond Creeks (about 15 miles upstream and east of Conda/Woodall Mountain) to the Blackfoot Reservoir is impaired and thus not fully supporting its beneficial use (Clean Water Act, § 303(d)) due to elevated temperature and concentrations of selenium and low levels of dissolved oxygen.

Table 2-2 of the finalized Pedro Creek EE/CA provides a summary of potential threatened and endangered (T/E) and special-status species present in the region; however, not all of the species are found at the Site. The USFWS has identified on their T/E list for Caribou County the Canada lynx (*Lynx canadensis*), which is listed as threatened, the greater sage grouse and wolverine, which are candidate species, and the gray wolf as experimental/non-essential. There is no designated critical habitat for the Canada lynx within the Site or nearby. The nearest critical habitat is in Lincoln County in southwestern Wyoming. However, patches of potentially suitable habitat are present in mixed conifer forests in southeastern Idaho. The Idaho Department of Fish and Game (IDFG) lists several State-listed T/E species in Idaho Administrative Procedures Act (IDAPA). Although the bald eagle is listed as threatened in IDAPA 13.01.06, it was recommended by IDFG for delisting from T/E species to non-game wildlife species.

3. Site characteristics

The predominant land uses in the vicinity of the Conda mine are associated with natural resources development, crop production, livestock grazing, and recreational use. Private and public lands within and around the Woodall Mountain ODAs (including the Pedro Creek ODA) have historically been used for livestock grazing. Sheep were the predominant type of livestock grazing on these ODAs, with cattle and horses generally pastured in adjacent area to the east. As a result of livestock mortality events in the late 1990s and early 2000s, grazing is currently not allowed on Conda ODAs because of Site contamination. The BLM has restricted grazing on those portions of the Woodall Mountain allotment impacted by mining-related activities. This allotment (#04454) is to remain restricted until selenium can be reduced to acceptable levels.

Current land use on and around the Pedro Creek ODA is recreational (all terrain vehicle [ATV] riding, snowmobiling, and hunting). Because most of the main overburden pile is privately-owned by Simplot, hunting and other recreation uses are generally by invitation only. However, BLM-managed land within the confines of the mine Site is accessible with a Simplot escort.

This is the first CERCLA cleanup action taken at the Site. Other activities conducted outside of CERCLA which may help mitigate site risks are described in Section IIB.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

The COPCs for the Pedro Creek Area include selenium, cadmium, chromium, zinc, and arsenic – all of which are potential hazardous substances or pollutants or contaminants as defined by sections 101(14) and 101(33) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. section 9601(14) and (33).

Numerous regional investigations in southeast Idaho as well as site-specific investigations at Conda have identified overburden materials containing Meade Peak Member shales as the predominant source of selenium released at phosphate mine sites. The distributions of selenium and other COPCs in the media in the Pedro Creek sub-basin, including the area of the Pedro Creek ODA, have been characterized in a series of sampling events conducted from 2001 through 2009. As previously stated, selenium has the widest distribution and greatest exceedances of screening-level benchmarks and therefore serves as an indicator constituent that can be used to characterize the nature and extent of mining-related impacts. For surface water and groundwater, the benchmarks are promulgated water quality standards. Screening-level benchmarks are not derived from a site-specific risk assessment, but indicate potential for unacceptable risk to human and ecological receptors. In general, data for the Pedro Creek ODA show that selenium and other COPCs are present at concentrations significantly exceeding several of the screening-level benchmarks. The following subsections summarize the concentrations of selenium in the media of the ODA and areas down-gradient of the ODA, and compare the selenium concentrations against human health or ecological screening-level benchmarks. The most conservative benchmark, whether human health or ecological, was used for the comparison against the selenium concentrations in each media. Information regarding the references for the screening level benchmarks and comparisons of all COPCs against the benchmarks is included in the EE/CA. Sampling locations are shown in Figure 3.

Soils On and Down-gradient from the ODA

The Pedro Creek ODA extent is well defined based on the detailed documentation on panel development and ODA construction, and the easily discernible waste material and panel boundaries. Soil samples collected from the surface of the ODA have selenium concentrations ranging from 1 to 252 mg/Kg, with an average concentration of 55 mg/Kg. The maximum concentration is 485 times the ecological screening level benchmark of 0.52 mg/Kg (EPA's Ecological Soil Screening Level or EcoSSL), while the average concentration is 106 times the ecological benchmark. The selenium concentrations in soil samples down-gradient of the ODA range from 0.2 to 95.7 mg/Kg, with an average concentration of 14 mg/Kg (maximum is 185 times and average is 27 times the ecological benchmark).

Surface Water Down-gradient from the ODA

Pedro Creek down-gradient from the ODA is an intermittent stream with portions of the creek flowing year round. In general, selenium concentrations in Pedro Creek are higher near the headwater locations closest to the ODA (Reach 1, Figure 3), ranging from 1.13 to 4.08 mg/L, with an average of 2.25 mg/L. In addition, concentrations are typically highest in the spring when there is maximum run-off from and infiltration through the ODA resulting from snow melt and seasonal storms. The maximum selenium concentration is 816 times and the average is 450 times the ecological benchmark of 0.005 mg/L (Idaho surface water quality standard or IWQS). Selenium concentrations decrease in the downstream reaches of Pedro Creek; ranging from non-detect to 0.346 mg/L, with an average of 0.033 mgLl near the mouth of Pedro Creek, (maximum is 69 times and average is 7 times the ecological benchmark of 0.005 mg/L).

Sediments Down-gradient from the ODA

Selenium concentrations in the in-stream sediments in Pedro Creek generally show a decreasing trend from upstream to downstream. The selenium concentrations in sediments in the headwaters of Pedro Creek (Reach 1, Figure 3) range from 1.0 to 717 mg/Kg, with an average of 77 mg/Kg. The maximum selenium concentration is 18 times and the average is twice the human health benchmark of 39 mg/Kg (there are no commonly accepted ecological benchmarks for selenium in sediments). Near the mouth of Pedro Creek, the selenium concentrations in sediments range from 1.0 to 29.6 mg/kg, with an average of 13.0 mg/Kg (both the maximum and average concentration are below the human health benchmark of 39 mg/Kg).

Groundwater Down-gradient from the ODA

Shallow alluvium/colluvium groundwater immediately down-gradient from the Pedro Creek ODA is best characterized by a seep emanating from near the toe of the ODA (NES-5). In addition, two shallow alluvium/colluvium monitoring wells (GW-28 and GW-30), and one deeper well in the Dinwoody Formation (GW-29), were installed further down-gradient from the Pedro Creek ODA. Monitoring wells GW-28 and GW-29 are located approximately 2200 feet down-gradient of the toe of the ODA, and monitoring well GW-30 is located even further down-gradient, approximately 1.4 miles east of the ODA (Figure 3).

<u>Shallow alluvium/colluviums groundwater conditions</u>. The selenium concentrations in the seep near the toe of the ODA (NES-5) range from 0.54 to 6.89 mg/L, with an average of 3.32 mg/L. The maximum concentration is 138 times and the average concentration is 66 times the human health benchmark of 0.050 mg/L (the Idaho Groundwater Quality Standard and also the federal Maximum Contaminant Level [MCL]). Selenium concentrations in the shallow aquifer further down-gradient from the ODA (well GW-28) range from 0.935 mg/L to 1.19 mg/L, with an average of 1.06 mg/L (the maximum is 24 times and the average is 21 times the human health benchmark of 0.050 mg/L). At the most down-gradient shallow well (GW-30), the selenium concentrations ranged from 0.0022 to 0.0048 mg/L, with an average of 0.0039 mg/L. All

measured selenium concentrations in this most down-gradient shallow well were less than the human health benchmark of 0.050 mg/L.

Deeper groundwater conditions in the Dinwoody Formation. The groundwater conditions in the aquifer immediately beneath the shallow alluvial/colluvial aquifer are represented by well GW-29. The selenium concentrations in this well range from 0.030 to 0.032 mg/L with an average concentration of 0.031 mg/L. All measured selenium concentrations in this well are below the human health benchmark of 0.05 mg/L. Well GW-29 is located approximately 2200 feet down-gradient from the ODA so it does not likely represent the groundwater concentrations in the Dinwoody Formation immediately down-gradient from the ODA. An additional well into the Dinwoody Formation near the toe of the ODA is planned to better characterize the selenium concentrations in the deeper Dinwoody aquifer near the ODA.

Vegetation On and Down-gradient from the ODA

Selenium concentrations in vegetation growing on the ODA ranged from 0.19 to 555 mg/Kg, with an average concentration of 43.7 mg/Kg. The maximum selenium concentration is 194 times and the average is 17 times the ecological benchmark of 2.6 mg/Kg (based on the Area-Wide Risk Management Plan or AWRMP). The selenium concentrations in vegetation growing down-gradient from the ODA range from 0.03 to 106 mg/Kg, with an average concentration of 20 mg/Kg (maximum is 41 times and the average is 8 times the ecological benchmark of 2.6 mg/Kg).

5. National Priority List status

The Pedro Creek ODA is one of many ODAs located within the Site. The Conda/Woodall Mountain Site is not listed on the National Priorities List (NPL).

6. Maps, pictures, and other graphic representations

Refer to Figure 1 for general site location, Figure 2 for property ownership and ODA components, Figure 3 for results of samples for selenium across all media, and Figure 4 (for the selected removal action alternative.

B. Other Actions to Date

1. Previous actions

There has been one action conducted at the Pedro Creek ODA which is discussed below; however, the action was not conducted under the authority of CERCLA. In the Fall of 2010, maintenance activities were completed in accordance with the BLM Mine and Reclamation Plan and the mine's Stormwater Pollution Prevention Plan. The maintenance activities included removing and consolidating sediments from an existing sedimentation basin down-gradient of the ODA, improving ditches and piping to route runoff and precipitation around the ODA, and re-grading to better promote runoff in the upslope area. Plans relating to these maintenance activities were reviewed by DEQ and EPA prior to initiation and determined to not be

inconsistent with potential future CERCLA actions for the ODA and Pedro Creek Area. Additionally, the highly contaminated NES-5 seep was fenced by Simplot prior to 2001 to limit livestock access.

2. Current actions

An RI/FS is currently being conducted to evaluate the nature and extent of contamination resulting from mining at the entire Site. The RI and baseline risk assessment will fully determine the risks to human health and the environment for all contaminants of concern at each source and/or contaminated area. The FS will evaluate clean up alternatives for those portions of the Site where there are unacceptable risks posed by the presence of hazardous substances, pollutants, or contaminants.

C. Authorities' Roles

1. Actions to date

The EE/CA for the Pedro Creek ODA was completed pursuant to the January 18, 2008, Consent Order/Administrative Order on Consent (AOC/CO) for Performance of Remedial Investigation and Feasibility Study between DEQ, EPA, BLM, and the J.R. Simplot Company, and the December 24, 2009, Remedial Investigation/Feasibility Study Work Plan Amendment.

Under the AOC/CO, DEQ is designated as "Lead Agency" for the purpose of project management. EPA implements CERCLA at the Site. The DEQ and the EPA approved the EE/CA. BLM exercises its CERCLA authority on lands subject to BLM's jurisdiction, custody, or control.

D. Tribal response

The Shoshone-Bannock Tribes (Tribes) participate in the CERCLA process under the AOC/CO as a Support Agency. The Tribes were provided all versions of the EE/CA for review and comment. On December 9, 2010, EPA wrote a letter to the Fort Hall Tribal Business Council asking if the Tribes would like government-to-government consultation. The following week, EPA and BLM presented a summary of the alternatives evaluated and preferred alternative in the EE/CA to environmental staff working for the Tribes. The staff appeared supportive of the preferred alternative. The Tribal Business Council did not request a formal government-to-government consultation.

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

The current conditions at the Pedro Creek ODA meet the following factors which indicate that it is a threat to the public health or welfare or the environment and a removal action is appropriate under Section 300.415(b)(2) of the NCP. Any or all of these factors may be present at a site yet any one of these factors may determine the appropriateness of a removal action.

As indicated previously, selenium has the widest distribution and greatest exceedances of risk-based benchmarks. Between 1997 and 2003, several hundred sheep died while grazing within the Site. The livestock deaths may have been caused by selenium toxicity. Therefore, for purposes of this early action, the following subsections discuss threats to public health, welfare, and the environment from releases of selenium. The RI/FS will fully evaluate and describe risks for selenium and other COPCs.

A. Threats to Public Health or Welfare

1. Exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants (300.415[b][2][i])

Elevated concentrations of selenium are found in surface soils, surface water, alluvial groundwater, sediments, and vegetation. Surface water concentrations of selenium exceed Idaho Water Quality Standards for both acute and chronic exposures for cold water aquatic life. Fish, macroinvertebrates, and aquatic vegetation are directly exposed to water-borne COPCs. The acute criterion is an estimate of the highest concentration of contaminant in surface water to which an aquatic community can be exposed briefly without causing an adverse effect. The chronic criterion is an estimate of the highest concentration of selenium in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. Fish are the most sensitive receptors and have both aqueous and dietary exposure to selenium. Excess amounts of selenium in their diet can be toxic to the fish. This toxicity is evidenced in malformations in fry and in greater morbidity in the fry population.

