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June 28, 2023

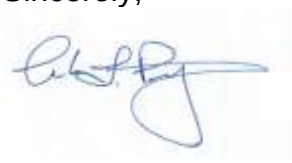
SUBMITTED VIA EMAIL TO: sherri.stumbo@usda.gov; sarah.wheeler2@usda.gov

Attn: Smoky Canyon Mine Comments
Sherri Stumbo
USDA Forest Service
4350 Cliffs Drive
Pocatello, ID 83204

Dear Ms. Stumbo and Ms. Wheeler:

Attached are the J.R. Simplot Company comments regarding the Proposed Plan to address releases of hazardous substances from the Smoky Canyon Mine. We appreciate much the work done by the Forest Service on this very important matter.

Sincerely,



Alan L. Prouty
Vice President, Environmental & Regulatory Affairs

C:
Lori Lusty, J.R. Simplot Company
Jeffrey Hamilton, J.R. Simplot Company

J.R. Simplot Comments on U.S. Forest Service's Proposed Plan for Cleanup of the Smoky Canyon Mine

J.R. Simplot Company (Simplot) appreciates the U.S. Forest Service's consideration of the following comments on the Proposed Plan for remedial actions at the Smoky Canyon Mine (Mine or Site) (Forest Service 2023). The Forest Service has completed a thorough review of the Feasibility Study (FS) report (Formation 2023), which was completed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the implementing regulations of the National Contingency Plan (NCP). The Proposed Plan includes an in-depth comparative analysis of the individual water treatment alternatives for surface water, water treatment alternatives for alluvial groundwater, source control cover alternatives for groundwater and surface water, and source control cover alternatives for soil. One element from each of the media-specific alternatives was selected and combined to form the comprehensive Site-wide remedy that was selected as the Preferred Alternative. The Proposed Plan provides a summary evaluation of the Preferred Alternative with respect to the statutory requirements. As stated in the Proposed Plan, the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing criteria (EPA 1988).

The Preferred Alternative includes the following elements:

- Water Treatment Alternatives (Surface Water) Alternative 2b – Treatment of water emanating at the Springs Complex in the Hoopes Water Treatment Plant (WTP; 4,000 gallons per minute [gpm]), Institutional Controls (ICs), Chert/Limestone Covers on Seeps and Ponds, Operations and Maintenance (O&M), Monitored Natural Attenuation (MNA), Long-Term Monitoring (LTM)
- Water Treatment Alternatives (Alluvial Groundwater) Alternative 2c – Permeable Reactive Barrier (PRB) Downgradient of the Pole Canyon Overburden Disposal Area (ODA) to treat water flowing from the toe seep before it infiltrates into the ground, ICs, O&M, MNA, LTM
- Source Control Cover Alternatives (Wells Formation Groundwater and Surface Water) Alternative 3c – Enhanced Dinwoody Covers Over Target Areas on the ODAs (D-1, D-ODA, and E-1n), Revegetation, ICs, O&M, MNA, LTM
- Continued operation of two Non-Time-Critical Removal Actions (NTCRAs) at the Pole Canyon overburden disposal area (ODA). The NTCRAs consist of a bypass pipeline that conveys diverted Pole Canyon Creek flow around the ODA, an infiltration basin that directs upstream flow into the Wells Formation aquifer, a run-on control channel that directs run-on from adjacent slopes into Pole Canyon Creek downstream of the ODA, and a Dinwoody/Chert cover system with stormwater run-on/runoff controls that reduces infiltration into the ODA.

Details of the specific treatment technologies for the Hoopes WTP and the design parameters for the PRB and the cover system will be developed during the remedial design.

Simplot concurs with the Forest Service's Preferred Alternative and provides these comments to further describe why selection of the Preferred Alternative is appropriate. Specifically, our comments describe how the elements of the Preferred Alternative satisfy the statutory requirements of CERCLA Section 121(b) listed below and the Remedial Action Objectives (RAOs):

- Be protective of human health and the environment;

- Comply with Applicable or Relevant and Appropriate Requirements (ARARs);
- Be cost effective;
- Use permanent solutions and alternative treatment technologies or source recovery technologies to the maximum extent practicable; and
- Satisfy the preference for treatment that reduces the toxicity, mobility, or volume as a principal element (or explain why the preference for treatment will not be met).

1. The Preferred Remedy Will Be Protective of Human Health and the Environment

Evaluation of the overall protectiveness of the Preferred Alternative focuses on whether the alternative achieves adequate protection of human health and the environment. Determining if the Preferred Alternative satisfies this statutory requirement involves an evaluation of how Site risks posed via each pathway are eliminated, reduced, or controlled through treatment, engineering, or ICs.

Potential human health risks due to selenium in groundwater used for drinking water. There are potential unacceptable risks to hypothetical future residents on Simplot-owned land in Sage Valley from the use of Wells Formation or alluvial groundwater for drinking water. The Preferred Alternative includes deed restrictions which will prevent the use of groundwater with selenium concentrations above the maximum contaminant level (MCL) from wells on Simplot's land in Sage Valley as a domestic water supply in the future and will be effective immediately.

Deed restrictions as part of the Preferred Alternative will protect human health.

Potential human health risks due to arsenic and cadmium in surface water used for drinking water. There are potential unacceptable risks to current (Native American) and future (Recreational Camper or Native American) human receptors from ingestion of non-regulated surface water where arsenic and cadmium concentrations exceed the Idaho drinking water standard in surface water seeps downgradient (east) of Panel D (DS-7) and the Pole Canyon ODA (LP-1), and surface water in detention ponds downgradient of a Panel D seep DS-7 (DP-7) and a Panel E seep (EP-2). Chert/limestone covers as an element of the Preferred Alternative will prevent people from drinking non-regulated surface water at seeps and ponds and will be effective immediately.

Human health will be protected under the Preferred Alternative by chert/limestone covers.

Potential ecological risks due to selenium in surface water. In the State of Idaho, the surface water quality criteria for selenium are based on fish tissue concentrations and water concentrations that are derived from fish tissue concentrations. Wells Formation groundwater that has been impacted by releases of selenium from ODAs discharges at the Springs Complex and results in selenium concentrations in surface water above the State of Idaho surface water quality standards for aquatic life at the springs (HS-3, LSS) and downstream in Sage Creek (LSV-2, LSV-3, LSV-4) and Crow Creek (CC-C1A, CC-WY-01). This results in unacceptable risks to fish in the lower Sage Creek and Crow Creek watersheds. Expansion of the existing Hoopes WTP and continued water treatment will reduce selenium concentrations in surface water downstream of Hoopes Springs. Selenium concentrations are predicted to immediately be reduced below the surface water standard in Sage Creek. Selenium concentrations will remain above the standard in Crow Creek for a short period of time but are predicted to be below the surface water standard

by 2030 as the selenium load from the springs decreases due to the NTCRAs at the Pole Canyon ODA.

Additional source control through construction of overburden covers on the target areas at Panels D and E will further reduce selenium concentrations in surface water in Sage Creek and Crow Creek over time, which will reduce risks to aquatic life. The covers reduce infiltration into the overburden and consequently reduce release of selenium to Wells Formation groundwater. The covers are predicted to begin to have an effect on selenium concentrations in surface water starting around 2035 (due to the travel time in Wells Formation groundwater from the mine panels to the Springs Complex).

Water treatment and source control elements of the Preferred Alternative will reduce or control selenium concentrations in surface water and will be protective of the environment (i.e., fish).

Potential ecological risks due to selenium in soils on Panel A. There are potential unacceptable ecological risks to bird populations on Panel A due to selenium concentrations in surface soil (overburden) that exceed the preliminary remediation goal (PRG) for birds. As described in the FS report (Formation 2023), selenium concentrations in surface soil at Panel A ranged from 0.25 to 245 milligrams per kilogram (mg/kg) with an average concentration of 15.1 mg/kg and a 95% upper confidence limit (95UCL) of the mean concentration equal to 50.8 mg/kg, which exceeds the PRG for the protection of birds (23.5 mg/kg as the 95UCL of the mean).

However, the presence of a single sample (APL-10) at a selenium concentration (245 mg/kg) more than five times higher than all the other soil selenium concentrations within Panel A significantly skews the soil exposure estimation for the panel by predicting a much higher average selenium exposure than would be predicted throughout the majority of the bird habitat within Panel A. As indicated in EPA's ProUCL guidance document: "The inclusion of outliers in the computation of the various decision statistics tends to yield inflated values of those decision statistics, which can lead to poor decisions. Often statistics that are computed for a data set which includes a few outliers tend to be inflated and represent those outliers rather than representing the main dominant population of interest" (EPA 2022). With the outlier sample removed, the 95UCL of the mean concentration for Panel A (11.4 mg/kg) was lower than the bird PRG of 23.5 mg/kg.

Terrestrial vegetation, invertebrate, and small mammal tissue samples were all collected at soil sampling location APL-10. If the soil data were truly representative of the sampling location, then it would be expected that the selenium concentrations in the other collocated media would also be outliers. While tissue concentrations in the collocated samples from APL-10 were higher than the average from Panel A, EPA's ProUCL software's outlier test did not identify selenium concentrations in any of the collocated tissue samples from APL-10 as an outlier. This suggests that while they are elevated, they are within the expected statistical range of the population of selenium data for Panel A (EPA 2022). Because the tissue samples, including those from small mammals and invertebrates which are highly mobile, are not outliers, this provides another line of evidence supporting the likelihood that the selenium soil data from APL-10 is an outlier that is not representative of the average exposure to bird populations within Panel A. However, at the request of the Agencies, the outlier sample was included in the calculations for the FS.

Thirty samples were collected at Panel A, which is approximately 1 per 10 acres and APL-10 is the farthest south sample location on Panel A near the Pole Canyon ODA. Because the sample density in this area is low, the Forest Service determined that collection of a few additional samples near APL-10 is warranted to confirm that the selenium result from APL-10 is an outlier.

Simplot doesn't agree this additional sampling is necessary based upon the lines of evidence provided. Nevertheless, collection of these additional samples during the remedial design phase will provide additional data to determine the need for a cover on a portion of Panel A specifically to reduce the potential risk to birds. If the additional data show that the 95UCL of the mean selenium concentration is above the PRG then a cover will be installed on a portion of Panel A, as needed to reduce the average concentrations. The extent of the cover would be determined in remedial design. If the average concentration is below the PRG then no action is warranted on Panel A to protect birds.

2. The Preferred Remedy Will Comply with ARARs

Determining if the Preferred Alternative satisfies this statutory requirement involves assessing compliance with chemical-specific ARARs, location-specific ARARs, and action-specific ARARs.