In addition, selenium concentrations in shallow groundwater exceed the Idaho groundwater quality standard (IDAPA 58.01.11) and the Federal Safe Drinking Water Standards MCL.

As stated previously, a risk assessment has not yet been completed for the Site, but concentrations of selenium in site soils, sediments, and vegetation significantly exceed some of the risk-based screening-level benchmarks and therefore indicate potential for unacceptable risk to human and ecological receptors. While the magnitude of these exceedances support the need for an early action, it should be noted that the conservative benchmarks are intended for risk screening purposes only and the exposure assumptions used to develop screening benchmarks could overstate risk for receptors using the Pedro Creek area. When complete, the Site risk assessment will determine action levels of selenium and other COPCs in soils, sediments, and vegetation above which there is an unacceptable risk to receptors based on site-specific information and conditions.

Several instances of livestock mortality, which may have been caused by selenium uptake, occurred at the Conda Mine prior to 2004. The affected livestock were primarily sheep that were grazed on Woodall Mountain and in the vicinity of the former Conda Townsite. One of the livestock mortality events was in close proximity to the Pedro Creek ODA. In June 2001, between 160 and 180 sheep died while grazing on, and downslope of, ODAs at the head of Pedro Creek. Although less well documented than the sheep deaths, several horses which grazed near, and drank from, springs on the northeast side of Woodall Mountain (some specific locations unknown) during the early 1990s and in 2003 exhibited hoof soreness and/or sloughing, which is

symptomatic of acute selenium toxicity. As indicated previously, livestock grazing and watering on contaminated areas of the mine site is now restricted, both on Simplot-owned land and on BLM-administered land.

Some plant species readily absorb selenium from soils and concentrate it in their tissues. Selenium toxicity in livestock occurs when animals graze on forage containing such seleniferous plants.

Chronic oral exposure to high levels of selenium results in a number of human health effects. Symptoms of selenosis include a garlic odor on the breath, deformation and loss of nails, gastrointestinal disorders, hair loss, fatigue, irritability, and neurological damage. Nearby residents, recreationists, and/or trespassers could be exposed to elevated levels of selenium in soils on the Pedro Creek ODA and to contaminated surface water and sediments down-gradient of the ODA.

2. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate (300.415[b][2]iv])

The Pedro Creek ODA consists of overburden rock units that were excavated to allow miners access to the phosphate ore. The overburden materials, particularly the middle waste shales of the Phosphoria Formation, contain naturally elevated levels of selenium and other trace metals. Excavating, handling, and disposing of the overburden rock accelerates both the physical and chemical weathering processes, resulting in releases of selenium and other contaminants (metals) to the environment. Chemical weathering (primarily oxidation and subsequent leaching of contaminants) results when source materials containing the Meade Peak Member shales are exposed to air and infiltrating water from precipitation. Physical weathering resulting from wind and water breaks the overburden into smaller particles thereby increasing the surface area available for further oxidation and leaching. Samples of soils that developed on the ODA exceed risk-based human health and ecological screening-level benchmarks for selenium. Once these contaminants of concern (COPCs) are released through oxidation and leaching, those COPCs are transported by groundwater and surface water (through runoff and/or stream flow) or by direct plant uptake. Evidence of contaminant migration is observed in surface water samples which exceed water quality standards for selenium in Pedro Creek as far as 2.3 miles downstream of the ODA, and shallow groundwater which exceeds MCLs approximately 2200 feet down-gradient (east) of the ODA. The selenium in the soils has also been taken up by vegetation at concentrations that exceed risk-based bench marks, particularly on the ODA and in the vicinity of the NES-5 seep.

In addition to the contaminant migration through leaching and transport via groundwater and/or surface water, the steep eastern sides of the Pedro Creek ODA are unstable and subject to landslides and other downslope movement. Some waste rock is currently observed beyond the toe of the ODA, resulting from minor gravity sliding and/or erosion and transport via runoff. The potential for a large scale slope failure exists due to the steep slopes which lack structural support due to the random manner in which the waste rock was placed. A similarly constructed ODA failed to the north of the Pedro Creek ODA in the 1970s, resulting in a large landslide that moved a significant quantity of waste rock downslope. The potential for a significant slope

failure is greatest during times of high precipitation and infiltration through the ODA. The potential for continued erosion off the surface of the ODA is greatest during periods of high runoff such as a rain-on-snow event in which infiltration is minimal due to frozen ground or during intense early summer rainstorms. Some of the waste rock eroded from the ODA reaches Pedro Creek where it is transported downstream as part of the sediment load. Once this contaminated material is in the stream, it can be consumed by animals that may drink surface water and it can impact the fishery. Eroded ODA material contains elevated levels of selenium, which is harmful to livestock and potentially wildlife when they consume vegetation that has absorbed selenium from the ODA material or soils contaminated with selenium. Any or all of these transport mechanisms: gravity slides, landslides, erosion resulting from runoff, and transport as sediment in Pedro Creek has the potential to move ODA material onto adjacent private property. Some ODA rocks have been observed on private property in the typically dry upper channel of Pedro Creek.

3. Minimization or elimination of the effects of weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or to be released (300.415[b][2][v])

Seasonal weather conditions facilitate the release and migration of contaminants further from the ODA in several ways. Snow melt currently pools in large depressions on the top and upslope portions of the ODA and then infiltrates through the ODA resulting in leaching of selenium and other contaminants to shallow groundwater. Shallow groundwater within the ODA flows to the NES-5 seep and/or other discharge points in the Pedro Creek drainage down-gradient from the ODA. In general, the greater the volume of water that infiltrates through the ODA and the longer the flow path through the ODA materials, the greater the mass of selenium released. In addition, increased run-on and runoff during wetter months causes greater erosion and transport of ODA material and associated contaminants from the surface of the pile. Some of the eroded waste rock enters Pedro Creek and becomes part of the sediment load. Consequently, the highest concentrations of contaminants in Pedro Creek are typically detected during late spring when both infiltration into the ODA and runoff are highest. Furthermore, the potential for a significant slope failure is greatest during times of high precipitation and infiltration through the ODA.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Pedro Creek ODA are present and imminent and substantial endangerment to public health, welfare, or the environment as outlined in Section III above exists.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

The following removal action objectives (RAOs) which correspond to Section 300.415(b)(2) of the NCP have been developed for the Pedro Creek ODA:

- Stabilize the ODA from an erosion and seismic standpoint and minimize the potential for future erosion, slumping, and mass-wasting of ODA materials.

- Reduce the releases and migration of selenium and other COPCs from the ODA that currently result in exceedances of MCLs in groundwater and water quality criteria in surface water.

- Reduce releases and migration of selenium and other COPCs from the ODA that result in unacceptable risks to wildlife receptors of concern due to elevated concentrations in soils, sediment, and surface water in the Pedro Creek subbasin.

- Reduce risks to aquatic life, humans, and livestock due to exposure to selenium and other COPCs in surface water, soils, and sediments. Reduce concentrations of COPCs in alluvial groundwater which may be used for livestock watering.

Based on an analysis of the nature and extent of mine-waste contamination and on the cleanup objectives, six alternative actions were evaluated for the Pedro Creek ODA. Alternatives are summarized in Table 1.

Based on the evaluation of the alternatives against the short- and long-term aspects of three broad criteria and associated sub-criteria, and public comments, the selected alternative is Alternative 4 (In-Place Consolidation/Re-grading in Side Slope Area, Re-grading in Top Area and Upslope Area, with Soil Cover and Revegetation on the ODA).

Alternative 1 was not selected because it would not address the actual or potential imminent and substantial human health and ecological threats posed by the ODA. Alternative 2 was not selected because it would not significantly improve stability of the ODA and therefore would not fully meet that cleanup objective and it has the greatest potential for the need for additional actions. Alternative 3 was not chosen because it is not as effective as the selected alternative in reducing infiltration through the ODA, and it also has a higher potential for the need for additional actions. Alternatives 5 and 6 were not selected because they are more difficult to implement, take longer to complete, and are less cost effective than the selected alternative (entailing significantly higher costs with relatively small additional reductions in infiltration).

A. Proposed Actions

1. Proposed action description

Alternative 4 is depicted in Figure 4 and is described below:

Alternative 4 includes in-place consolidation and re-grading the existing steep slopes of the Pedro Creek ODA to between 2.5:1 to 3:1, the top area to between 5:1 to 10:1, and the upslope area to between 20:1 to 30:1. A soil cover consisting of 18 inches on the side slopes and 12 inches on the top and upslope areas will be placed over the re-graded areas. Cover materials include approximately 142,000 cubic yards (cy) of weathered Dinwoody Formation soils which would be taken from an On-Site borrow area on Simplot-owned land, approximately 2 miles south of the Pedro Creek ODA. Although plant uptake of selenium is not an RAO, the disturbed areas will be re-vegetated with non-selenium-accumulator plant species. Diversion ditches and other erosion and sedimentation controls will be installed to minimize run-on and manage runoff so that infiltration through the waste rock is reduced. A few thousand cy of rock for erosion

control would be borrowed from an On-Site Rex Chert Member outcrop on Simplot-owned land within a mile of the Pedro Creek ODA. Sampling would ensure that only non-seleniferous materials would be used to construct the cover and erosion control features.

A long term performance monitoring plan will be developed and implemented. Further, temporary fencing may be implemented to control access and allow the new vegetation to establish without livestock grazing or disturbance.

Best Management Practices

Where appropriate and practicable, greener cleanup Best Management Practices (BMPs) will be employed throughout construction for control of erosion, fugitive dust, and stormwater management, and to avoid adverse impacts on wildlife and their habitats. Greener BMPs potentially include, but are not limited to, minimizing energy consumption (e.g., using new and well-maintained equipment), minimizing generation and transport of fugitive dust (e.g., implementation of construction BMPs), minimizing waste generation through reuse (e.g., concrete and riprap) and recycling (e.g., recovery of free product), minimizing erosion and impacts to water resources (e.g., implementation of construction storm water and surface water BMPs), minimizing areas requiring activity or use limitations (e.g., source removal), minimizing unnecessary soil and habitat disturbance, and minimizing noise disturbance.

2. Contribution to remedial performance

The recommended action will improve slope stability, and reduce infiltration into and erosion from the ODA. The recommended action is intended to be consistent with potential final actions for the Site. The recommended action may be the first and only action at the Pedro Creek ODA or one of a series of actions depending on post-removal performance monitoring and information obtained through the RI/FS. The final Record of Decision for the Conda Mine will identify whether additional cleanup actions are needed to prevent, minimize, or reduce potential risks to public health or welfare or the environment through surface water, sediment, groundwater and/or vegetation. If future actions are required, the recommended removal action will likely not impede those actions based on available information.

3. Engineering Evaluation / Cost Analysis (EE/CA)

An EE/CA for this early action was prepared by Simplot and is included in the Pedro Creek ODA Early Action Administrative Record. The EE/CA compared the removal alternatives based on the rating criteria and recommended Alternative 4 as the preferred alternative. The EE/CA was provided to the public for a thirty (30) day comment period from January 10, 2011, through February 9, 2011. Six individuals and/or organizations submitted comments on the EE/CA. Responses to the public comments received are provided in the responsiveness summary attached to this action memorandum.

4. Applicable or relevant and appropriate requirements

The NCP requires that removal actions attain applicable or relevant and appropriate requirements (ARARs) under federal or state environmental or facility siting laws, to the extent practicable.

(40 CFR § 300.415[j]). In determining whether compliance with ARARs is practicable, an agency may consider the scope of the removal action. (40 CFR § 300.415[j]) The scope of the removal action proposed in this action memorandum is limited. Applicable and/or relevant and appropriate ARARs are listed in Table 7.

5. Project schedule

The start of the response action is anticipated in 2011 and the project is estimated to require 1 to 2 years to complete.

B. Estimated Costs

The net present value of the selected alternative, including 30-year Operations and Maintenance (O&M), is estimated to be $6.9 million. Capital costs for Alternative 4 are estimated at $6.6 million. Details on the cost estimate for the proposed action are provided in Table B-4 of the final EE/CA.

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

If the response action should be delayed or not taken:

- Hazardous substances will remain as potential human health and ecological threats based on direct contact and ingestion pathways; and

- Hazardous substances will remain a continuing source of solid and dissolved-phase contaminants that migrate from the ODA through surface water and/or groundwater.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

The selected action will be conducted in accordance with the terms and conditions of the Settlement Agreement/CO that will be developed and executed with Simplot to implement this removal action.

IX. RECOMMENDATION

This decision document presents the selected removal action for the Pedro Creek ODA at the Conda/Woodall Mountain Mine Site, Caribou County, Idaho, consistent with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the site.

Conditions at the site are consistent with the NCP section 300.415(b)(2) criteria for a removal action and I recommend your approval for the proposed removal action. Simplot is the responsible party for this cleanup action. The DEQ, EPA, and BLM expect to negotiate a Settlement Agreement/CO for Simplot to implement this action under DEQ and EPA oversight with BLM participating as a cooperating agency to EPA. However, if Simplot is unwilling or unable to conduct the recommended removal action, and EPA must do so, the total project ceiling is estimated to be $6.9 million.

Approval: X Disapproval: ____

Signature: ____

Toni Hardesty, Director
Department of Environmental Quality

Date: 7/7/11

Approval: X Disapproval: ____

Signature: ____

Daniel D. Opalski, Director
Office of Environmental Cleanup
U.S. Environmental Protection Agency, Region 10

Date: 7/5/2011

Approval: X Disapproval: ____

Signature: ____

Steven Ellis, Idaho State Director
Bureau of Land Management

Date: 7/13/2011

ATTACHMENTS

Figure 1. Location of Conda/Woodall Mountain Mine Site and Pedro Creek ODA..... 21

Figure 2. Site features at the Pedro Creek ODA and land ownership..... 22

Figure 3. Selenium concentration at and down-gradient of the Pedro Creek ODA. 23

Figure 4. Site plan for the selected removal action for the Pedro Creek ODA..... 25

Table 1. Removal alternatives developed for the Pedro Creek ODA 27

Table 2. Applicable or relevant and appropriate regulations (ARARs) for the Pedro Creek ODA removal action..... 29

Summary of Public Comments and Responses 33

This page left blank for double-sided printing.

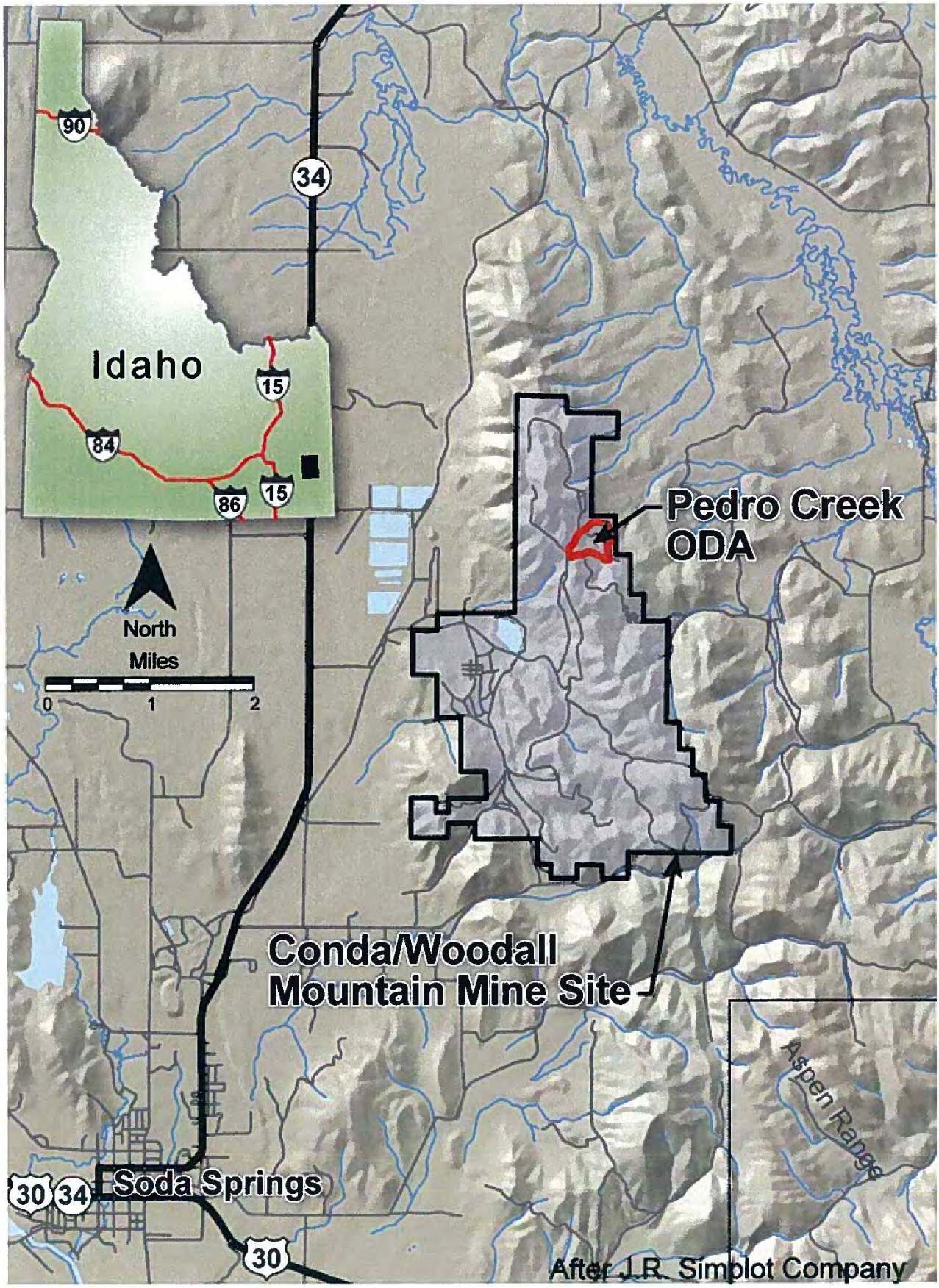

Figure 1. Location of Conda/Woodall Mountain Mine Site and Pedro Creek ODA.

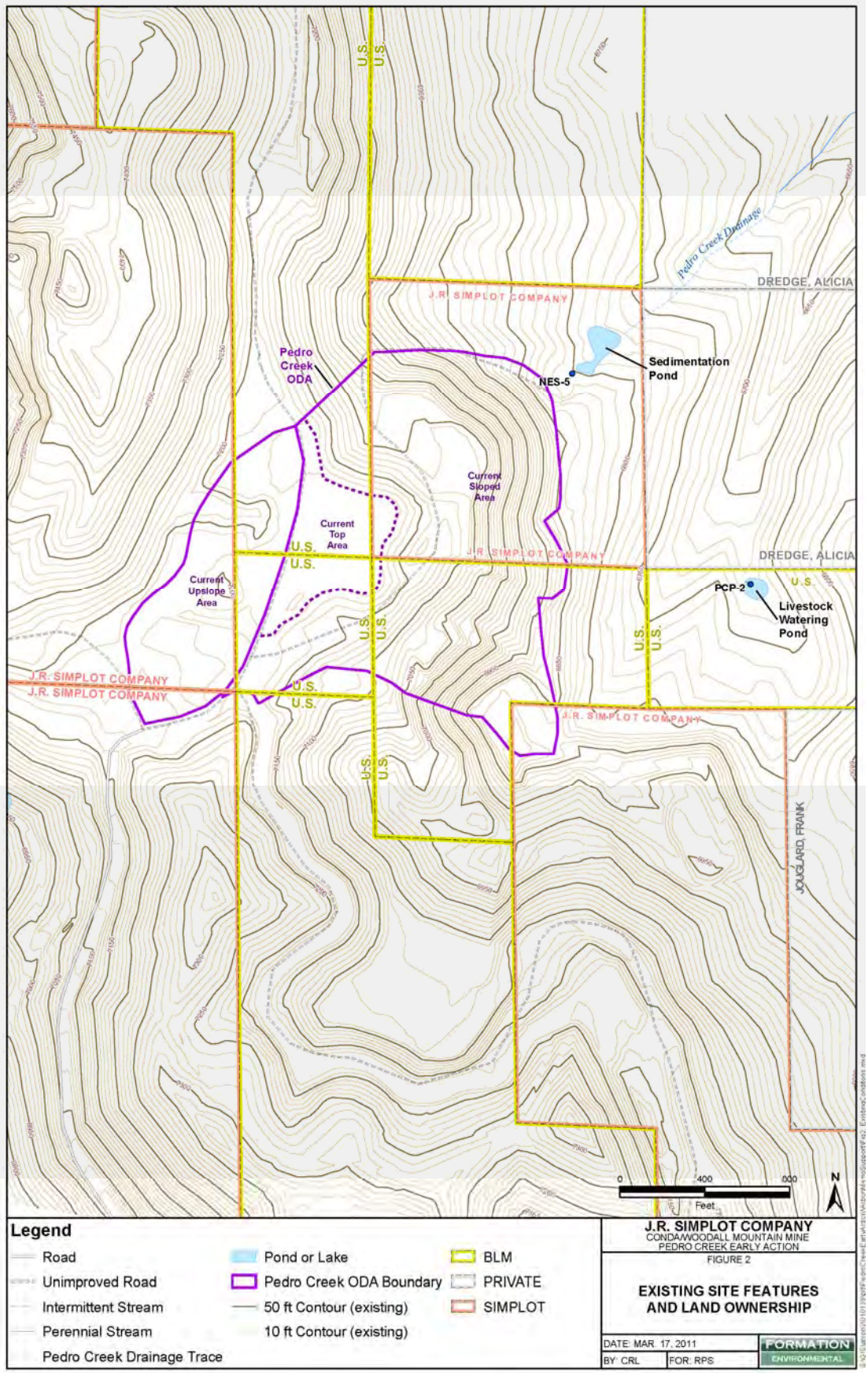

Figure 2. Site features at the Pedro Creek ODA and land ownership.

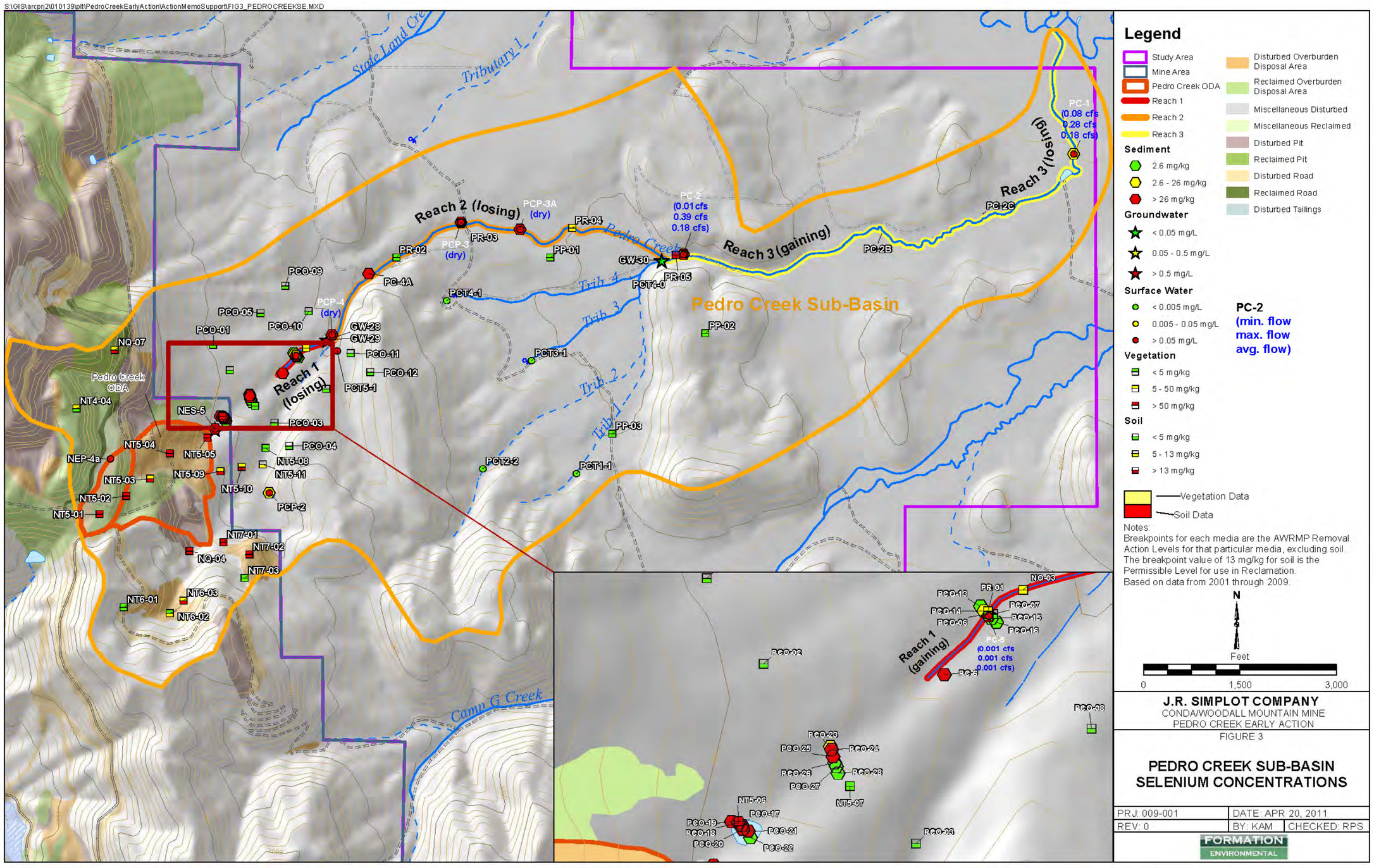

Figure 3. Selenium concentrations at and near the Pedro Creek ODA.

This page left blank for double-sided printing.