Chemical-specific ARARs. As described above, discharge of Wells Formation groundwater that has been affected by ODA sources at the Springs Complex has resulted in selenium concentrations in surface water above the State of Idaho surface water quality standards for aquatic life at the springs and downstream in Sage Creek and Crow Creek. The ARAR and PRG for surface water in the Sage Creek/Crow Creek watershed is the Site-Specific Standard for Selenium: Hoopes Springs and Sage Creek – 20.5 mg/kg fish egg/ovary; 13.6 mg/kg fish whole body; 16.7 micrograms per liter (µg/L) water; Crow Creek – 20.5 mg/kg fish egg/ovary; 12.5 mg/kg fish whole body; 4.2 µg/L water (IDAPA 58.01.02.287.03-05). The tissue elements take precedence over the water element when data for either tissue is available. Egg/ovary data take precedence over whole body data when both tissue data types are available. Expansion of the existing Hoopes WTP and continued water treatment will immediately reduce selenium concentrations in surface water downstream of Hoopes Springs in Sage Creek. Selenium concentrations will remain above the surface water standard in Crow Creek in the short term but are predicted to be below the standard by 2030 as the selenium load from the springs decreases due to the NTCRAs at the Pole Canyon ODA. ARARs for selenium in the Sage Creek/Crow Creek watershed will be met.

Releases from overburden in the Pole Canyon ODA currently results in selenium MCL exceedances in Wells Formation groundwater in lower Pole Canyon as measured at wells GW-16 and GW-25 and alluvial groundwater at wells GW-15, GW-26, and GW-22 under the Idaho Ground Water Quality Rule (IDAPA 58.01.11). The two NTCRAs performed at the Pole Canyon ODA (2007–2008 bypass pipeline, infiltration basin, run-on control channel, and 2015–2016 Dinwoody/Chert cover) as part of the Smoky Canyon Mine Remedial Investigation/Feasibility Study (RI/FS) have reduced selenium concentrations in groundwater and are predicted to result in further reductions over time. In addition, the PRB at the Pole Canyon ODA is predicted to reduce selenium concentrations in downgradient alluvial groundwater by approximately 85% over a period of 2 to 3 years and reduce selenium concentrations in Wells Formation groundwater such that the MCL will be met in both Wells Formation and alluvial groundwater except for a small area of alluvial groundwater in Pole Canyon immediately downgradient of the ODA.

Construction of Enhanced Dinwoody covers on target areas at Panels D and E will reduce infiltration and subsequent release of selenium. Selenium concentrations in Wells Formation groundwater will reduce and are predicted to be in the range of the MCL at GW-25 (downgradient of Panel E) around 2060 (the limit of the model). Chemical-specific ARARs for groundwater will be met.

The Preferred Alternative will comply with chemical-specific ARARs.

Action-specific ARARs. Requirements for reclamation and revegetation of overburden areas under the Idaho Surface Mining Act and Rules Governing Mined Land Reclamation (IDAPA 20.03.02.140) and control of fugitive dust under the Idaho Rules for the Control of Air Pollution in Idaho and Rules for Control of Fugitive Dust (IDAPA 58.01.01) will be triggered during construction of the Enhanced Dinwoody covers and expansion of the Hoopes WTP. These action-specific ARARs triggered by elements of the Preferred Alternative will be met by remedial design.

Expansion and continued operation of the Hoopes WTP will trigger point source discharge requirements for treated water (i.e., effluent) from the Hoopes WTP to the Hoopes Springs drainage and South Fork Sage Creek under Section 402 of the Clean Water Act (13 USC 1342) and the Idaho Rules Governing Point Source Discharges and Point Source Wastewater Requirements (IDAPA 58.01.02.400-401). These action-specific ARARs triggered by elements of the Preferred Alternative will be met by remedial design.

Substantive requirements of the Idaho Solid Waste Management Rules will be triggered for disposal of solid waste generated at the Hoopes treatment system (IDAPA 58.01.06). Testing and disposal of solid waste generated at the Hoopes WTP and the PRB will be required during O&M. These action-specific ARARs triggered by elements of the Preferred Alternative will be met by remedial design.

The Preferred Alternative will comply with action-specific ARARs.

Location-specific ARARs. Expansion of the Hoopes WTP and construction of a PRB in Pole Canyon as part of the Preferred Alternative will trigger requirements for protection of wetlands, natural streams, and waterbodies under the National Environmental Policy Act (NEPA; 40 CFR 6 Appendix A and Executive Order 11990 as amended by Executive Order 12608). These location-specific ARARs will be met by remedial design.

Construction of Enhanced Dinwoody covers for the Preferred Alternative will trigger laws and regulations for protection of public lands under the Federal Land Policy and Management Act (43 USC 1701-1785) and protection of wetlands and streams under NEPA. These location-specific ARARs will be met by remedial design.

The Preferred Alternative will comply with location-specific ARARs.

3. The Preferred Remedy Will Be Cost Effective

Evaluation of the cost effectiveness of the Preferred Alternative to determine if the alternative meets statutory requirements involves performing a cost-benefit analysis.

The total present worth cost of the Preferred Alternative is $139.9 Million and includes $106.8 Million for the construction and operation of the existing Hoopes WTP as part of the pilot study for the FS and expansion of the WTP to increase the capacity to 4,000 gpm, $2.3 Million for construction of the PRB in Pole Canyon, and $30.8 Million for construction of the Enhanced Dinwoody covers on target areas at Panels D and E. The estimated costs include O&M and LTM. This is in addition to the $11.8 Million already expended on the Pole Canyon NTCRAs.

This section provides a cost-benefit analysis for water treatment alternatives and for source control alternatives.

Water treatment alternatives – Hoopes WTP (4,000 gpm). Treatment of water emanating at the Springs Complex at the Hoopes WTP will reduce selenium concentrations in surface water in Sage Creek and Crow Creek. The predicted selenium concentrations in surface water in Sage Creek and Crow Creek over time for the No Further Action Alternative (NFA) and for both a 2,000 gpm and a 4,000 gpm treatment system are shown in Figure 1. The two lines in the figure for No Further Action are for average high flow and average low flow conditions in the creeks. The actual selenium concentration will typically vary between these lines as the water flows change during any given year.

For continued water treatment using the existing 2,000 gpm WTP, selenium concentrations are predicted to be in the range of the water quality standard downstream of Hoopes Springs (HS-3), in around 20 to 30 years. In lower Sage Creek downstream of the flows from Hoopes Springs and lower south Sage Valley (LSV-4) selenium concentrations are predicted to begin to be below the water quality standard (for high flow conditions) immediately and below the standard for all flows by around 2035. In Crow Creek at the Wyoming border (CC-WY-01) selenium concentrations are predicted to drop below the standard around 2030 for high creek flows and be below the standard for all flows around 2050.

For water treatment with an expanded 4,000 gpm WTP, selenium concentrations are predicted to immediately be reduced to below the water quality standard downstream of Hoopes Springs (HS-3) and in lower Sage Creek downstream from Hoopes Springs and lower south Sage Valley (LSV-4). In Crow Creek at the Wyoming border (CC-WY-01) selenium concentrations are predicted to drop below the standard immediately for high creek flows and be below the standard for all flow conditions around 2030.

The existing Hoopes WTP alternative, which entails continued operation of the 2,000 gpm capacity WTP at Hoopes Springs, has a present worth cost of $64.6 Million. The water treatment element of the Preferred Alternative entails expansion of the capacity of the Hoopes WTP to 4,000 gpm and has a present worth cost of $106.8 Million. Although the water treatment system for the Preferred Alternative would be an additional $42.2 Million, the RAO in downstream surface water would be achieved around 2030, about 20 years sooner than the existing 2,000 gpm treatment system.

The Hoopes WTP (4,000 gpm capacity) element of the Preferred Alternative is cost effective.

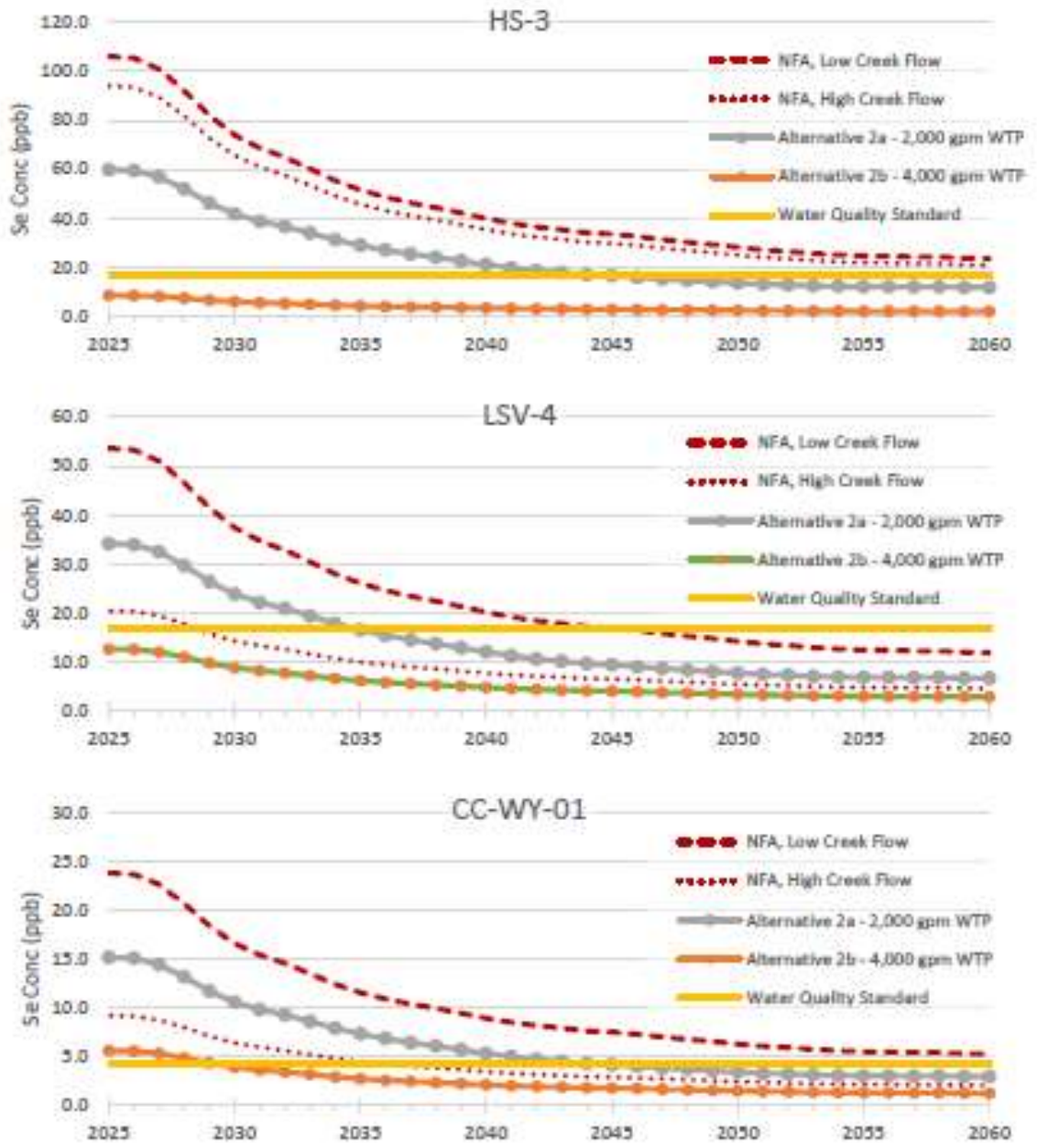


Figure 1. Predicted Selenium Concentrations in Surface Water in Sage Creek and Crow Creek for the Water Treatment Alternatives.

Water treatment alternatives – PRB at the Pole Canyon ODA. Additional water treatment through construction and implementation of a PRB downgradient of the Pole Canyon ODA to treat LP-1 seep water before it infiltrates into groundwater will reduce selenium concentrations in downgradient alluvial groundwater as shown in Figure 2. Selenium concentrations are predicted to reduce significantly at each well and be below the MCL at wells GW-15 and GW-22 relatively quickly (approximate travel times are 1 year for GW-15 and 2 years for GW-22). At well GW-26

selenium concentrations are predicted to reduce from approximately 2 milligrams per liter (mg/L) to 0.3 mg/L in the short term.

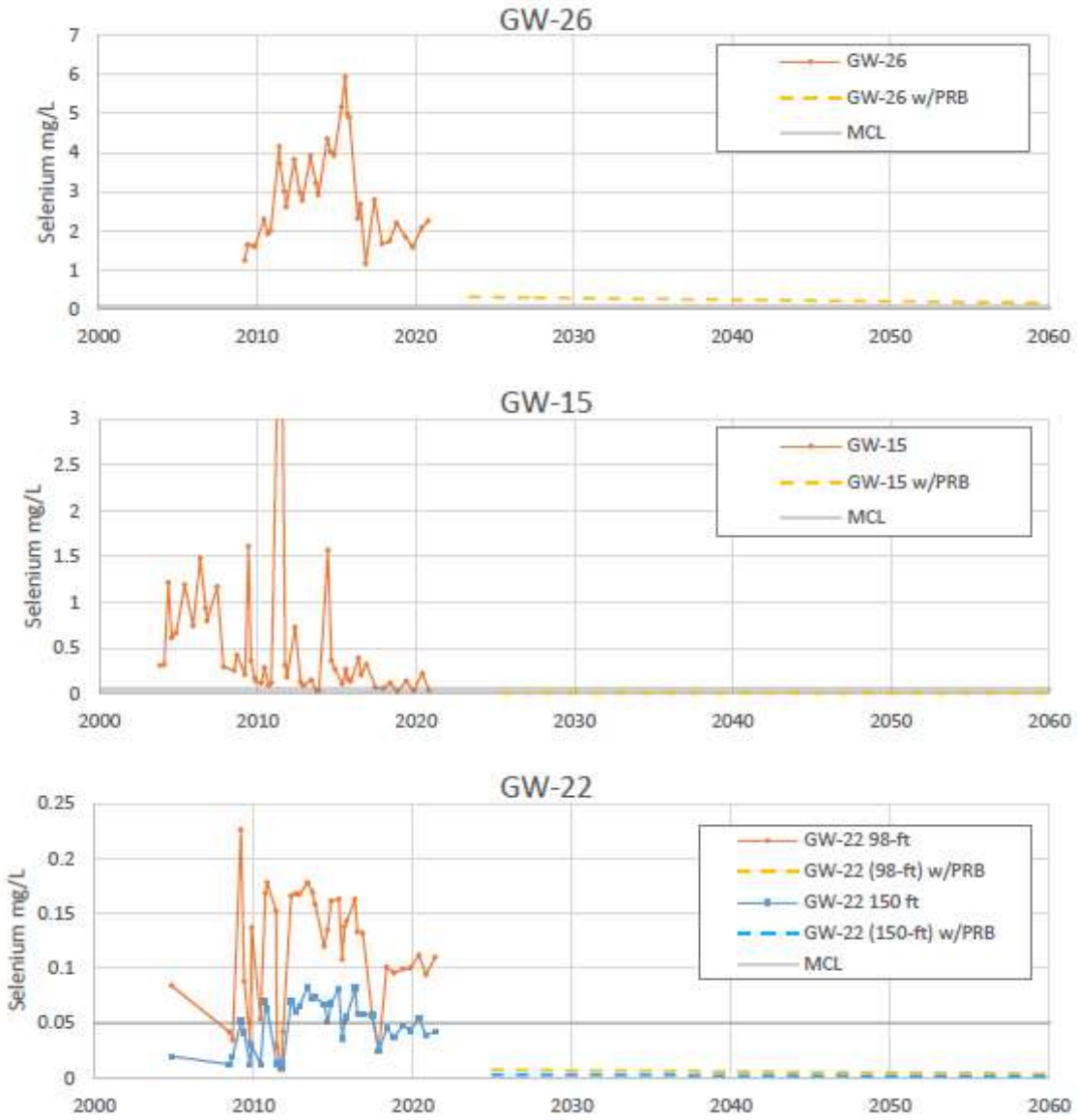


Figure 2. Predicted Selenium Concentrations in Alluvial Groundwater Downgradient of Pole Canyon ODA with a Permeable Reactive Barrier.

For Wells Formation groundwater downgradient of the Pole Canyon ODA, the PRB is predicted to result in an immediate reduction in selenium load and in selenium concentrations at GW-16 (Figure 3). Selenium concentrations in Wells Formation groundwater downgradient of the Pole Canyon ODA, Panel D and Panel E and alluvial groundwater downgradient of the Pole Canyon ODA would be reduced to below the MCL by the PRB.

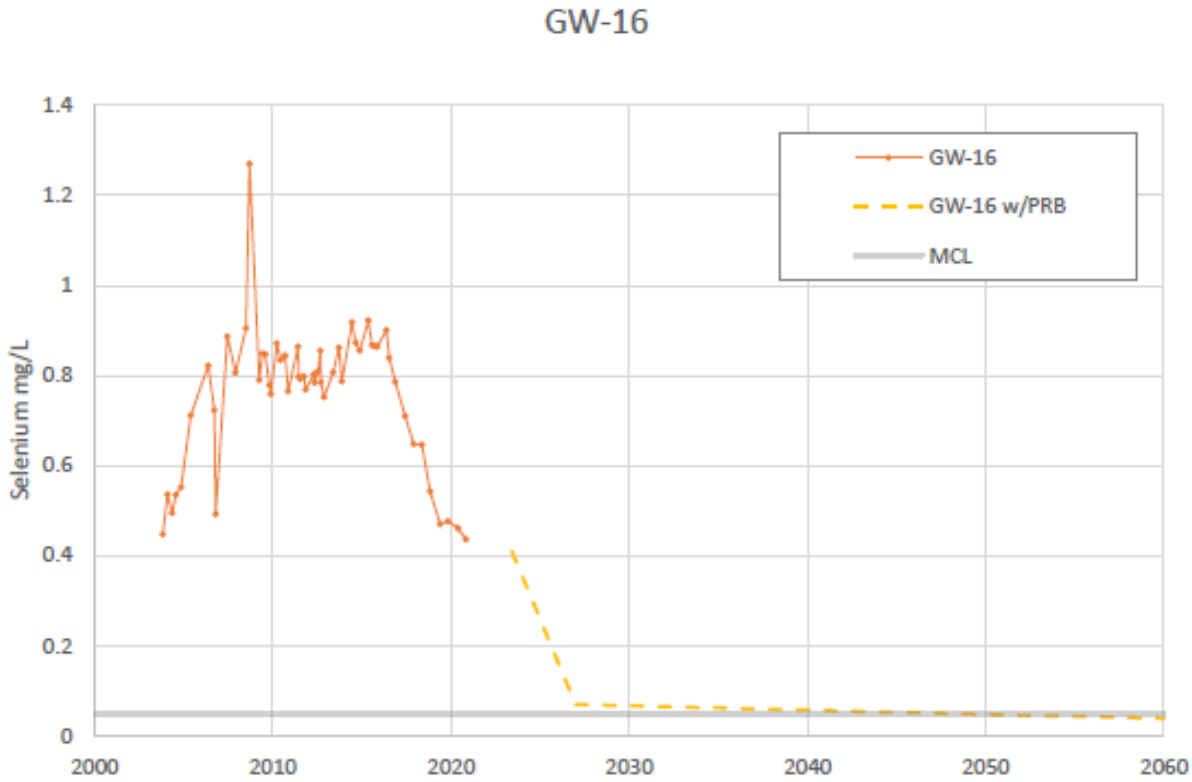


Figure 3. Predicted Selenium Concentrations in Wells Formation Groundwater Downgradient of Pole Canyon ODA with a Permeable Reactive Barrier.

The estimated cost of the PRB element of the Preferred Alternative is $2.3 Million. Although there is no cost associated with the No Action Alternative, selenium concentrations are predicted to decline below the MCL at GW-15 within 20 years and at GW-22 within approximately 40 years as shown in Figure 4. Concentrations are predicted to remain above the MCL at GW-26 for the modeling time period to 2060. Similarly, selenium is predicted to remain above the MCL in Wells Formation groundwater at GW-16 in 2060 (the limit of the model).

Based on this analysis, a PRB is a cost-effective element of the Preferred Alternative that will reduce selenium concentrations in alluvial groundwater and in downgradient Wells Formation groundwater over a shorter period of time through treatment of the Pole Canyon ODA seep.