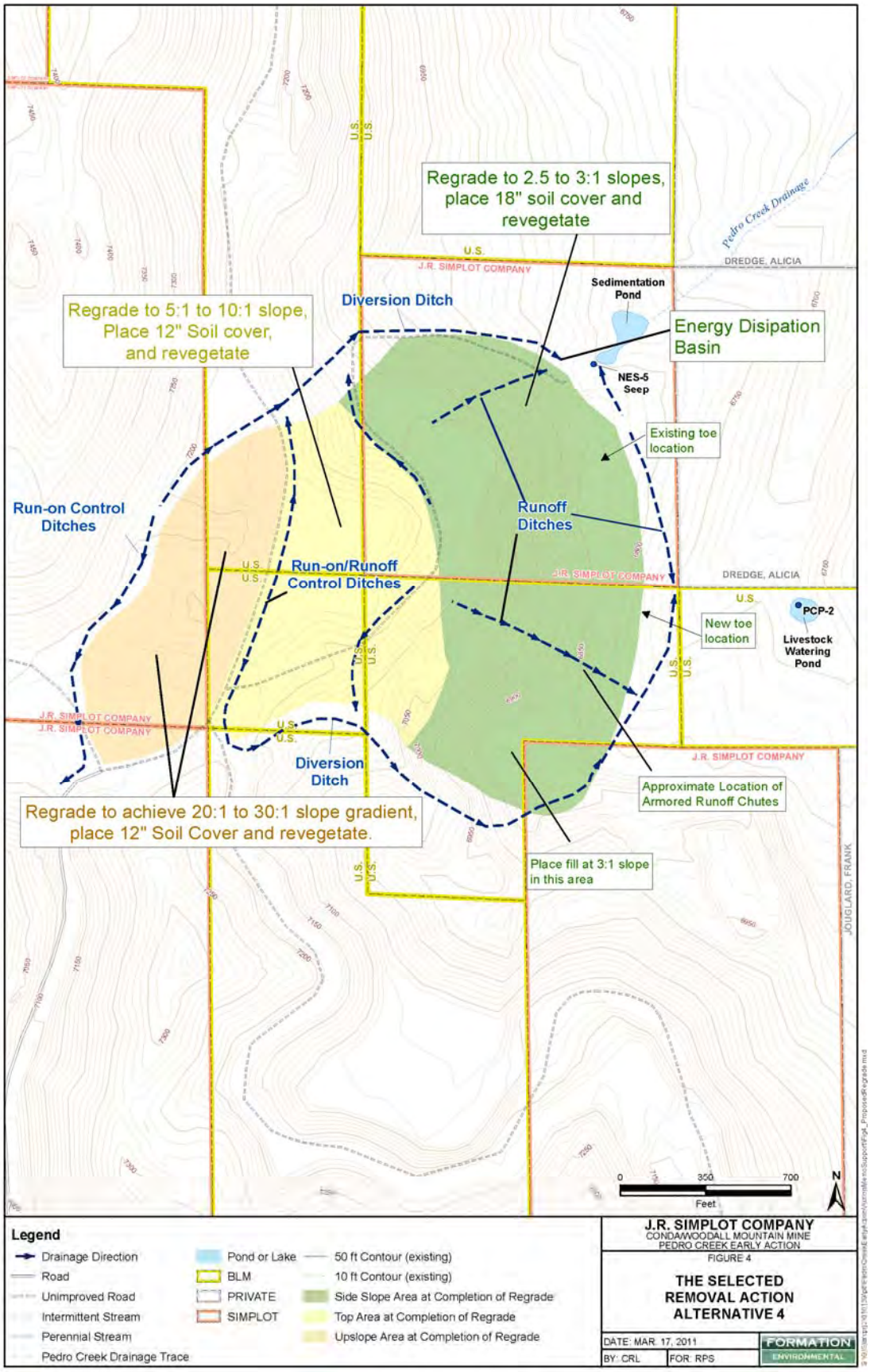

Figure 4. Site plan for the selected removal action for the Pedro Creek ODA.

This page left blank for double-sided printing.

Table 1. Removal alternatives developed for the Pedro Creek ODA

Altern. No.	Alternative Description	Response Technology/ Process Action	COST ($ Million)
1	No Action	None; the NCP requires consideration of a no-action alternative Estimated infiltration reduction through ODA = none	$0
2	In-Place Consolidation/ Re-grading in Side Slope Area, with Direct Revegetation on Amended Overburden Materials on the ODA	Re-grade side slopes to no steeper than 2:1; re-grade upslope and top areas only where pooling occurs; amend re-graded surfaces with composted manure and re-vegetate with native non-selenium accumulator species; install run-on/runoff erosion controls. Estimated infiltration reduction through ODA = 53%	$2.5 M
3	In-Place Consolidation/ Re-grading in Side Slope Area, with Soil Cover[1] and Revegetation on the ODA	Re-grade side slopes to 2.5:1 to 3:1; re-grade upslope and top areas only where pooling occurs; install 6-inch thick soil cover over re-graded areas; re-vegetate with native non-selenium accumulator species; install run-on/runoff erosion controls.. Estimated infiltration reduction through ODA = 62%	$5.3 M
4	In-Place Consolidation/ Re-grading in Side Slope Area, Re-grading in Top Area and Upslope Area, with Soil Cover and Revegetation on the ODA	Re-grade side slopes to 2.5:1 to 3:1; re-grade top area to 5:1 to 10:1; re-grade upslope area to 20:1 to 30:1; install 18-inch thick soil cover on re-graded side slopes; install 12-inch thick cover on re-graded top and upslope areas; re-vegetate with native non-selenium accumulator species; install run-on/run-off erosion controls. Estimated infiltration reduction through ODA = 85 %	$6.9 M

[1] The soil cover would be comprised of approved Dinwoody Formation, material, to provide a low-permeability soil cover system.

Altern. No.	Alternative Description	Response Technology/ Process Action	COST ($ Million)
5	In-Place Consolidation/Re-grading in Side Slope Area, Re-grading in Top Area and Upslope Area, with Thick Evapotranspirative (ET) Soil Cover and Revegetation on the ODA	Re-grade side slopes to 2.5:1 to 3:1; re-grade top area to 5:1 to 10:1; re-grade upslope area to 20:1 to 30:1; install 51-inch thick composite ET cover system over all re-graded areas; re-vegetate with native species; install run-on/run-off erosion controls. Estimated infiltration reduction through ODA = 96%	$11.8 M
6	In-Place Consolidation/Re-grading in Side Slope Area, Re-grading in Top Area and Upslope Area, with Geosynthetic-Soil Cover System and Revegetation on the ODA.	Re-grade side slopes to 3:1; re-grade top area to 5:1 to 10:1; re-grade upslope area to 20:1 to 30:1; install geosynthetic liner system over all re-graded areas; install 12-inch soil cover and a drainage layer over liner; revegetate with native species; install run-on/runoff erosion controls. Estimated infiltration reduction through ODA = 99%	$18.2 M

Table 2. Applicable or relevant and appropriate regulations (ARARs) for the Pedro Creek ODA removal action

	Standard, Limitation, or Requirement Criteria	Citation	Description	Comments	Category
Federal					
Chemical-Specific	National Primary Drinking Water Regulations	40 C.F.R. Part 141	Establishes health-based standards (Maximum Contaminant Levels, MCLs) for public water systems.	MCLs are not applicable to this removal action because the action does not involve a public water system. However, they are relevant and appropriate because the groundwater is a potential drinking water source. Because this removal action is limited in scope, the removal action objective (RAO) is to reduce contaminant concentrations in the groundwater, not to meet the MCLs. Post removal action groundwater monitoring results will be compared against the MCLs; therefore, these requirements are relevant and appropriate.	Relevant and Appropriate
	Water Quality Standards	40 C.F.R. Part 131	Sets criteria for water quality based on toxicity to aquatic organisms and human health.	Relevant and Appropriate	Relevant and Appropriate
	National Recommended Water Quality Criteria November 2002	33 U.S.C. §1314(a)	Recommended aquatic water quality criteria (AWQC) for the protection of aquatic life and human health in surface water. The National Recommended Ambient Water Quality Criteria (AWQC) are guidance established by the EPA for evaluating toxics effects on human health and aquatic organisms.	Federal Ambient Water Quality Criteria are not applicable, but would be relevant and appropriate if there is no state standard for any of the Contaminants of Potential Concern (COPC) identified in the SI/EE/CA. They would also be relevant and appropriate if there is a state standard but it is less stringent than the AWQC. The AWQC for cadmium for the chronic criterion is more stringent than the state standard based on a hardness of 100 mg/l. For all other COPCs, the AWQC and the state standard are the same.	Relevant and Appropriate
	National Pollutant Discharge Elimination System (NPDES) Permit Regulations	Clean Water Act 33 USC § 1342 and 40 CFR § 122 to 125	Permitting requirements for the discharge of "pollutants" from any "point source." EPA considers discharges from waste dumps (springs and seeps at the base of the dumps) as point sources. The NPDES regulations establish requirements for point source discharges and stormwater runoff. These regulations are applicable for any point source discharge of contaminated water, stormwater runoff at the Site, and management of stormwater runoff during construction where the construction site involves 1 acre or more.	The removal action objective (RAO) is to reduce contaminant concentrations in the groundwater and surface waters, not to meet the standards. BMPs will be in place to manage storm water runoff at the Site during implementation.	Applicable
Action-Specific	Surface Mining Control and Reclamation Act	30 U.S.C. § 1201- 1326; 30 C.F.R. Part 816.43, 45-47, and 111; 30 C.F.R. Part 784	Permanent program performance standards – surface mining activities. Minimum requirements for reclamation and operations.	Not applicable since the site is not a coal mine. However certain requirements may be relevant and appropriate to the design of the cap and run-on/run-off control systems	Relevant and Appropriate
	National Emission Standards for Hazardous Air Pollutants	40 CFR 61	Recommended air pollutant restrictions.	The State of Idaho's air quality standards govern air quality at this site. Therefore, the NESHAP requirements are relevant and appropriate.	Relevant and Appropriate
	Migratory Bird Treaty Act	16 U.S.C. §§ 703 et seq.	Taking, killing, possessing migratory game is unlawful.	The removal action is not expected to impact migratory birds protected by this act. If migratory birds are impacted during implementation, actions would be taken to meet the substantive requirements.	Applicable
	Bald and Golden Eagle Protection Act	16 U.S.C. 668-668c	Prohibits taking, killing, selling, or possessing Bald or Golden Eagles.	The removal action is not expected to impact eagles protected by this act. If eagles are impacted during implementation, actions would be taken to meet the substantive requirements.	Applicable
	Endangered Species Act	16 U.S.C. §§ 1531 et seq. 50 C.F.R. Part 402 40 C.F.R. § 6.302	Requires consultation with ESA Services charged with protecting listed species, if listed species could be impacted by the actions.	No listed species could be impacted by the project. The substantive requirements of ESA will be complied with through completion of a Determination of No Effects.	Applicable
	National Pollutant Discharge Elimination System (NPDES) Permit Regulations for Stormwater	40 CFR § 122 to 123	Regulates erosion and sediment control and stormwater management at construction sites.	The substantive requirements of a Stormwater Pollution Prevention Plan will be met through implementation of Best Management Practices to control erosion and sediments during construction.	Applicable
	Clean Air Act National Primary and Secondary Ambient Air Quality Standards (NAAQSs)	42 USC§ 7409, 40 CFR 50	Protection of the nation's air quality. Establishes air quality levels that protect public health. Concern for this removal action would be control of fugitive dust.	The State of Idaho's air quality rules govern air quality at this site. Therefore, the Clean Air Act requirements are relevant and appropriate.	Relevant and Appropriate

Table 2 (continued).

	Standard, Limitation, or Requirement Criteria	Citation	Description	Comments	Category
Federal					
Location-Specific	Archaeological and Historic Preservation Act	40 C.F.R. § 6.301	Data recovery and preservation activities.	An archeological survey will be conducted prior to construction. If archeologically important items are discovered during implementation, the substantive requirements will be followed.	Applicable
	National Historic Preservation Act	16 U.S.C. §§ 470f, 36 C.F.R. Parts 60, 63 and 800, 40 C.F.R. § 6.301	Section 106 of NHPA process balances needs of Federal undertaking with effects the undertaking may have on historic properties.	A Cultural Resource Survey will be completed prior to construction. If culturally important items or structures are discovered during implementation, the substantive requirements will be followed.	Applicable
	Protection of Wetlands	40 C.F.R. § 6.302	Wetlands Protection: Executive Order 11990 requires agencies conducting certain activities to avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands if a practicable alternative exists.	Applicable if jurisdictional wetlands are impacted by the project. A wetlands delineation will be conducted as part of the design	Applicable
	Federal Land Policy and Management Act of 1976 (FLPMA)	43 USC 1701	Provides for multiple use and inventory, protection, and planning for resources on public lands.	The substantive requirements of the BLM's Land Use Plan and Resource Management Plan will be considered during the design and implementation of the removal action.	Relevant and Appropriate
State of Idaho					
Chemical-Specific	Idaho Water Quality Standards	IDAPA 58.01.02	Narrative and numerical standards that apply to all surface waters in Idaho.	The removal action objective (RAO) is to reduce contaminant concentrations in surface waters down-gradient from the site, not to meet the Idaho Water Quality Standards (IWQS). Post removal action surface water monitoring results will be compared against the IWQS. Where the IWQS are more stringent than the National AWQS, the IWQS will be applicable. The IWQS for cadmium for the acute criterion is more stringent than the AWQS based on a hardness of 100 mg/l. For all other COPCs the IWQS and the AWQS are the same.	Applicable
	Idaho Ground Water Quality Rule	IDAPA 58.01.11.200	Numerical and narrative standards that apply to all groundwater in Idaho.	The removal action objective (RAO) is to reduce contaminant concentrations in the groundwater down-gradient from the site, not to meet the Idaho Groundwater Quality Standards (IGWQS). Post removal action groundwater monitoring results will be compared against the MCLs and IGWQS.	Applicable
	Idaho Water Quality Act	Idaho Code, Title 39, Chapter 36	Procedures to preserve water quality and state authority for setting water quality standards.	The substantive requirements of this statute will be met to maintain and achieve existing and beneficial uses of surface water.	Applicable
	Rules and Standards for Hazardous Waste	IDAPA 58.01.05	Standards and procedures for managing hazardous waste.	The removal action is not expected to generate hazardous wastes. However, if any are generated through implementation, they will be managed in accordance with the substantive requirements of this rule.	Applicable
	Rules and Standards for Hazardous Waste	IDAPA 58.01.05	Standards and procedures for managing hazardous waste.	The removal action is not expected to generate hazardous wastes. However, if any are generated through implementation, they will be managed in accordance with the substantive requirements of this rule.	Applicable

Table 2 (continued).

	Standard, Limitation, or Requirement Criteria	Citation	Description	Comments	Category
State of Idaho					
Action-Specific	Solid Waste Management Rules	IDAPA 58.01.06	Establishes requirements applicable to all solid waste and solid waste management facilities.	Any solid wastes generated through implementation of the removal action will be managed in accordance with the substantive requirements of this rule.	Applicable
	Idaho Surface Mining Act	Idaho Code, Title 47, Chapter 15	Establishes procedures for reclamation and provides state authority for Idaho Surface Mining Rules.	Compliance with the substantive aspects of this statute provides for protection of public health, safety, and welfare, through measures to reclaim the surface of all the lands disturbed by implementation of the removal action, thereby conserving natural resources, aiding in the protection of wildlife, domestic animals, aquatic resources, and reducing soil erosion.	Relevant and Appropriate
	Rules Governing Exploration, Surface Mining, and Closure of Cyanidation Facilities	IDAPA 20.03.02.140	Procedures for mining and reclamation activities including clearing and grubbing, topsoil removal, road construction and abandonment, erosion controls, settling pond construction and maintenance, re-vegetation, and storing/handling of petroleum products and chemicals.	The substantive requirements of this rule will be met through use of Best Management Practices to protect the quality and beneficial use of Waters of the State.	Relevant and Appropriate
	Well Construction Standard Rules	IDAPA 37.03.09	Requirements for well construction and abandonment.	The substantive requirements of these rules will be complied with for construction of post removal action monitoring wells	Applicable
	Air Pollution Control Rules	IDAPA 58.01.01	These rules provide for the control of air pollution in Idaho.	The substantive requirements of these rules will be complied with through implementation of best management practices to control dust during construction.	Applicable
Location-Specific	Preservation of Historical Sites	Idaho Statutes Title 67, Chapters 46 and 41	Guidance to preserve historical, archeological, architectural, and cultural heritage.	Prior to construction, an evaluation will be done to determine if there are any historical or culturally important artifacts or structures at the site. If any culturally important artifacts or structures are encountered during implementation, the SHPO will be consulted.	Applicable

This page left blank for double-sided printing.

Summary of Public Comments and Responses

This responsiveness summary addresses public comments received on the fact sheet that summarizes the cleanup plan for the Conda/Woodall Mountain Mine – Pedro Creek Overburden Disposal Area. The public comment period was held from January 10, 2011, to February 9, 2011. No public meeting was held.

Overview

The Idaho Department of Environmental Quality (IDEQ) and the U.S. Environmental Protection Agency (EPA) with the Bureau of Land Management (BLM) as a cooperating agency are together referred to as the Agencies.
The agencies issued a fact sheet describing the cleanup plan for the Pedro Creek Overburden Disposal Area (ODA) at the Conda/Woodall Mountain Mine site on January 10, 2011. This cleanup plan will be conducted as an early action (or non time-critical removal action) as part of the overall cleanup of the Conda/Woodall Mountain Mine site. The fact sheet identified a preferred alternative for the early action that included the following components:

- Consolidation and re-grading of unstable side slopes
- Re-grading of the areas on top of the ODA
- Construction and use of diversion ditches to control run-on and runoff waters in the vicinity of the ODA
- Covering of the ODA with 12 to 18 inches of clean soil
- Re-vegetation of the cover materials

The Agencies received written comments from seven individuals and/or organizations during the public comment period. The comments and responses are provided below. In some cases, portions of the public comments have been consolidated or edited for clarity. Complete copies of the public comments are included in the Administrative Record.

Comments from Greater Yellowstone Coalition (GYC)

GYC Comment 1: *GYC does not have in-house expertise to review/analyze most of the site characterization information provided in the Engineering Evaluation/Cost Analysis (EE/CA). It is even less likely that other members of the public have the ability to do so. We believe there are two relatively easy changes to this and other CERCLA processes that would allow us and other members of the public to provide more substantive comments. First, given that the agencies and company have had years to develop cleanup proposals, the public should be given more than 30 days within which to comment. For example, had we had more time we could retain one or more consultants to assist us in better understanding the proposals and perhaps point out areas for improvement in this and other proposals. Second, primary source material referenced in EE/CA's and RI/FS's should be readily available (digitally) for reviewers. Two examples for this EE/CA are the 2009 Evaluation of Groundwater Monitoring Network East Side of Woodall Mountain and the 2010 Geotechnical Sampling and Analysis Work Plan Pedro Creek Overburden Disposal Area. We suggest that the comment period for this and future public comment periods be extended to 90 days.*

Response 1: We understand that the volume of information in an Administrative Record is large, and as a result, can be time consuming to review. Documents within the administrative record are provided electronically and any other documents can be provided electronically upon request. Mr. Hoyt from GYC informed EPA in a phone conversation that because of their inability to hire a contractor at that time that an extension to the public comment period would not be useful. Upon request EPA and IDEQ can provide GYC and any other interested citizen with deliverables (for example, Risk Assessment report, Remedial Investigation Report) as they are finalized throughout the RI/FS process. In addition, we can provide GYC and other interested parties advance notice of when a public comment period will begin for future decisions so that GYC will have sufficient time to retain a contractor.

GYC Comment 2: *Since effectiveness and cost are both considered for the Pedro Creek and other removal actions, we believe this proposal would benefit from a more in-depth assessment of the failure of Alternative 4 to attain the projected 85 percent abatement of selenium released to ground and surface waters, and what the higher costs would be to address such a failure, whether as another stand-alone removal action or incorporated in the future remedies identified in the on-going RI/FS. For example recently permitted and proposed mine/mine expansions have rejected capping designs similar to or even more robust than that proposed in Alternative 4, and instead have adopted much more robust caps. As examples:*

- *The cover design for the 2000 Dry Valley Mine South Extension required a minimum cap thickness of two feet.*
- *The cover design for the North Rasmussen Ridge Mine would be "two to three feet" of growth medium over 8 to 10 feet of chert.*
- *The cover design for the Smoky Canyon Mine Panels F & G Expansion is an engineered store and release cover system at least six feet in thickness.*
- *The proposed cap for Monsanto's Blackfoot Bridge Mine includes a geosynthetic liner over all of the seleniferous waste material.*

In all cases these caps were adopted because cap designs similar to Alternative 4 were determined to be inadequate in preventing selenium being leached from dumps and pit backfill. And in those other cases the caps were to be installed over "designed" disposal sites rather than a dump such as the Pedro Creek ODA which is a result of nothing more than dumping unconsolidated material over an embankment and letting gravity do the rest.

Response 2: The early action is not expected to fail, although it may be necessary to augment it with additional remedial actions as part of the final cleanup decision for the Conda/Woodall Mountain Mine site to address residual contaminant releases after the early action source control measures are in place as described below.

The Agencies weighed a number of factors in the selection of Alternative 4 as the preferred alternative. These included:

Effectiveness—Effectiveness evaluations are done to determine how effective an alternative will be at meeting the removal action objectives (RAOs). The action alternatives evaluated in the

EE/CA are considered to be “source control” alternatives. The primary objectives for this action are to stabilize the ODA in order to reduce erosion and the risk of slope failure, and to reduce (not eliminate) the quantity of infiltration that percolates through the ODA. None of the alternatives evaluated for the Pedro Creek ODA are projected to be able to meet down-gradient water quality goals in and of themselves because of the high concentrations of selenium in the down-gradient groundwater and surface water. It would require greater than 99 percent load reduction to achieve the selenium water quality goals in the groundwater and surface water. The load-reduction effectiveness of any of the alternatives will be somewhat less than the infiltration-reduction effectiveness because there will still be some groundwater flowing through the ODA from up-gradient sources. Thus, even the most effective alternative (Alternative 6 is estimated to reduce infiltration by 99 percent) is not likely to be able to meet down-gradient water quality goals. This means that additional actions will need to be evaluated in the Feasibility Study (FS) to address the residual loads remaining after the early actions.

Cover—The Agencies are aware of the cover designs that have been implemented or proposed for the operating (or proposed) mines and mine expansions in the Southeast Idaho phosphate mining area. As the commenter pointed out, there are several different types of covers that have been used at operating/proposed mines. This variability is likely based on site-specific conditions. The objective of the cover for this early action is to reduce infiltration with the objective of stabilizing the ODA. As part of the RI/FS, the cover will be evaluated to determine if it is adequate or needs to be augmented to address the remedial action objectives for the final remedy based on site-specific conditions.

In addition, the Pedro Creek ODA is located within the Conda/Woodall Mountain Mine site, which is no longer an operating mine. Cover materials that are readily available at an operating mine are not readily available at the Conda/Woodall Mountain Mine site. In fact, it would require approximately 142,000 cubic yards (CY) of cover soils to construct the cover for Alternative 4. If Alternative 5 were to be implemented, it would require approximately 480,000 CY of cover soils. These cover soils would have to be borrowed (essentially mined) from other areas at the site and hauled to the Pedro Creek ODA. The excavation, hauling, and reclaiming of the borrow area(s) would result in significant environmental impacts as well as substantially greater costs.

Cost Effectiveness—Given the factors noted above, it was necessary for the Agencies to weigh the effectiveness of the alternatives against the considerable cost for the various covers (both in terms of dollars and environmental impacts). Specifically, when comparing Alternative 4 against Alternatives 5 and 6, the Agencies determined that the greater effectiveness in infiltration reduction of Alternatives 5 and 6 did not outweigh the significantly greater cost given that all alternatives are likely to require the same follow-up remedial actions to address contaminated groundwater. Neither the extra depth of cover of Alternative 5 nor the geomembrane liner of Alternative 6 will offer greater overall protectiveness than Alternative 4 because none of these alternatives evaluated for the Pedro Creek ODA are projected to be able to meet down-gradient water quality goals in and of themselves. The Agencies prepared the cost effectiveness evaluation included in the EE/CA (which is summarized in Table ES-1 of the EE/CA). This evaluation concluded that Alternative 4 was the most cost-effective of the alternatives that met all of the removal action objectives.

Potential Future Actions--The Agencies also considered the alternatives in light of potential costs for future actions that might be required at the Pedro Creek ODA versus the costs for the various alternatives. As noted above, the FS will likely include an evaluation of alternatives for addressing residual contaminant loads being released into surface water and groundwater from the ODA. One of the alternatives that would likely be evaluated is collection and treatment of groundwater and/or surface water down-gradient from the ODA. Of the potential future alternatives that will be evaluated as part of the FS for surface water and groundwater, collection and treatment would likely be the most costly alternative evaluated. Therefore, the Agencies considered the potential difference in the future costs of collection and treatment of shallow groundwater/surface water among Alternatives 4, 5, and 6 against the cost of implementing those alternatives as part of the early actions. The cost of future treatment for Alternative 4 would be greater than the cost of treatment for Alternatives 5 and 6, because the residual groundwater/surface water flows would be greater for Alternative 4 than for Alternatives 5 and 6 (due to the greater infiltration reduction of Alternatives 5 and 6). It is not possible to accurately estimate the cost of potential future treatment for any of alternatives because the flow rates of residual groundwater/surface waters cannot be determined at the present time. However, it is likely that the difference in cost of future treatment between Alternatives 4 and 5 would be less than the $4.9 million difference in initial cost between Alternatives 4 and 5 ($6.9 million vs. $11.8 million on a present worth basis). Similarly, it is likely that the difference in cost of future treatment between Alternatives 4 and 6 would be substantially less than the $11.3 million difference in initial cost between Alternatives 4 and 6 ($6.9 million vs. $18.2 million on a present worth basis).

GYC Comment 3: *We believe that the agencies have erred in assuming a simple cap, as proposed in Alt. 4, placed over an unconsolidated and relatively unstable (even with re-grading the dump will remain somewhat unstable given the possibility of seismic activity in the area) pile of waste material will provide an 85 percent reduction in selenium releases. Meteoric water will continue to fall upon and leach through the dump regardless of run-on controls and the re-grading of the areas where pooling occurs on the top of the dump. In the case of the Smoky Canyon Mine expansion meteoric water was the biggest concern. Why would this site be different?*

Response 3: As part of the final design of the re-graded slopes, a seismic stability analysis will be conducted to determine the maximum earthquake that the re-graded slopes could withstand without significant failure. Although the detailed seismic stability analysis has not been conducted for the alternatives, re-grading of the ODA for Alternatives 3-6 would substantially improve the geotechnical stability over current conditions. While it would be desirable to provide even flatter slopes than those proposed for Alternatives 3-6, the space available for re-grading toward the east is limited because of adjacent private property. However, should the results of the seismic analysis indicate that flatter slopes than those proposed for the selected alternative are required, the grading plan will be revised.