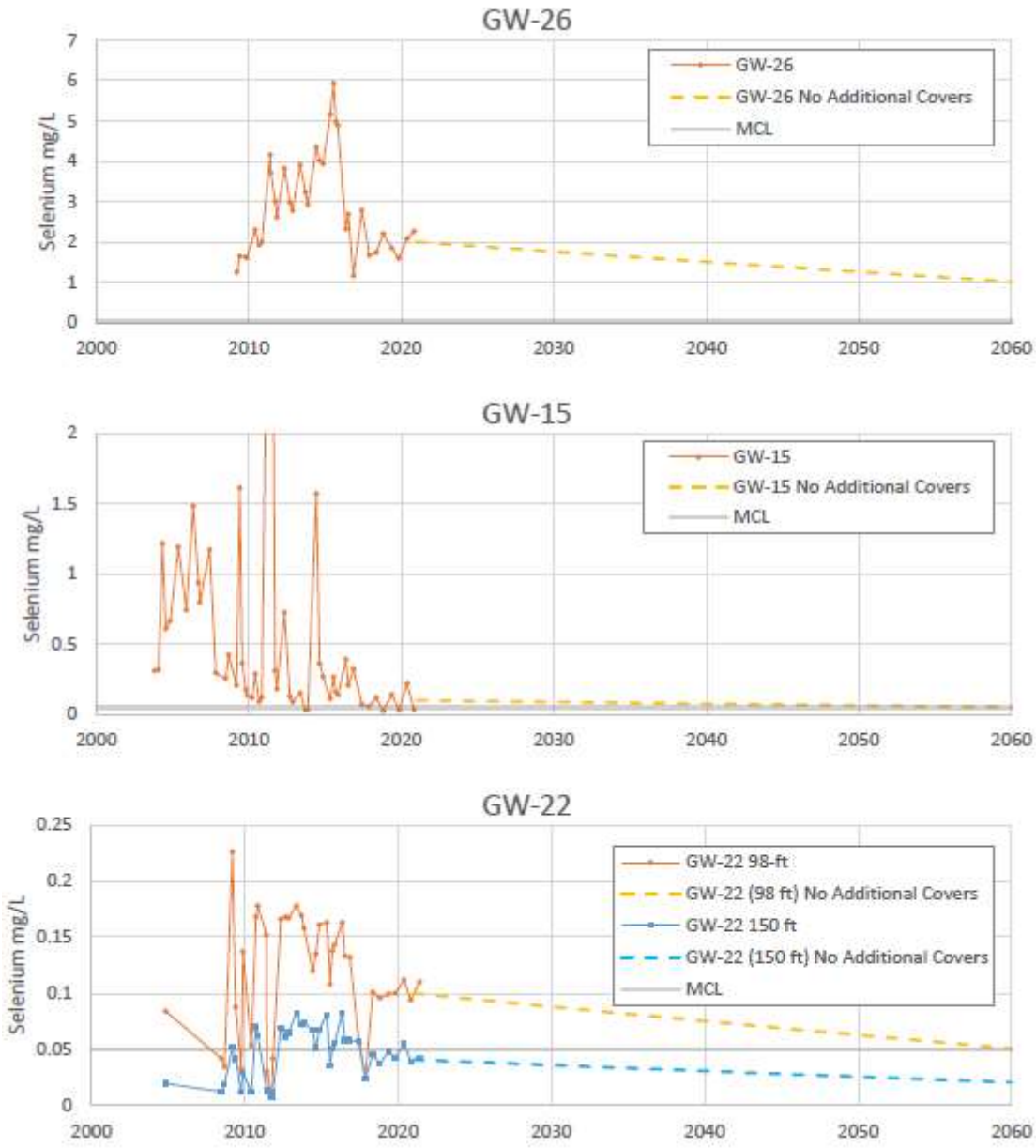


Figure 4. Predicted Selenium Concentrations in Alluvial Groundwater Downgradient of Pole Canyon ODA with No Further Action.

Source control alternatives. Additional source control through construction of covers on the target areas at Panels D and E will reduce selenium concentrations in downgradient Wells Formation groundwater. The predicted effects of the four cover types evaluated in the FS on selenium concentrations in Wells Formation groundwater at well GW-25 downgradient of Panel E, as well as the predicted effect with no additional covers, are shown in Figure 5. The reduction in selenium concentrations in groundwater at GW-25 is proportional to the estimated decrease in infiltration by cover type and the target cover area relative to the total area of Panel E sources.

As shown, the Dinwoody/Chert cover provides some reduction in selenium concentrations in groundwater at a cost of about $18.9 Million. The Enhanced Dinwoody cover provides a slightly larger reduction in selenium concentrations in groundwater but at a higher cost ($30.8 Million). The Geomembrane (synthetic) covers provide a similar reduction in selenium concentrations as the Enhanced Dinwoody cover (i.e., concentration curves overlap) at an even higher cost ($39.1 Million); therefore, the Enhanced Dinwoody cover selected as an element of the Preferred Alternative is cost effective when compared to the Geomembrane cover ($8.3 Million less for a similar, high level of effectiveness). Because the Enhanced Dinwoody cover is constructed from natural materials, it is anticipated to be more sustainable over time, as opposed to a synthetic geomembrane cover which risks tears and degradation due to punctures or slippage of the liner.

However, none of the covers result in significant reductions of predicted selenium concentrations in Wells Formation groundwater over the No Further Action alternative, which includes substantial areas of reclamation covers at all mine panels and the NTCRA cover at the Pole Canyon ODA.

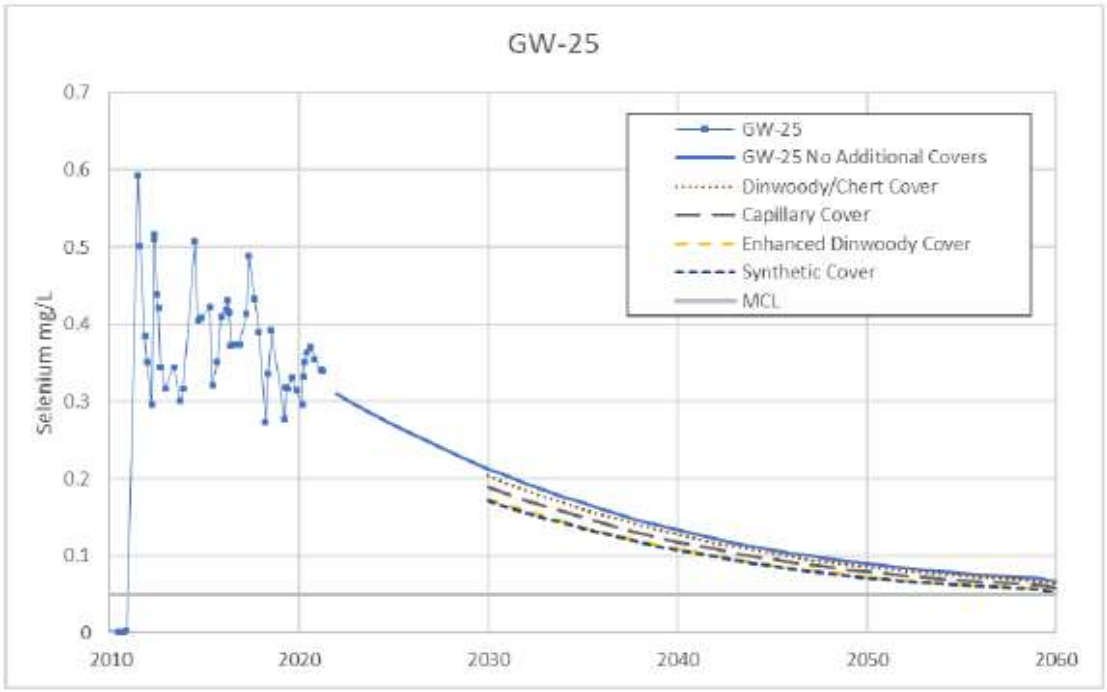


Figure 5. Predicted Selenium Concentrations in Groundwater Downgradient of Panel E (GW-25).

Additional source control through construction of Enhanced Dinwoody covers on the target areas (D-1, D-ODA, and E-1n) will somewhat reduce selenium concentrations in surface water in Sage Creek and Crow Creek. The predicted selenium concentrations over time are shown in Figure 6. A "standard" line is shown for reference – compliance will be determined by fish tissue concentrations. As shown, the covers are predicted to begin to have an effect on selenium concentrations starting around 2035 (due to the travel time in Wells Formation groundwater from Panel D and Panel E to the Springs Complex), and result in reductions in predicted selenium concentrations in surface water after 2035.

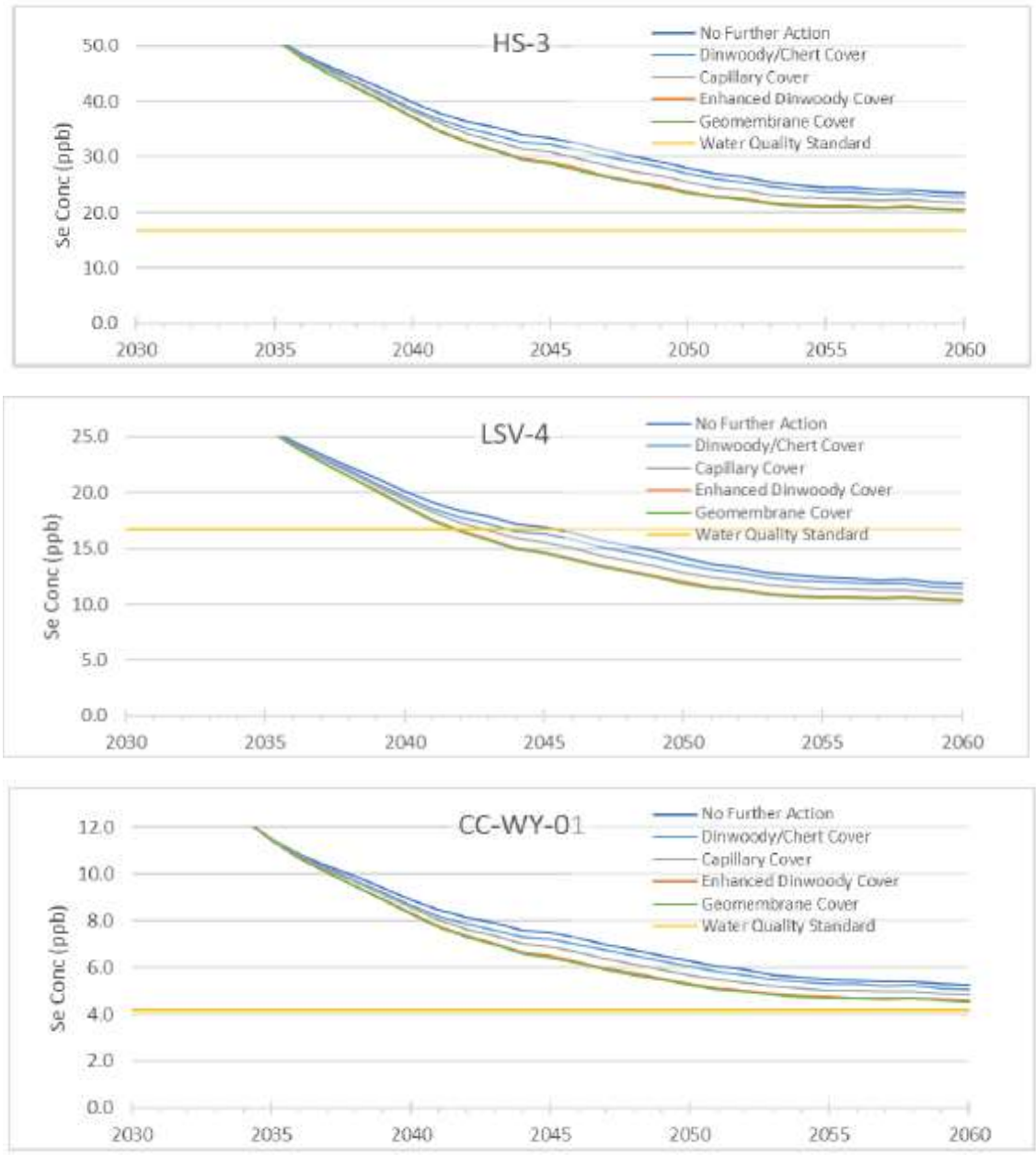


Figure 6. Predicted Selenium Concentrations in Surface Water at Hoopes Springs (HS-3), Sage Creek (LSV-4) and Crow Creek (CC-WY-01) during Low Flow Conditions for Covers in Target Areas.

The Enhanced Dinwoody cover system does not result in significant reductions of predicted selenium concentrations in surface water in Sage Creek or in Crow Creek over the No Further Action alternative, which includes substantial areas of reclamation covers and the NTCRA cover at the Pole Canyon ODA.

The Enhanced Dinwoody cover is cost effective when compared to the Geomembrane cover ($8.3 Million less for a similar, high level of performance) but is not cost effective when compared to the Dinwoody/Chert cover or the No Action Alternative ($11.9 Million and $30.8 Million more for slightly higher performance, respectively).

A lesser cover alternative (i.e., Dinwoody/Chert cover) or no cover may be reasonable as well, particularly in light of the predicted selenium reduction from the Hoopes Springs WTP, and would be more cost effective than the Preferred Alternative.

4. The Preferred Remedy Will Use Permanent Solutions

The focus of this evaluation is the extent and effectiveness of the controls that may be required to manage the risk posed by treatment residuals and/or untreated wastes. Determining if the Preferred Alternative satisfies this statutory requirement involves assessing the long-term effectiveness and permanence (i.e., residual risks and the adequacy and reliability of controls) of the elements of the Preferred Alternative. Because overburden material (i.e., "waste") will remain in place, CERCLA 5-year reviews will be required to ensure that adequate protection of human health and the environment is maintained.

Hoopes WTP (4,000 gpm). Expansion of the Hoopes WTP and continued water treatment will immediately reduce selenium concentrations in surface water downstream of Hoopes Spring in the Sage Creek/Crow Creek watershed, and therefore, will reduce risks to fish in Sage Creek and Crow Creek. The Hoopes WTP has operated for multiple years and has been demonstrated to be reliable. Long-term O&M of the treatment system and monitoring of the influent, effluent, and ultrafiltration backwash will continue to evaluate the effectiveness of the system, and downstream surface water monitoring will also be required. Technical components of the treatment system (e.g., biosolids, mechanical parts, etc.) will likely need to be replaced from time to time. Based upon testing of the post-treatment sludge during the operation of the water treatment pilot plant, disposal of this sludge is permitted in a Subtitle D landfill. The magnitude of residual risks will decrease over time as described below.

As shown in Figure 7, Simplot does not expect selenium concentrations in groundwater and surface water to continue to climb. Selenium discharging from active mining is predicted to have peaked at the Springs Complex around 2015 and has declined through 2023.

The arrival of the load reduction resulting from the Pole Canyon NTCRAs is not predicted to reach the Springs Complex until the late 2020s and the load reduces through the 2030s. After the late 2030s, the predicted load reduction is a result of source depletion.

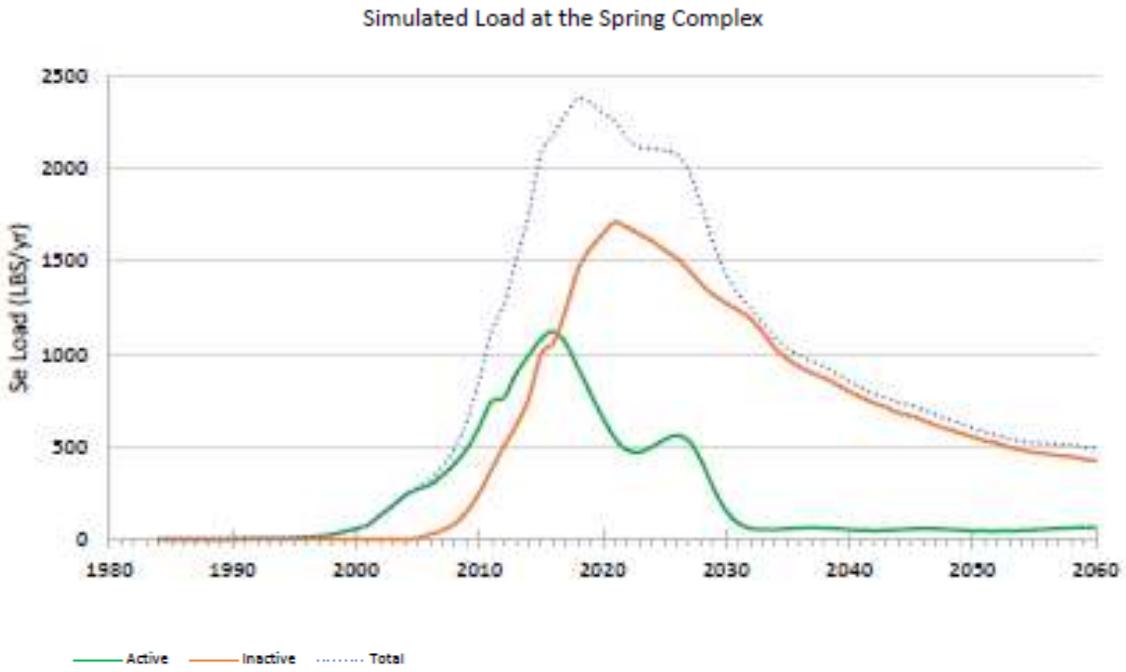


Figure 7. Predicted Selenium Sources to the Springs Complex Over Time.

As described in the Groundwater Model Development report (Appendix A, Formation 2023), the source term is an empirically based time-varying selenium concentration function and is based on Site-specific column tests of "Panel F Backfill and External Fill" overburden material (JBR 2007). Column leach tests are conducted as sequential cycles followed by drainage. The cycles are related to volumes of water equivalent to the pore volume (PV) of the solid samples in the columns, as shown in Figure 8.

Material Source	Se (mg/L), PV 1 2 3 5 7 9 10
Panel F Backfill and External Fill (JBR 2007)	0.532, 0.136, 0.1, 0.055, 0.059, 0.046, 0.08

Figure 8. Source Term Concentration per Pore Volume.

Figure 9 illustrates the estimated source term for overburden in ODAs that are primary sources of selenium to groundwater and surface water. As shown, the magnitude of the source term concentration will decrease over time as source depletion occurs at Panels D and E and at the Pole Canyon ODA.

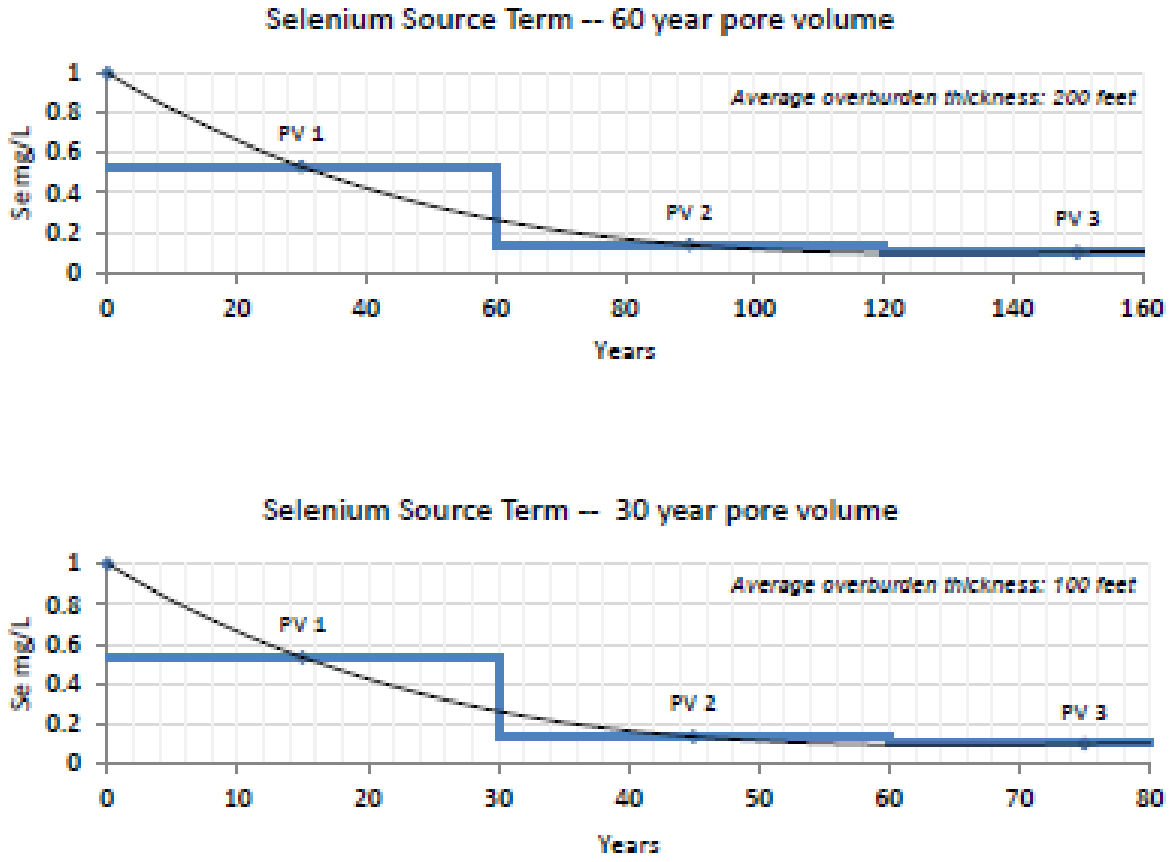


Figure 9. South-End Selenium Source Term.

The effect of this is illustrated in Figure 10 which shows the estimated load of selenium released for each ODA over time and when the load is estimated to arrive at the Springs Complex.

For each ODA, the pattern is the same: increasing load during the early portion of mining, peaking near the end of mining before the pits were reclaimed and then decreasing afterward as the source term decreases. Because mining is completed at the ODAs that are principal selenium sources, concentrations of selenium in groundwater and in surface water are expected to generally decrease over time.

Expansion of the Hoopes WTP and continued water treatment utilizes a technology that is adequate and reliable as a long-term solution. The water treatment elements of the Preferred Alternative combined with decreases in the source term concentration are a permanent solution.