The Agencies agree that meteoric water falling on and percolating through the Pedro Creek ODA is one of the largest concerns for this site. That is why reducing the volume of meteoric water infiltrating through the ODA is one of the primary removal action objectives. While it is not

possible to eliminate all of the meteoric water that infiltrates through the ODA under any of the alternatives, the proposed re-grading to eliminate areas that pool at the top of the ODA, and re-routing runoff and run-on water around the ODA will substantially reduce the volume of precipitation that infiltrates through the waste rock.

Therefore, the Agencies have weighed the costs and benefits of the projected infiltration reduction for all of the alternatives. As noted in the response to GYC's Comment 2 above, that evaluation indicated that Alternative 4 would meet the removal action objectives and is the most cost effective alternative in achieving infiltration reduction.

GYC Comment 4: *Given the ineffectiveness of cover designs, such as that contained in Alternative 4, the risk of short and long term failure seems quite high. The EE/CA should have included a disclosure of the costs associated with the likely failure. Those costs should include the loss, and need for replacement, of virtually all the topsoil, since it could well be unusable in the future due to contamination by Se and/or the inability to salvage a significant quantity from the site if the cap proves ineffective.*

Response 4: The Agencies do not expect the early action to fail, although it may be necessary to augment it with additional actions as part of the final cleanup decision for the Conda/Woodall Mine to address residual contaminant releases after the early action source control measures are in place. This early action addresses imminent instability concerns and infiltration at the Pedro Creek ODA while the remainder of the site is evaluated in the RI/FS. The Agencies recognize that additional actions may be required at the Pedro Creek ODA, particularly to address residual down-gradient groundwater and surface water contamination as well as selenium uptake into vegetation. These additional actions will be evaluated in the FS.

The Agencies considered the possibility that plants grown on the cover might grow through the clean cover soils to the ODA materials and uptake selenium. Therefore, Alternative 4 cover vegetation will include plant species that have low rates of selenium accumulation. In addition, Alternative 4 will include maintenance actions (primarily spraying with broad-leaf herbicides) in the future to control the selenium hyper-accumulator plant species. However, it can be reasonably assumed that the uptake rate of selenium and other contaminants in the soils is much slower than the uptake rate in the plants themselves. The Agencies will prepare a remedial action objectives and preliminary remedial action goals memorandum (RAO/PRGs) after completion of the Risk Assessment. The PRGs are the cleanup levels for selenium in plants and soils based on site-specific information and conditions. As part of the monitoring of the effectiveness of the early actions during the RI/FS, selenium concentrations will be measured in the cover soils as well as the vegetation planted on top of the Pedro Creek ODA cover and these values will be compared to the site-specific cleanup levels established by the Agencies. Based upon this comparison and the results of plant uptake studies that will be conducted as part of the remedial investigation, the Agencies will determine whether the Pedro Creek ODA is sufficiently protective of the plant uptake and soil ingestion pathways. If necessary, additional measures to address these pathways will be evaluated in the FS. Additional cover soils may be used to augment the Early Action cover at the Pedro Creek ODA. Even if some uptake of selenium occurs in the cover vegetation, the plant material would most likely not move enough selenium to significantly contaminate the cover soil to the point that it would be unusable as a potential

component of a future thicker cover. Thus, the risk of short or long term "failure" of the cover under Alternative 4 is considered minimal and manageable.

GYC Comment 5: *We do agree that the use of a geosynthetic liner or combination of liners as described in Alt. 6 should be rejected, not because of the cost of attaining the projected 3 percent increase in protection, but because it has not been demonstrated that geosynthetic liners can be installed without breaching on unstable and steep slopes such as those that are, and will be, present at the Pedro Creek dump site.*

Response 5: The Agencies appreciate the concern raised by the GYC. While it is true that special care must be taken in the design and construction of a geosynthetic liner on these slopes, there are multiple successful installations of geosynthetic liners on slopes as steep as 3H:1V at a number of other facilities within the United States and around the world.

GYC Comment 6: *We strongly urge the agencies to select Alternative 5 and reject Alternative 4, since Alternative 6 incorporates a cap design that, while it may not work, is in line with the bare minimum standards that the permitting agencies allow for reclamation purposes at new mines*.

Response 6: The Agencies appreciate the comments and concerns of the Greater Yellowstone Coalition and have considered those comments and concerns in the selection of the removal action alternative for the early action for source control at the Pedro Creek ODA.

Comments from the Idaho Conservation League (ICL)

ICL Comment 1: *Upon review of the Final Engineering Evaluation / Cost Analysis (EE/CA) developed for the cleanup at the Pedro Creek Overburden Disposal Area (ODA) we have concluded that we are not supportive of the agencies' proposed alternative (#4). The agencies' preferred alternative is not sufficiently protective of human health and the environment, fails to adequately reduce water infiltration and does not convey protection from selenium uptake by plants in a manner that is a long-term solution for this site. From our perspective, the chosen alternative must: 1) be sufficiently protective of human health and the environment, and 2) credibly stand on its own as a possible permanent solution in the event that the RI/FS for the Conda site as a whole does not recommend additional measures at the Pedro Creek ODA. Upon review, we have concluded that only alternatives #5 and #6 are likely to meet the above stated concerns of protectiveness and durability/permanence.*

Response 1: The early action is a source control action to reduce erosion and the risk of slope failure and to reduce (not eliminate) the quantity of infiltration that percolates through the ODA. The Agencies evaluated all of the alternatives in terms of protection of human health and the environment, compliance with all Federal and State ARARs, effectiveness, implementability, and costs. This evaluation resulted in the following conclusions:

With the exception of Alternative 2, all of the action alternatives would improve stability and reduce erosion from the Pedro Creek ODA. Alternatives 3 through 6 are expected to achieve comparable stability improvement and erosion reduction.

All of the action alternatives would reduce infiltration of precipitation through the ODA, which would reduce the contaminant loads in groundwater and surface water down-gradient from the ODA. While Alternatives 5 and 6 would reduce infiltration more than Alternative 4 (or Alternatives 2 and 3), none of the alternatives are likely to result in sufficient load reductions such that water quality goals down-gradient from the ODA can be met (see discussion below in the response to ICL Comment 2). Therefore, additional measures (for example, collection and treatment) will likely be evaluated and implemented through the RI/FS process to address the residual loads, regardless of alternative chosen for the early actions. Assuming that the additional measures are properly constructed and maintained, they can be effective at addressing the residual loads; therefore, all of the action alternatives can be considered protective of the down-gradient water quality.

Although reduction in selenium uptake in plants was not a specific goal of the early actions, selenium uptake by the vegetation planted on top of the cover soils was considered. Selenium plant uptake was not a goal of the early action because additional data and evaluations need to be performed as part of the RI/FS process. Alternatives 5 and 6 would have a lower risk of contamination of the cover vegetation than Alternatives 2 through 4. To address this concern, Simplot has proposed planting of grass species that have been shown to have low rates of selenium uptake. Simplot has also proposed controlling the potential future invasion of plants with high selenium uptake rates through the use of broad leaf herbicides as part of regular maintenance procedures. As part of the monitoring of the effectiveness of the early actions, selenium concentrations will be measured in the cover soils as well as the vegetation planted on top of the Pedro Creek ODA cover and these values will be compared to the site-specific action levels established by the RAO/PRG memorandum. Based upon this comparison and the results of plant uptake studies that will be conducted as part of the remedial investigation, the Agencies will determine whether the Pedro Creek ODA is sufficiently protective of the plant uptake and soil ingestion pathways. If necessary, additional measures to address these pathways will be evaluated in the FS.

The Pedro Creek ODA early action will be evaluated in the RI/FS to determine if additional measures are needed to fully address all exposure pathways and implemented as part of future remedial actions.

ICL Comment 2: *Alternatives #5 and #6 result in substantially greater reductions in water infiltration than the agencies' preferred alternative (#4). This translates to superior performance in terms of reducing mobilization of the contaminants of potential concern (COPC) and COPC delivery to groundwater and surface water. The overriding rationale for the selenium related cleanups in the phosphate mining area is to reduce the amount of selenium reaching groundwater and surface water. DEQ and EPA need to do all that can be done to ensure that each individual project reduces its contribution to the selenium problem to the maximum extent possible. Failure to do so at each individual project runs the risk of failing to achieve regional cleanup goals as a whole.*

Response 2: CERCLA requires that early actions be protective of human health and the environment. The Agencies agree that one of the overriding objectives for any cleanup of the

phosphate mines is the reduction of COPC loads (particularly selenium loads) such that groundwater and surface water goals can be met down-gradient from the mine sites. One of the primary objectives of the early actions at the Pedro Creek ODA is to reduce the infiltration through the ODA, which in turn, will reduce the concentrations of COPCs in the groundwater and surface water along Pedro Creek down-gradient from the ODA. However, meeting groundwater and surface water quality standards down-gradient from the ODA is not a removal action objective for the early action. None of the alternatives evaluated for the Pedro Creek ODA are projected to be able to meet down-gradient water quality goals in and of themselves. Achieving selenium water quality goals in the groundwater and surface water would require greater than 99 percent load reduction through source. The load-reduction effectiveness of any of the alternatives will be less than the infiltration-reduction effectiveness because it is not possible to prevent some groundwater flowing through the ODA from up-gradient sources. Thus, even the most effective alternative for reducing infiltration (Alternative 6 is estimated to reduce infiltration by 99 percent) is not likely to be able to meet down-gradient water quality goals. Therefore, additional actions (including the possibility of collection and treatment of groundwater and/or surface water) will be evaluated in the Feasibility Study (FS) to address the residual loads remaining after the early actions.

The combination of the Pedro Creek early action and any additional measures selected in the final Record of Decision for the Site will fully address compliance with the groundwater and surface water standards down-gradient from the Pedro Creek ODA. This phased approach is commonly used at CERCLA sites when it is impossible to determine the effectiveness of the primary source control actions before they are implemented. Through experience at other sites, the Agencies have determined that the phased approach can result in much more effective and cost-effective solutions. The typical steps in the phased approach include: 1) evaluate and select source control alternative(s); 2) implement the selective source control action; 3) monitor the effectiveness of the source control action(s); 4) evaluate alternatives to address residual loads; and 5) implement actions to address the residual loads as part of the final remedial action.

ICL Comment 3: *Quite frankly, neither DEQ nor EPA have articulated a coherent grand strategy to restore the contaminated waters in this area. Nor have the agencies articulated how piecemeal reductions at the various selenium sources in the region will result in sufficient reduction of selenium to bring these waters as a whole back into compliance with the applicable standards. Thus, without knowing what levels of reduction DEQ/EPA will achieve at the other sites, DEQ/EPA needs to ensure that the maximum reduction possible is achieved at each site. Alternatives #5 or #6 are the only alternatives that achieve the needed reductions in infiltration.*

Response 3: The Agencies appreciate the concerns regarding a comprehensive strategy to address contaminated waters within the area. The Agencies involved at the various sites within the phosphate patch are working toward selecting cleanup actions that will collectively achieve compliance with the Clean Water Act in the connected watersheds. Developing a comprehensive strategy to bring the Blackfoot River back into compliance with all Clean Water Act requirements is beyond the individual scope of the Conda/Woodall Mine CERCLA action, although the proposed early action is expected to improve surface water quality in Pedro Creek which ultimately drains into the Blackfoot River.

Regarding the Conda/Woodall Mountain Mine site, the commenter is correct that there is not yet a comprehensive CERCLA remedy that addresses the Site's groundwater and surface water. The proposed removal action is an early action source control measure that focuses on the Pedro Creek ODA because it is unstable and releases high concentrations of contaminants to surface water, sediments, and shallow groundwater that have migrated onto down-gradient properties. The proposed source control action in combination with future CERCLA response actions in the final Record of Decision will fully address all exposure pathways and compliance with all applicable or relevant and appropriate standards. The remedial investigation/feasibility study is still being prepared to evaluate the nature and extent of contamination, evaluate site risks, and develop remedial action alternatives that fully address all exposure pathways. See ICL Comment Response # 2 regarding the concern that the removal action require the maximum possible reduction in infiltration.