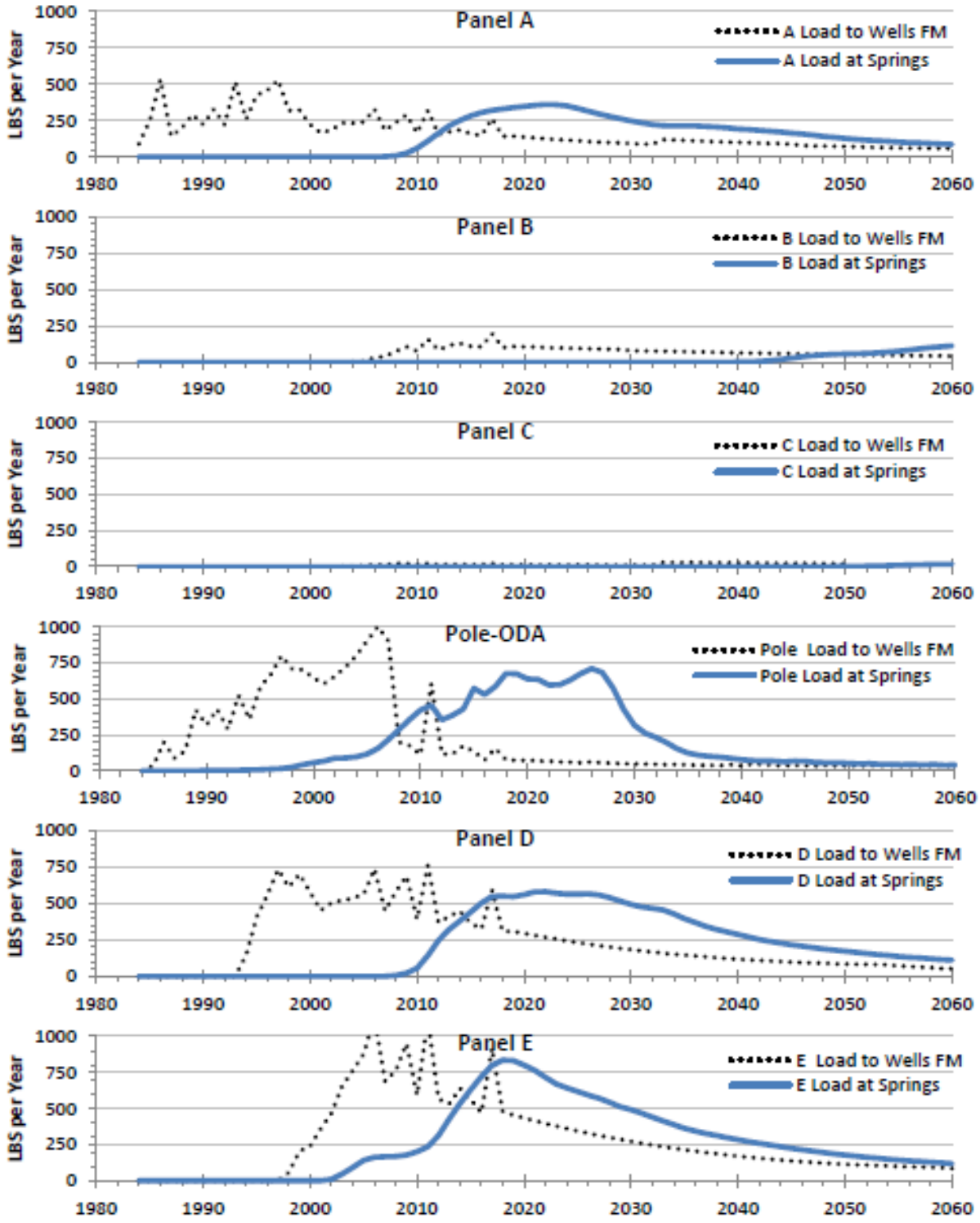


Figure 10. Estimated Selenium Mass Load to the Wells Formation and Arrival at the Springs Complex for Each Source Area.

PRB at the Pole Canyon ODA. The PRB downgradient of the Pole Canyon ODA will capture seep water before it infiltrates and quickly reduce selenium concentrations in local groundwater, which will reduce the magnitude of the residual risks to fish downstream in the Sage Creek/Crow Creek watershed. The PRB technology is adequate and reliable and will require a moderate degree of O&M and long-term monitoring to evaluate and maintain performance. PRB treatment materials will eventually become exhausted and will need to be replaced. When spent treatment materials are removed from the system, they will be tested to determine appropriate disposal. PRB treatment is an EPA-recognized remedial alternative for groundwater. The PRB technology is being pilot tested at Simplot's Conda Mine and has been demonstrated to be reliable and effective at P4's South Rasmussen Mine.

The PRB at the Pole Canyon ODA utilizes a technology that is reliable as a permanent solution.

Enhanced Dinwoody covers at Panels D and E. Installation of covers over the target areas is an adequate and reliable containment system that is viable over the long term. Enhanced Dinwoody cover constructability is proven at Panels F and G at Smoky Canyon Mine, which also assures the covers will meet performance specifications by existing quality control and assurance procedures. Covers will require inspections and long-term O&M. The Enhanced Dinwoody covers will be constructed of natural materials that will be viable and long lasting and will not likely need to be replaced. The magnitude of residual risks will decrease over time as described below. Long-term monitoring of Wells Formation groundwater will be required. The current routine groundwater and surface water monitoring network, described in the Comprehensive Environmental Monitoring Program Plan (CEMPP, Simplot 2022), is adequate to measure the effectiveness of the covers. Enhanced Dinwoody covers have been constructed successfully at the Smoky Canyon Mine (Panel F) and are reliable over the long term.

Selenium concentrations are anticipated to reduce over time as the load from Wells Formation groundwater discharge decreases. As described above and shown in Figure 5, the Enhanced Dinwoody cover provides a slightly larger reduction in selenium concentrations in Wells Formation groundwater than the Dinwoody/Chert cover but none of the covers result in significant reductions of predicted selenium concentrations in groundwater over the No Further Action alternative, which includes substantial areas of reclamation covers at all mine panels and the NTCRA cover at the Pole Canyon ODA. Similarly, as shown in Figure 6, the estimated selenium concentration reduction at the Springs Complex and in surface water in Sage Creek and in Crow Creek in response to the construction of covers does not result in significant reductions of predicted selenium concentrations in surface water over the No Further Action alternative.

Enhanced Dinwoody covers are a reliable permanent solution. A lesser cover alternative (i.e., Dinwoody/Chert cover) or no cover may be reasonable as a permanent solution as well.

5. The Preferred Remedy Satisfies the Preference for Treatment as a Principal Element

This evaluation criterion addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of hazardous substances as a principal element. This section specifies whether each element of the Preferred Alternative satisfies the statutory preference for treatment and provides

information regarding the degree of expected reductions in the toxicity, mobility, or volume of contaminants.

Hoopes WTP (4,000 gpm). The Hoopes WTP element of the Preferred Alternative will satisfy the statutory preference for treatment.

Expansion of the Hoopes WTP will result in additional selenium reductions. Selenium removal is expected to remain at 95% with a doubling of the treatment flow rate (from 2,000 to 4,000 gpm). However, the influent selenium concentration will be reduced by approximately 12% as more lower-concentration water is treated. It is estimated that for current conditions, the expanded WTP will remove 5.2 pounds per day (lbs/day) of the 7.2 lbs/day of selenium emanating in water at the Springs Complex. This will reduce the concentrations of selenium in surface water by approximately 80%.

Based on an analysis performed for the FS, treatment of flows greater than 4,000 gpm is neither practical nor efficient. Selenium concentrations and loads at key locations in the Springs Complex are shown on the table below.

Flows and Selenium Concentrations and Loads at Key Locations in the Springs Complex

Location	Flow (gpm)	Total Selenium (mg/L)	Load (lbs/day)
HS	930	0.149	1.67
HS-C1	1,615	0.172	3.34
HS-A2/other smaller springs	700 to 1,400	0.047 to 0.074	0.39 to 1.24
LSS-SP-N	150	0.12	0.22
Total or Average	**3,395 to 3,945**	**0.13-0.14**	**5.6 to 6.4**

Notes:

Flows and concentrations for HS, HS-C1, HS-A1, and HS-A2 are measured or estimated May 2021 sampling event.

This data from the May 2021 sampling event provides a snapshot of the conditions at the Springs Complex. Flows at individual springs have been shown to vary over time. For example, the HS flow was measured at 930 gpm in 2021 and 1,300 gpm in 2018. The flow at HS-C1 was in the range of 1,600 gpm in both those time periods. Therefore, some variability in flow from individual springs is expected over time.

Based on these data, if all water from the main springs at Hoopes Springs is captured then the total flow would be approximately 3,200 to 3,900 gpm with an average selenium concentration of 0.13 to 0.14 mg/L and a total selenium load of 5.6 to 6.1 lbs/day. This is essentially the entire selenium load emanating from Hoopes Springs. Currently, approximately 150 gpm of water from LSS-SPN, a South Fork Sage Creek spring with the highest selenium concentration is pumped to the WTP influent. Therefore, by capturing the Hoopes Springs flow and continuing the 150-gpm flow from LSS-SP-N, the South Fork Sage Creek spring, a total flow of approximately 3,300 to 4,000 gpm with a relatively high load of selenium could be sent to the Hoopes WTP.

In order to capture and treat more water than 4,000 gpm at the WTP, the additional flow would have to come from South Fork Sage Creek springs. Other than LSS-SP-N, the springs at this complex have much lower selenium concentrations. Figure 11 depicts the selenium concentrations from the individual springs at the South Fork Sage Creek Springs Complex from 2000 to 2021. As shown, selenium concentrations of springs other than LSS-SP-N are significantly lower, which would result in a decreased influent concentration while the effluent concentration would remain relatively similar, resulting in a lower treatment efficiency.

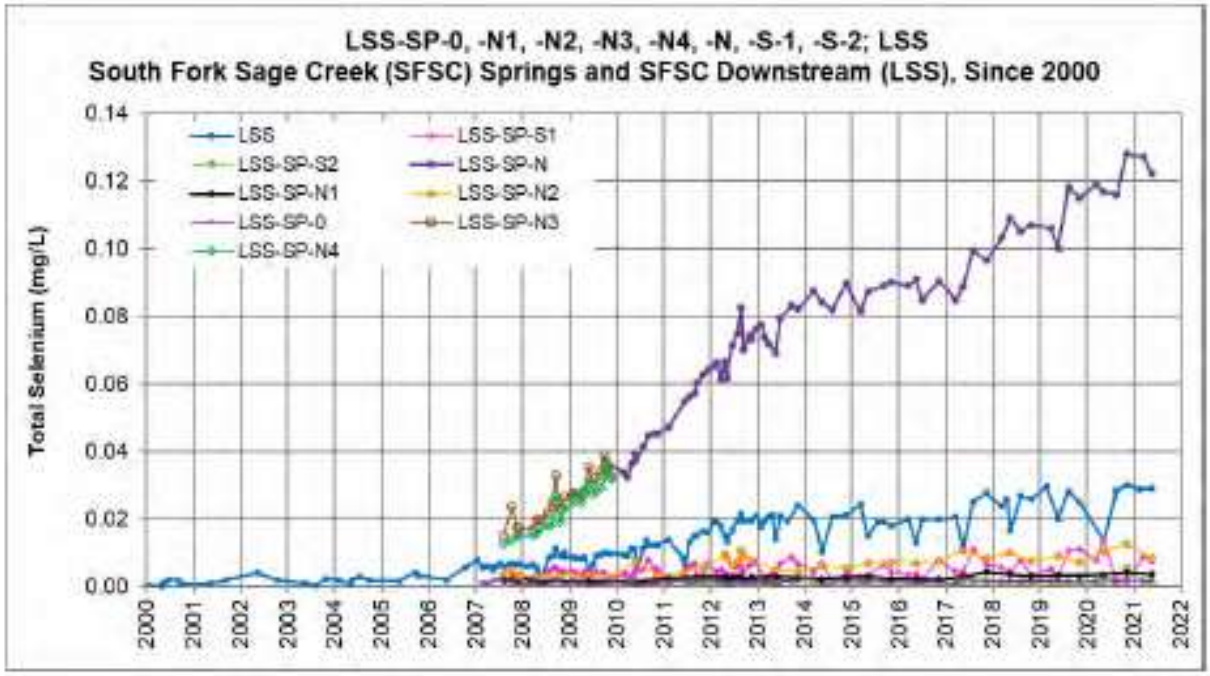


Figure 11. Total Selenium Concentrations at South Fork Sage Creek Springs and Downstream.

Based on current information, a 5,000 gpm WTP would be impracticable. Therefore, a 4,000 gpm WTP is the highest possible continuous flow treatment system that can be implemented at the Site.

PRB at the Pole Canyon ODA. The PRB element of the Preferred Alternative will satisfy the statutory preference for treatment.

A properly designed, constructed, and maintained PRB is expected to remove approximately 95% of the selenium in the influent resulting in a reduction in selenium concentrations in downgradient alluvial groundwater at GW-15 and downgradient Wells Formation groundwater at GW-16.

Enhanced Dinwoody covers at Panels D and E. The cover element of the Preferred Alternative will not satisfy the statutory preference for treatment.

The volume and toxicity of selenium in overburden material will not be reduced. However, the mobility of selenium will be reduced through installation of covers on the target areas by reducing long-term average percolation through overburden.

6. The Preferred Alternative Will Meet RAOs

The primary issue to be addressed at the Site is the release of selenium from overburden in Panels D and E and the Pole Canyon ODA to Wells Formation groundwater (resulting in concentrations above the MCL) and migration of the groundwater and discharge to surface water at the Springs Complex (resulting in concentrations in surface water in Sage Creek and Crow Creek above the Idaho water surface quality standards for aquatic life). The target areas for source control were identified based on three criteria: the relative magnitude of each source area, areas with minimal or no covers, and the travel time to the Springs Complex.

As shown in Figure 10, Panels D and E are the largest current sources of selenium to Wells Formation groundwater. Panels to the north of Pole Canyon (A-1, A-3, A-4, and A-Pit), have lower overall source terms because the overburden from the north end of the Mine (i.e., from Panel C) was placed in these panels and has a lower selenium concentration with an upper bound of 0.24 mg/L. By comparison, the upper bound source term concentration of mine panels south of Pole Canyon is 1 mg/L.

At Panels D and E, the target areas (D-1, D-ODA, and E-1n) were selected because they have minimal or no covers and therefore have the highest relative rates of infiltration.

The time difference in predicted loading to Wells Formation groundwater and the selenium discharging at the Springs Complex is due to the estimated travel time for selenium in groundwater as shown in Figure 12. Actions farther south will have a quicker effect on surface water conditions. The shorter travel time results in Panels D and E being prioritized over the smaller uncovered area at Panel A where similar overburden is present (note that a portion of Panel A backfill came from mining at Panel C and consequently has lower selenium concentrations and is a smaller source term).

Additional source control (covers) are not necessary at other mine panels because the mine panels have been adequately reclaimed and the relative magnitude of the source is low (Panels A and C), the reclamation covers are sufficient (A-1, A-3, A-4, A-Pit, Panel C, Panels D and E outside of target areas), or the ODA has been remediated (Pole Canyon NTCRA Dinwoody/Chert cover).

Media specific alternatives were evaluated in the FS and the alternatives deemed most cost effective were combined to form a comprehensive Site-wide remedy that employs water treatment and source controls to meet RAOs in a reasonable time frame. The sections below present the RAOs identified for guiding the evaluation of remedial actions at the Site and describe how elements of the Preferred Alternative will meet RAOs for each media and the time frame.

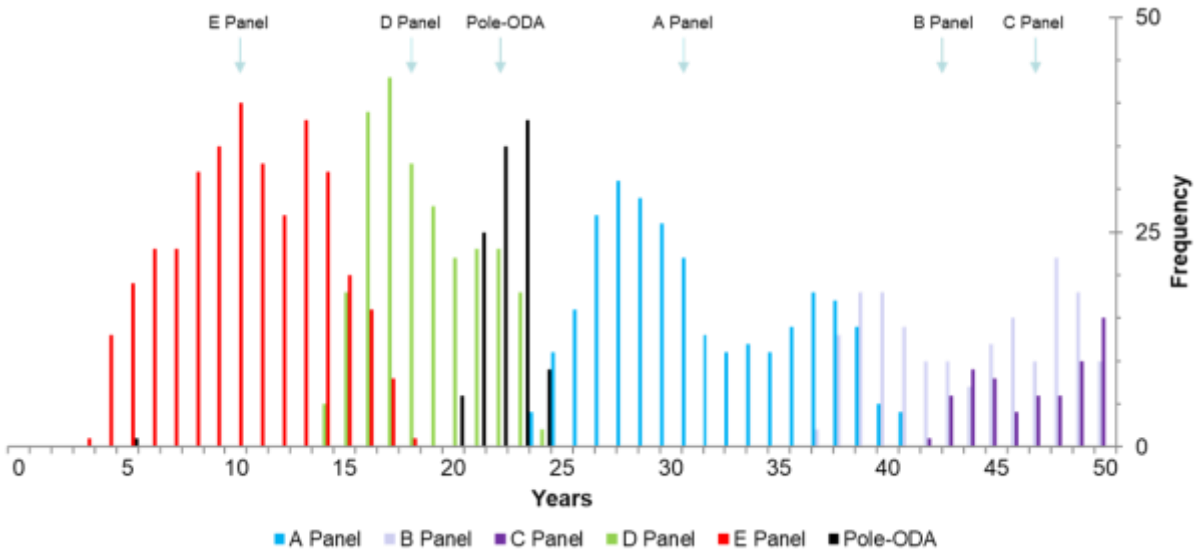


Figure 12. Estimated Groundwater Travel Times in the Wells Formation from ODAs to the Springs Complex.

Wells Formation Groundwater

> **RAO #1:** Prevent future use of Wells Formation groundwater with selenium concentrations above the MCL as a drinking water source.

Restrictions on the property deed on Simplot-owned land in Sage Valley will restrict the extraction and use of Wells Formation groundwater as drinking water to prevent or reduce exposure to selenium until cleanup levels are met. The RAO to prevent future use of Wells Formation groundwater with selenium concentrations above the MCL as a drinking water source will be achieved immediately.

> **RAO #2:** Reduce or eliminate concentrations of selenium in contaminated Wells Formation groundwater to below the MCL within a reasonable time frame given the circumstances of the Site.

Additional source control through construction of Enhanced Dinwoody covers on the target areas at Panels D and E and construction of a PRB at the Pole Canyon ODA seep will further reduce selenium concentrations in downgradient Wells Formation groundwater. This, along with the Pole Canyon NTCRAs and MNA will result in a reduction of selenium concentrations in Wells Formation groundwater over time. The construction of the covers will begin early during implementation of the remedy and will take approximately 8 years to complete all the target areas. Selenium concentrations in Wells Formation groundwater are predicted to be in the range of the MCL at GW-25 (downgradient of Panel E) around 2060 (the limit of the model) and to be below the MCL at GW-16 (downgradient of the Pole Canyon ODA) by 2026 (due to the effect of the PRB). The RAO to reduce concentrations of selenium in contaminated Wells Formation groundwater to below the MCL will be achieved within a reasonable time frame.

> **RAO #3:** Reduce or eliminate loading of selenium from groundwater to surface water so that it does not result in concentrations that represent an unacceptable

> risk to aquatic life and complies with ARARs (IDAPA 58.01.02 – Water Quality Standards) in the lower Sage Creek and Crow Creek watersheds.

As previously described, source control through construction of covers reduces infiltration into the overburden and consequently reduces release of selenium to Wells Formation groundwater. Therefore, loading of selenium from groundwater to surface water will be reduced which will reduce risks to aquatic life (i.e., fish). The Enhanced Dinwoody covers on target areas at Panels D and E provide a slightly larger reduction in selenium concentrations in Wells Formation groundwater than the Dinwoody/Chert cover but none of the covers result in significant reductions of predicted selenium concentrations in groundwater over the No Further Action alternative (Figure 5). Similarly, the estimated selenium concentration reduction at the Springs Complex and in surface water in Sage Creek or in Crow Creek in response to the construction of covers does not result in significant reductions of predicted selenium concentrations in surface water over the No Further Action alternative (Figure 6). Expansion of the Hoopes WTP and continued water treatment alone will immediately reduce selenium concentrations in surface water downstream of Hoopes Spring in the Sage Creek/Crow Creek watershed, and selenium concentrations in Sage Creek and Crow Creek are predicted to meet RAOs by around 2030. Because the estimated selenium concentration reduction at the Springs Complex and in surface water in the lower Sage Creek and Crow Creek watersheds in response to the construction of covers does not result in significant reductions of predicted selenium concentrations in surface water over the No Further Action alternative, a lesser cover alternative (i.e., Dinwoody/Chert cover) or no cover may be reasonable as a source control alternative for Wells Formation groundwater and surface water.

The Enhanced Dinwoody covers are predicted to begin to have an effect on reducing selenium concentrations in surface water starting around 2035 (due to the travel time in Wells Formation groundwater from the mine panels to the Springs Complex) and the RAO to reduce or eliminate loading of selenium from groundwater to surface water so that it does not result in concentrations that represent an unacceptable risk to aquatic life (i.e., fish) and complies with ARARs will be achieved.

LTM will be necessary to assess performance of the remedy elements and confirm that the RAOs for Wells Formation groundwater are being achieved. Wells Formation groundwater will be monitored downgradient of the Pole Canyon ODA and Panels D and E to evaluate the progress of natural attenuation and determine whether selenium concentrations meet the MCL. The current routine groundwater and surface water monitoring network, described in the CEMPP (Simplot 2022), is adequate to measure the effectiveness of the water treatment and source control elements of the Preferred Alternative. LTM data will be summarized annually and then evaluated during the CERCLA 5-year reviews to determine if remedy components are achieving RAOs. No new groundwater monitoring wells or surface water monitoring stations are anticipated to be needed for LTM.

Surface Water – Sage Creek and Crow Creek

> **RAO #1:** Reduce selenium concentrations in lower Sage Creek and Crow Creek watersheds to below levels that pose unacceptable risks for aquatic life and comply with ARARs (IDAPA 58.01.02 – Water Quality Standards).