ICL Comment 4: *Alternative #4 is not a reasonable long-term solution because the thinness of the soil cap means that the area is not suitable for colonization by selenium accumulating vegetation. Presuming that only vegetation that does not accumulate selenium will grow on this site is not realistic. Alternatives #5 and #6 have capping sufficient to protect terrestrial animal health from harmful impacts of eating selenium contaminated vegetation into the future. As a result, only these two options are viable.*

Response 4: Alternative 4 does not presume that selenium non-accumulator species will colonize the cover soils following construction. The cover would be designed and planted with a mix of grasses that have been shown to have very low selenium accumulation rates. To maintain the desired mix of vegetation, the maintenance procedures may include regular applications of broad-leaf herbicides to keep the selenium accumulators from colonizing the cover soils (the selenium accumulator species are all broad-leaf species). It is possible that the grasses planted on the Early Action cover will not accumulate sufficient concentrations of selenium to pose a risk to wildlife and livestock. The risk assessments have not yet been completed at the Conda site, therefore, the concentrations in vegetation that would pose a risk to wildlife or livestock are not yet known. Once the risk concentration is determined, the Agencies will be able to set action levels for vegetation. In addition, site-specific plant uptake studies will be completed pursuant to the RI/FS and will help define the appropriate cover thickness and grass varieties for ODA covers. As part of the monitoring of the effectiveness of the early actions, selenium concentrations will be measured in the cover soils as well as the vegetation planted on top of the Pedro Creek ODA cover and these values will be compared to the site-specific action levels established by the risk assessment. Based upon this comparison and the results of plant uptake studies, the Agencies will determine whether the Pedro Creek ODA is sufficiently protective of the plant uptake and soil ingestion pathways. If necessary, additional measures to address these pathways will be evaluated in the FS.

ICL Comment 5: *Current mining and reclamation practices utilized in the phosphate area require waste segregation and encapsulation, compaction, lining, drainage under waste piles and careful grading and capping of the surface. Additionally, creek and valley fills are not allowed. Nearly all of these current practices were violated during the placement of waste at the Pedro Creek ODA. Obviously the cleanup plan for Pedro Creek is in reaction to the current conditions at site. The plan's intent is not to transform this old site into a 'state of the art'*

modern overburden pile – doing so would require moving all of the waste out of the creek bed and (somehow) sorting it and entombing the selenium-bearing waste within the non-selenium bearing wastes. Clearly this is not being proposed. So, given that the site's underlying failures (location and non-sorted, non-encapsulated waste) are not actually going to be addressed, it strikes us as imperative the agencies at least require that the capping operation be done to current standards. In reality, neither DEQ nor EPA would allow a new mine to be permitted with a valley fill pile of non-sorted, non-encapsulated selenium-bearing waste. However, if for some reason you did (hypothetically), you would require a very significant capping operation. This is the situation that you find yourselves in – and the only rational choice is to select the alternative with the most protective cap possible because the cap is the only environmental control mechanism at your disposal to remedy this site. Thus, it is incumbent upon the agencies to select an alternative that provides the maximum level of control at this site.

Response 5: The Agencies agree that, if the Conda/Woodall Mountain mine were active, the placement of the wastes and the containment/reclamation of those wastes would be significantly different than under the current conditions. However, the Agencies have to deal with the conditions as they exist at this inactive mine site. For the Pedro Creek ODA, it would require approximately 142,000 cubic yards (CY) of cover soils to construct the cover for Alternative 4. If Alternative 5 were to be implemented, it would require approximately 480,000 CY of cover soils. These are significant quantities of materials to be generated. At the active mine sites, materials suitable for a cover are being generated on a continual basis, therefore obtaining materials for the covers is a matter of segregating and appropriate materials handling. However, at an inactive mine site such as Conda, the cover soils would have to be borrowed (essentially mined) from other areas at the site (or from off-site borrow sources) and hauled to the Pedro Creek ODA. Therefore, Alternative 4 is the preferred alternative because it is essentially equivalent to Alternatives 5 and 6 in terms of protectiveness, while resulting in significantly lower impacts to the environment during implementation. Neither the extra depth of cover of Alternative 5 nor the geomembrane liner of Alternative 6 will offer greater overall protectiveness than Alternative 4. None of these alternatives evaluated for the Pedro Creek ODA are projected to be able to meet down-gradient water quality goals in and of themselves. As previously discussed in response to several comments, the cover in Alternative 4 meets the removal action objectives for this source control early action. The FS will evaluate more robust covers if necessary to meet remedial action objectives and cleanup levels.

ICL Comment 6: *The support materials for this cleanup plan fail to provide sufficient information about the projected outcomes associated with the various alternatives. There is little to no information about anticipated reductions in the migration of contaminants through the pile and contamination of groundwater and/or surface water. The report states that the actions will have projected impacts on water infiltration rates – but does not speculate on how this will translate into reduction in contaminant flow. As a result, it is not possible to quantifiably differentiate between Alternative #5 or #6.*

Response 6: While it is possible to quantitatively model the infiltration reduction through the ODA, it is not possible to quantitatively determine or model the reduction in COPC loads emanating from the ODA following implementation of any of the alternatives. There are many uncertainties associated with predicting load reductions. These uncertainties include:

- Uncertainties associated with the actual infiltration reduction predictions. The HELP model used for estimating the infiltration reductions uses a number of inputs and assumptions that are estimates or are standard (default) inputs. In addition, the model, of necessity, must use an averaging procedure that does not take into account annual and seasonal variability in meteorology.

- The HELP model provides predictions of the reductions of incident precipitation only. The reduction of infiltration through the ODA as a result of run-on controls is much less certain and depends on the effectiveness of the run-on control ditches at intercepting overland flows under highly variable conditions.

- Even if the effectiveness of the cover and run-on controls could be accurately estimated, there is uncertainty in the quantity of groundwater actually moving through the ODA. None of the alternatives address localized groundwater that flows through the ODA from up-gradient sources.

- There are significant uncertainties regarding the potential effects of preferential flow paths through the ODA above the water table. The presence of the preferential flow paths limits the percentage of ODA material in contact with infiltrating precipitation and thus subject to leaching of contaminants. The existence of the preferential flowpaths, and the volume of waste rock subject to leaching along the flowpaths depend in part on grain size and the extent that the ODA materials are locally compacted. It is very difficult to predict these properties throughout the ODA materials.

- The COPC load reductions for any of the alternatives cannot be predicted based on infiltration and run-on reductions. The COPC load reductions also depend on complex geochemical interactions within the ODA that can significantly alter the quantities of the COPCs that emanate from the ODA. In addition, as infiltration is reduced, the concentrations of COPCs within the ODA generally increase due to less available water to dilute the COPCs. Therefore, the load reductions following implementation of any of the cover alternatives will likely be a lesser percentage than the infiltration reduction predictions.

Because of these uncertainties, the flows, COPC concentrations, and loads down-gradient from the ODA following the early action cannot be quantitatively estimated. However, as noted in the response to ICL Comment 2 above, it is highly unlikely that the groundwater or surface water standards down-gradient from the ODA could be met with any of the cover alternatives in and of themselves. Therefore, the Agencies will be monitoring the groundwater and surface water data following implementation of the early actions to better define what additional measures should be evaluated in the FS to meet the down-gradient water quality standards.

ICL Comment 7: *The long-term positive impacts of Alternative #6 are likely to decrease over time as the membrane material eventually fails. The much thicker soil cap in Alternative #5 is likely to stand up better through time; perhaps making this a better selection.*

Response 7: The currently available geomembranes manufactured from materials such as high density polyethylene (HDPE) are essentially inert and have a long but unspecified lifespan that depends on site-specific conditions. Most failures of geomembranes at other sites have resulted from improper design and/or construction, or exposure to ultraviolet rays from the sun. The geomembrane for Alternative 6 would be covered with soil, therefore ultraviolet degradation is not an issue. As long as the geomembrane is properly designed and constructed, the risk of long-term failure is minimized.

Comments from Planetary Solutionaries (PS)

PS Comment 1: *Although difficult, it is conceivable that under some interpretation of "bureaucrateze" that the definition of "cleanup" as in the Pedro Creek ODA "Cleanup Plan" could be construed as a "cleanup action''; however, it would appear more accurate to describe it as a "stabilizing action", which appears to have some semblance of containment, and on the far-flung margins the potential of a uncertain, yet-to-be-proven remediation component. However, to identify it as an "early action" is without question, perplexing, disconcerting, and alarming. On the face of it, it is somewhat disingenuous for the government to refer to the action as a "cleanup", because by its own admission, the "plan" is more about a "cover up"; as described in Alternatives 2, 3, 4, 5, and 6.*

It is also important to reiterate on the following fact that the CERCLA process was initiated back in 1997. Heretofore P&A submitted comments in response to the government's solicitations for public comments. The record attests to the fact that in 1977, the U.S. Geological Survey identified high levels of selenium contamination, in the Phosphoria Formation in Southeastern Idaho, in its programmatic Environmental Impact Statement. However, the toxic results of this widespread contamination surfaced in 1996 at Dry Valley Mine site, and in 1997 at the Conda Mine site, resulting in the death of hundreds of animals from selenium poisoning. Albeit, it has been more than 13 years since the CERCLA proceeding was initiated, and yet the government has not only failed to provide a viable solution to the existing phosphate mining-selenium disaster, it has actually permitted thousands of acres of new phosphate mining activities, at mine sites where remediation and cleanup has yet to be facilitated. It took government/industry 13 years to conjure up the co-called "early action-cleanup plan", which essentially is a well-known method that involves slope stabilization, containment, and monitoring, which, historically, has had its own fair share of problems.

Response 1: The Agencies determined that an early cleanup action is warranted at this ODA because the ODA is unstable, it has significantly contaminated surface water and shallow groundwater, and because releases from the ODA are impacting adjacent private property. A portion of the proposed action is a "stabilizing action." The goal of stabilizing the ODA against the risk of slope failure or further erosion is one of the primary objectives this early action prior to completion of the site-wide RI/FS. The other main objective of the proposed action is to reduce infiltration through the ODA to help reduce the down-gradient concentrations of COPCs in the groundwater and surface water. The commenter is correct that the proposed action involves containment to reduce infiltration through the ODA waste rock and therefore minimize releases of contaminants. Containment is a cleanup technology commonly used at mining sites that have large surface areas. The term "early actions" is a common term used at CERCLA sites

for actions that are conducted early in the process to address imminent threats to human health and/or the environment on portions of the Site prior to completion of the RI/FS.
The Agencies appreciate the commenter's concern regarding the time elapsed since the first livestock mortality event. Now that the Agencies have RI/FS agreements in place with several mining companies, including at the Conda/Woodall site, we are looking forward to greater progress at the sites than has been achieved to date.

PS Comment 2: *EPA, DEQ, and Simplot, assert that the "preferred alternative – 4" will reduce the levels of selenium and other toxic contaminants. However, neither provide tried and proven "scientific data" to quantify the reduction(s) that are purportedly to be realized, nor the documentation that supports the fact that such an alternative is a viable long-term remedy to ensure "compliance" with the water quality objectives/standards pursuant to the provisions of the Clean Water Act (CWA).*

Response 2: The early action is a source control action to reduce erosion and the risk of slope failure and to reduce (not eliminate) the quantity of infiltration that percolates through the ODA. Therefore, the early action is not expected to result in meeting groundwater and surface water quality standards down-gradient of the ODA. Post removal action performance monitoring will provide information that will be used to determine if additional cleanup actions are required to address residual contaminant loading in surface water and shallow groundwater down-gradient from the ODA. If needed, these additional actions will be evaluated in the FS for the Conda/Woodall Mountain Mine.

Further, it is true that the EE/CA did not provide quantitative estimates of the reductions in groundwater and surface water flows, COPC concentrations, and loads down-gradient from the Pedro Creek ODA. There are no available scientific methodologies for making such predictions and there are too many uncertainties associated with quantitative estimates of this sort. The EE/CA did include estimates of infiltration reduction because there are several predictive tools available for making quantitative estimates of infiltration reduction. The HELP model used is one of the commonly available and accepted models for making these estimates. However, there is uncertainty regarding the output of the HELP model because a number of assumptions and inputs to the model must use estimates based on data drawn from literature and professional judgment. The HELP model can be used to determine the relative potential differences in effectiveness among the alternatives. The model can reasonably assume that relative reductions in infiltration will result in similar relative reductions in down-gradient loads. The only way to definitively determine the actual reductions in down-gradient COPC concentrations and loads is to construct the early action and monitor the effectiveness. Even with that monitoring, there will be variability in effectiveness depending on season, year, and normal meteorological variability. The uncertainties associated with effectiveness predictions are one of the reasons that the Agencies are proposing this early action. Following implementation of the early action and monitoring for a few seasons, additional actions necessary to achieve water quality standards (for example, collection and treatment down-gradient from the toe of the ODA) can be much more appropriately determined.

PS Comment 3: *At this time, it is unclear as to whether the model and/or the assumptions provided by Simplot's consultant have either been peer reviewed or substantiated with any real*

degree of scientific certainty. However, what is evident, prefaced on its own statements, Alternative 4, would "reduce" the releases of COPCs to groundwater and surface water, but it does not provide assurances that compliance with the provisions of the CWA will be obtainable; either from the site specific or regional wide perspective.

Response 3: The HELP model used to estimate infiltration reduction was originally developed in the 1990s at the U.S. Army Corps of Engineers Waterways Experiment Station to support the RCRA and Superfund Programs, and has been updated several times. It has been extensively peer reviewed and is recommended by EPA for evaluating closure designs of hazardous waste management facilities. The primary purpose of the model is to assist in the evaluation and comparison of alternatives. The HELP model input assumptions used for the infiltration reduction predictions at the Pedro Creek ODA were reviewed by the Agencies and determined to be reasonable and appropriate, given the uncertainties associated with the inputs.