Treatment of water at the Springs Complex, additional source control by construction of Enhanced Dinwoody covers on the target areas, a PRB at the toe of the Pole Canyon ODA, and MNA, will further reduce selenium concentrations in surface water in Sage Creek and Crow Creek.

Downstream of Hoopes Springs and in lower Sage Creek downstream of the flows from Hoopes Springs and lower south Sage Valley, concentrations are predicted to be immediately reduced to below the water quality standard. In Crow Creek at the Wyoming border selenium concentrations are predicted to drop below the standard immediately for high creek flows and be below the standard for all surface water flows around 2030. In the State of Idaho, the surface water quality criteria for selenium are based on fish tissue concentrations and water concentrations that are derived from fish tissue concentrations. Compliance will be determined by fish tissue concentrations.

As described above, a 5,000 gpm WTP would not be practicable. In order to achieve 5,000 gpm at the WTP the majority of the flow would have to come from South Fork Sage Creek springs. As shown in Figure 11, selenium concentrations of springs other than LSS-SP-N are significantly lower, so capturing this water for treatment would result in a decreased influent concentration while the effluent concentration would remain relatively similar, resulting in a lower treatment efficiency and no meaningful additional selenium removal.

LTM will be necessary to assess performance of the remedy elements and confirm that the RAOs for surface water are being achieved. Surface water will be monitored seasonally at the Springs Complex and in the Sage Creek and Crow Creek watersheds to evaluate the effectiveness of the remedy until ARARs for selenium in surface water have been achieved (0.0167 mg/L in Sage Creek; 0.0042 mg/L in Crow Creek [IDAPA 58.01.02.287.03-04]). The current routine surface water monitoring network, described in the CEMPP (Simplot 2022), is adequate to measure the effectiveness of the water treatment and source control elements of the Preferred Alternative. LTM data will be summarized annually and then evaluated during the CERCLA 5-year reviews to determine if remedy components are achieving RAOs. No additional surface water monitoring stations are anticipated to be needed for LTM.

Selenium concentrations will immediately be reduced below the surface water standard in Sage Creek. Selenium concentrations will remain above the standard in Crow Creek in the short term but are predicted to be below the surface water standard in Crow Creek by 2030. The RAO to reduce selenium concentrations in lower Sage Creek and Crow Creek watersheds to below levels that pose unacceptable risks for aquatic life (i.e., fish) and comply with ARARs will be achieved.

Surface Water – Non-Regulated Water in Ponds and Seeps

> **RAO:** Reduce or eliminate unacceptable risks to Recreational Campers or Native Americans from ingestion of non-regulated surface water (seeps and detention ponds) due to arsenic and cadmium.

Surface water seeps downgradient (east) of Panel D (DS-7) and the Pole Canyon ODA (LP-1), and surface water in detention ponds downgradient of a Panel D seep DS-7 (DP-7) and a Panel E seep (EP-2) contain arsenic and cadmium concentrations that exceed Idaho drinking water standards. Chert/limestone covers installed on seep areas and detention ponds as an element of]the Preferred Alternative will prevent people from drinking non-regulated surface water at seeps and ponds and will be effective and meet the RAO immediately.

Alluvial Groundwater

> **RAO #1:** Prevent future use of alluvial groundwater with selenium concentrations above the MCL as a drinking water source.

Restrictions on the property deed on Simplot-owned land in Sage Valley will restrict the extraction and use of alluvial groundwater as drinking water to prevent or reduce exposure to selenium until cleanup levels are met. The RAO to prevent future use of alluvial groundwater with selenium concentrations above the MCL as a drinking water source will be achieved immediately.

> **RAO #2:** Reduce or eliminate concentrations of selenium in contaminated alluvial groundwater to below the MCL within a reasonable time frame given the circumstances of the Site.

The sole source of selenium to alluvial groundwater is the Pole Canyon ODA. Two NTCRAs have been implemented as part of the Smoky Canyon Mine RI/FS and have resulted in a significant reduction of selenium releases from the Pole Canyon ODA to the environment. Selenium in water from the Pole Canyon ODA is released to the alluvial groundwater and also flows from the ODA toe seep (LP-1). Flow at the LP-1 seep infiltrates into the alluvium before it reaches the outflow from the upper Pole Canyon Creek bypass pipeline. Seep flow from LP-1 and alluvial groundwater will be captured and treated by the PRB element of the Preferred Alternative. Unaffected water from the pipeline flows into Pole Canyon Creek downstream of the ODA and from there into Sage Valley or infiltrates into the shallow alluvium. The Groundwater Model (Appendix A; Formation 2023) indicates that the rate of release of selenium from the Pole Canyon ODA will continue to decrease over time, and as indicated by the monitoring data, selenium mass flux and concentrations in the alluvial aquifer are also expected to decline. The predicted selenium concentrations in alluvial groundwater wells over time with a PRB are shown in Figure 2.

Construction of the PRB will take 1 year and will reduce selenium concentrations in alluvial groundwater in 1 to 2 years (except in a small area in Pole Canyon). As shown in Figure 2, the PRB in Pole Canyon will rapidly reduce selenium concentrations in alluvial groundwater and the MCL will be met, and the RAO achieved in Pole Canyon immediately and in alluvial groundwater outside Pole Canyon in Sage Valley within 1 to 2 years.

LTM will be needed to assess the performance and effectiveness of the remedy elements and confirm that the RAO for alluvial groundwater is achieved. Alluvial groundwater will be monitored in Pole Canyon downgradient of the PRB and into Sage Valley to evaluate the progress of natural attenuation and determine whether selenium concentrations meet the MCL. The current routine groundwater monitoring network, described in the CEMPP (Simplot 2022), is adequate and no new groundwater monitoring wells are anticipated to be needed for LTM. LTM data will be evaluated during the CERCLA 5-year reviews to determine if the RAO has been achieved.

Soils

> **RAO:** Reduce or eliminate unacceptable risks to birds from overburden with elevated selenium concentrations in soil on Panel A ODAs.

The ecological risk assessment predicted risks to populations of common bird species. Unacceptable risks were calculated within Panel A based on concentrations of selenium in soil and prey tissues that exceeded the PRG for birds. As described above, the 95UCL of the mean selenium concentration in surface soil on Panel A (50.8 mg/kg) exceeded the PRG for the protection of birds (23.5 mg/kg) which was calculated using soil exposure and exposure to prey tissues that were estimated using site-specific soil to tissue models.

Panel A is 245 acres, and the external ODA is an additional 135 acres, and represents a significant area of habitat for birds; however, it is not large enough to support a self-sustaining

population of small birds in and of itself. As a result, the prediction of unacceptable risks to bird populations within Panel A is a conservative prediction. As discussed above, only three soil samples exceeded the bird PRG, and one sample (APL-10) had a selenium concentration (245 mg/kg) more than five times higher than all the other soil selenium concentrations within the panel. The presence of that sample in the dataset for Panel A significantly skews the soil exposure estimation for the panel and results in an exceedance of the PRG. When the outlier sample (APL-10) was excluded from the calculation, the 95UCL of the mean selenium concentration in Panel A was considerably lower (11.4 mg/kg) and lower than the bird PRG (23.5 mg/kg). The identification of the outlier status of APL-10 is additionally supported by the lack of outliers detected in the tissue samples collocated with the outlier soil sample at APL-10. If the soil concentration at that location was representative of the statistical population of data from Panel A, similar outliers would be expected from the tissue data collected at the same location.

Given that Panel A is too small to support a self-sustaining population of birds, the influence of one sample that potentially represents only a small proportion of the total area of the Panel (approximately 10 acres) on the estimation of average exposure and risk across Panel A is very high. In addition, since no habitat of exceptional quality exists within the Panel A area, the present habitat is unlikely to serve as an attractive nuisance which would result in a significant habitat sink for the regional populations of the common bird species that may utilize them. As a result, the significant effect of the single outlier selenium concentration drives the 95UCL of the mean concentration above the bird PRG; but risks to bird populations at the Site from selenium in surface soils are likely to be low.

Given the limited spatial extent of selenium concentrations that exceed the PRG within Panel A, it is unlikely that additional source control (covers) on most of Panel A outside of the area near APL-10 would meaningfully reduce risks to bird populations. As indicated by the Forest Service, the need for implementation of additional source control (covers) on a portion of Panel A specifically to reduce the potential risk to birds will be determined by additional sampling during remedial design, specifically within the area of APL-10 where the outlier selenium concentration was detected. Simplot doesn't agree this additional sampling is necessary based upon the lines of evidence provided. Nevertheless, collection of these additional samples during the remedial design phase will provide additional data to determine the need for a cover on a portion of Panel A specifically to reduce the potential risk to birds. While risks to bird populations may be reduced by additional source control (covers) within that portion of Panel A, the overall effect on the population of birds would be limited due to size of any source control relative to the habitat area needed to support a population of small birds.

Summary of Contribution of Remedial Elements in Meeting RAOs

In summary, water treatment at the Hoopes WTP (4,000 gpm) will reduce selenium concentrations in downstream surface water in Sage Creek and Crow Creek; surface water will meet the surface water standards shortly after construction of the expanded water treatment plant by around 2030. Source control provided by the installation of Enhanced Dinwoody covers on target areas at Panels D and E as well as the completed Pole Canyon NTCRAs will further reduce selenium concentrations in surface water in Sage Creek and Crow Creek, which will reduce risks to fish. The covers at Panels D and E are predicted to begin to have an effect on reducing selenium concentrations in surface water starting around 2035 (due to the travel time in Wells Formation groundwater to the Spring Complex). However, the Enhanced Dinwoody covers will not reduce the time it takes for the RAOs to be achieved and a lesser cover or no cover may be

equally protective and more cost effective. A PRB will improve water quality in alluvial groundwater downgradient of the Pole Canyon ODA in a relatively short time frame (1 to 2 years) (except in a small area in Pole Canyon). The PRB will immediately reduce the selenium load to deeper groundwater and Wells Formation groundwater is expected to meet RAOs downgradient of the Pole Canyon ODA by 2026.

Chert/limestone covers on seeps and detention ponds will prevent people from drinking surface water that contains arsenic and cadmium concentrations above the MCL and the RAO for non-regulated surface water will be achieved immediately. Deed restrictions will prevent use of Wells Formation or alluvial groundwater with selenium concentrations above the MCL as a domestic water supply and the RAOs will be achieved immediately. MNA will result in a reduction of selenium concentrations in alluvial groundwater in Pole Canyon and Sage Valley and in Wells Formation groundwater upgradient of the Springs Complex over time. Long-term groundwater and surface water monitoring will be required to evaluate the effectiveness of the Site-wide remedy at the Smoky Canyon Mine. No new groundwater monitoring wells or surface water monitoring stations are anticipated to be needed as the current CEMPP monitoring network is sufficient.

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