PS Comment 4: *There are still valid uncertainties relative to the basis and "scientific" quantification of the 85 percent reduction of selenium purportedly to be realized by the implementation of Alternative 4, enumerated by J.R. Simplot's consultants. Even in the absence of such data, and even with the suggested assurances that additional water quality monitoring or related treatment action "may be" considered, at some later date, post RS/RI studies; notwithstanding, even IF an 85 percent reduction is to be realized from the "stabilization" and "containment" effort, as proposed on the 60 acre Pedro Creek ODA, neither this effort nor any other "action" taken or proposed by the government or the industry provides the basis in fact that water quality standards for surface and or ground water will be complied with now or anytime in the foreseeable future. In fact, the rhetoric "purportedly" being espoused by the government and industry is that in order to meet the water quality standards there would have to be as much as a 99 percent reduction in selenium discharges to reach compliance; which, some entities claim is not only cost prohibitive, but with current technology may not be obtainable.*

It would be disingenuous to refer to the "plan" as even a "stop-gap" measure, more aptly stated, it is a "top-gap" measure, which negates the "big picture" government-industry-induced decade in the making selenium "time-bomb" disaster, by attempting to showcase about 60 acres of "overburden disposal areas" (ODA) out of tens-of-thousands of contaminated acres, as representing a meaningful step forward. Conversely, it is apropos to remind EPA and DEQ et al that it has been 13 years since the CERCLA process was initiated, as a result of the death of livestock, grazing on public and private land, at South Maybe Mine and the Conda Mine sites, in southeastern Idaho, which is within the boundaries of the U.S. Western Phosphate Field.

Response 4: The Agencies appreciate the commenter's concern regarding the time elapsed since the first livestock mortality event. Now that the Agencies have RI/FS agreements in place with several mining companies, including at the Conda/Woodall Site, we are looking forward to greater progress at the sites than has been achieved to date. As stated in response to comment PS Comment 2, the Pedro Creek early action is a source control action and is not expected to result in meeting groundwater and/or surface water standards down-gradient of the ODA. The purpose of the early action is to reduce the risk of slope failure and to reduce the quantity of meteoric water that infiltrates through the ODA. Post removal action performance monitoring will provide information that will be used to determine if additional cleanup actions are required to address

residual contaminant loading in surface water and shallow groundwater from the ODA as well as selenium uptake into vegetation. If needed, these additional actions will be evaluated in the FS for the Conda/Woodall Mountain Mine.

There are significant uncertainties associated with predicting the overall effectiveness of the early action at reducing flows, COPC concentrations and loads in the groundwater and surface water down-gradient from the ODA (see the response to PS Comment 2 and the response to ICL Comment 6 above). Those uncertainties are one of the reasons that the Agencies have proposed the early action as the first source control action in what is, essentially, a phased approach to the cleanup of the Pedro Creek ODA. This phased approach is commonly used at CERCLA sites when it is impossible to determine the effectiveness of the primary source control actions. The Agencies have determined through considerable experience at other sites that the phased approach can result in much more effective and cost-effective solutions. The typical steps in the phased approach include: 1) evaluate and select source control alternative(s); 2) implement the selective source control action; 3) monitor the effectiveness of the source control action(s); 4) evaluate alternatives to address residual loads; and 5) implement actions to address the residual loads. The Agencies agree that it may be unlikely that any of the early action alternatives could achieve load reductions sufficient to meet the down-gradient water quality standards. Therefore, the RI/FS will address the residual loads following implementation of the early action. This process can result in significantly greater effectiveness of the additional actions.

PS Comment 5: *As stated, the selenium-laden water quality contamination surfaced in 1996-1997, when livestock were killed because of selenium poisoning; although a myriad of studies have been conducted, and millions of dollars have been expended, very little effective remediation, if any at all, has been realized or undertaken. In the interim, government continues to sanction phosphate mining expansion, on both public and private property, without providing assurances that the "responsible parties" will mitigate and/or alleviate the water quality contamination to be compliant with the provisions of the Clean Water Act, which, some officials claim, will take hundreds of years to clean up. The Government/industry efforts, to date, have actually undermined the confidence of those participants who are cognizant of the subject matter.*

In any and all future "actions," notices or invitations for public comment and/or involvement, please notify Planetary Solutionaries as early as possible, and it would be a good idea to give the public ample time to review and comment on the subject. Lastly, accessing information at the websites provided in EPA and DEQ "Fact Sheet" is extremely difficult and unnecessarily challenging. It might be helpful if the information was more readily available and user friendly.

Response 5: The Agencies appreciate the commenter's concern regarding the time elapsed since the first livestock mortality event. However, permitting new mines and/or developing a comprehensive strategy to bring the Blackfoot River back into compliance with all Clean Water Act requirements is beyond the scope of the Conda/Woodall Mine CERCLA action, although the proposed early action should improve surface water quality in Pedro Creek which ultimately drains into the Blackfoot River. Now that the Agencies have RI/FS agreements in place with several mining companies, including at the Conda/Woodall Site, we are looking forward to greater progress at the sites than has been achieved to date.

The Agencies regret that the commenter had difficulty downloading information from the DEQ website. Planetary Solutionaries has been added to the project mailing list so that any future fact sheets/notices will be sent directly when issued. Upon request, EPA and IDEQ can provide Planetary Solutionaries deliverables (for example, Remedial Investigation Report, Risk Assessment report etc.) as they are finalized throughout the RI/FS process.

Comments from Roger Turner (RT)

RT Comment 1: *The ARARs, Eco. Risk evaluation, & Table 2.2 all should be revised for Greater Sage-Grouse protection as existing documents fail to acknowledge USFWS determination that this species warrants listing as an endangered species. (Sage Grouse habitat is present at this site.) Simplot should be required to take extra steps including mitigation to address Sage-Grouse habitat damage from this mine waste.*

Response 1: On March 5, 2010, the U.S. Fish and Wildlife Service (USFWS) issued a finding that sage grouse warranted listing under the Endangered Species Act (ESA), but the listing was precluded by other higher priorities. As such, sage grouse became a candidate species. Candidate species have no legal protections under the ESA. However, the USFWS asks that candidate species be considered during project development and implementation. Because they are a candidate species, the Agencies are not required to consult with the USFWS pursuant to the ESA regulations. However, the Agencies will consider impacts to sage grouse during design and implementation of the early action.

RT Comment 2: *Existing plans fail to protect re-distribution of COPC's from heavy equipment during construction. In all but the no-action alternative, thousands of tons of COPC- containing soils will be transferred and beaten down with heavy equipment, reducing soil particle size to result in significant spreading of COPC's by fugitive dust during construction. The Following Section under-reports this risk: "3.1- Site Model -Transport of waste shale dust is expected to be limited, considering the coarse grain size distribution of the ODA." This section is erroneous as it is common knowledge that such construction projects reduce particle size and increase fugitive dust. Air Monitoring and soil assessments should be carried out during the construction phase, not just afterwards, followed by a re-evaluation of COPC levels in water, soils, and flora, during and after construction. Water sprays should be required on ODA-overburden area during construction, with lined catch basins to capture runoff from sprays.*

Response 2: The Agencies agree that fugitive dust could be problematic during construction if not properly controlled. Best management practices (BMPs) will be required by the Agencies as part of the construction specifications for this project. The BMPs will include requirements for dust control using water sprays (or other dust palliatives) and for properly designed and constructed sediment basins to capture runoff from the sprays and other runoff during the construction process. The Agencies will also provide field oversight during the construction to assure that the BMPs are properly implemented and maintained.

RT Comment 3: *Alternative 6 should be selected because in every phosphate mine Simplot has carried out, they have caused releases that violate State & Federal standards, consequently, a higher level of protection at this stage will reduce the pollution levels (and costs to the State of*

Idaho) later. The flatter finished slopes and a geosynthetic liner, provided by Alt. 6 would provide the necessary improvement to the environment, slope stability and protection against erosion. Other alternatives lack this extra protection that is warranted in this ecosystem.

Response 3: The Agencies appreciate the comments and concerns expressed by Mr. Turner and have considered those comments and concerns in the selection of the removal action alternative for the early action for source control at the Pedro Creek ODA. However, Alternatives 3-6 all address the erosion and slope stability issues, and (in combination with potential future actions to address the residual contamination) can be expected to adequately address the down-gradient groundwater and surface water quality exceedances. Alternative 6 is not preferred by the Agencies because other alternatives are more easily implemented and can achieve equal protection of human health and the environment at lower costs.

Comments by Milt Ward (MW)

MW Comment 1: *First of all I'm thankful that, after more than 15 plus years of studies and knowing of the problems in this area, finally the government agencies have come up with a plan. It has been way too long getting to this point. It is plain to see that the people involved in the agencies weren't depending on their living and lifestyle to find a solution to the problem.*

Response 1: The Agencies appreciate the comments and concerns expressed by Mr. Ward, and will require Simplot to implement, maintain, and monitor the Pedro Creek early action in a manner that is protective of human health and the environment. Post removal action performance monitoring will provide information to determine if additional cleanup actions are required to address residual contamination at and/or down gradient from the ODA.

MW Comment 2: *I wish that one of the plans had been to move the selenium enriched waste back into the huge open pits that it was moved from to get to the phosphate ore.*

Response 2: The complete removal and relocation of the materials in the Pedro Creek ODA was considered in the EE/CA (see Section 6.1.1 of the EE/CA). Complete removal and relocation was screened out and not carried forward into the development of alternatives due to the following factors: 1) the significant short term adverse environmental impacts associated with implementation; 2) the extremely high costs of excavation, transport to a repository, and development of a suitable repository (the open pits would not be acceptable repositories without significant modifications to assure protection of the environment); and 3) other technologies would be equally as effective as removal and relocation at significantly lower costs.

MW Comment 3: *None of the alternatives clearly address the multiuse of grazing of wildlife or livestock. Fencing was mentioned but the wildlife do not have much respect for fences. Fencing in high mountain terrain is difficult to maintain and would require much upkeep.*

Response 3: For this early action the Agencies consider fencing to be only a temporary measure at the Pedro Creek ODA and at other areas of the site until the contaminated areas of the site can be returned to full use for wildlife and livestock. The fencing at the Pedro Creek ODA would be used to fence off surface waters or “hot spots” currently elevated in selenium to

preclude their use by livestock. In addition, temporary fencing may be used to preclude grazing while grasses are being established on the cover, and while those grasses are being evaluated to determine if selenium uptake by the grass mix is problematic. If monitoring indicates that the post-early action vegetation at the ODA poses an unacceptable risk to wildlife or livestock, additional CERCLA actions would be evaluated during the RI/FS.

MW Comment 4: *I feel that Alt. Five or Six should be used due the extra depth of the soil cover and the gravel and liner concept.*

Response 4: The Agencies have determined that neither the extra depth of cover of Alternative 5 nor the geomembrane liner of Alternative 6 will offer greater overall protectiveness than Alternative 4. None of the alternatives evaluated for the Pedro Creek ODA are projected to be able to meet down-gradient water quality goals in and of themselves. It would require greater than 99 percent load reduction to achieve the selenium water quality goals in the groundwater and surface water. The load-reduction effectiveness of any of the alternatives will be less than the infiltration-reduction effectiveness since there will still be some groundwater flowing through the ODA from up-gradient sources. Thus, even the most effective alternative (Alternative 6 is estimated to reduce infiltration by 99 percent) is not likely to be able to meet down-gradient water quality goals. Therefore, additional measures (for example, collection and treatment of groundwater and/or surface water) will likely need to be evaluated in the FS to address the residual COPC loads remaining after the early actions. The combination of the early action with future additional measures is expected to address exceedances of groundwater and surface water standards down-gradient from the Pedro Creek ODA. In addition, follow-up actions may be necessary to address plant uptake. Thus, Alternatives 4, 5, and 6 are essentially equivalent in terms of meeting the objectives of the early action.

Comment by Alicia Dredge

Comment: *I am pleased that after the elapse of so much time the IDEQ is seeing fit to take some action on the Pedro Creek situation. Although I believe that other alternatives would do a better job of remedying the situation than the preferred Alternative #4, I feel that some action is better than no action at all.*

Response: The Agencies appreciate the comments and concerns expressed by Ms. Dredge.

Comment by Elena M Robbins

Comment: *It is my feeling since there is no guarantee that any of the solutions will prevent further leakage or selenium contamination that solution 6 would be the one to go with. It offers the highest degree of protection. There has already been contamination on private ground when part of the dump site slipped off on private ground. I do not know what type of grass would be planted but I do not believe they can eradicate native plants such as gum weed which are high selenium absorbers. Also there is already contamination in the ground water which needs to be addressed.*

Response: Alternatives 3-6 address the erosion and slope stability issues, and (in combination with potential future actions to address the residual contamination) can address the down-gradient groundwater and surface water quality exceedances. The possibility exists that plants grown on the cover might grow through the clean cover soils to the ODA materials and uptake selenium. Therefore, a monitoring program will be implemented, in combination with the spraying of broad leaf herbicides, to determine if the grasses uptake selenium to problematic levels. If the grasses do uptake selenium to a degree that poses a risk to human health and the environment, then additional actions would be evaluated in the RI/FS to address that problem. Although the early action is expected to substantially improve down-gradient groundwater and surface water quality, the potential need for additional actions to address residual contamination from the ODA cannot be fully evaluated until the early action is implemented. In this phased approach, the need for any additional actions to address residual contamination in surface water and shallow groundwater will be evaluated on the basis of performance monitoring after the early action is complete.