EARTHWORKS

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RE: Draft CERCLA Remedy for the Smoky Canyon Mine

Thank you for the opportunity to comment on the proposed draft CERCLA remedy for the Smoky Canyon Mine, located on federal public lands in the Caribou National Forest. These comments are submitted on behalf of Earthworks and the Crow Creek Conservation Alliance. Earthworks is a national non-profit organization dedicated to protecting communities and the environment from the adverse impacts of energy and mineral development, while seeking sustainable solutions. The Crow Creek Conservation Alliance (CCCA) is comprised of private landowners, with property along Crow Creek, downstream from the Smoky Canyon Mine.

Selenium pollution from Simplot's Smoky Canyon Mine has caused extensive surface and groundwater pollution for over two decades. Selenium concentrations in water and fish exceed standards in Crow Creek, as it travels through private property, extending all the way to the Wyoming border and beyond.

CCCA and Earthworks have worked for nearly a decade, and invested considerable resources, in an ongoing effort to monitor selenium concentrations in water and fish tissue downstream of the Smoky Canyon Mine, and to participate in the selenium working group established by the Idaho Department of Environmental Quality (IDEQ) to coordinate these efforts.

In light of the rapidity with which selenium in fish tissue is increasing in the mine-affected area, the fact that recent selenium concentrations in fish are over five times the site-specific whole-body fish tissue criterion in Sage Creek, and the likelihood that current selenium levels are causing recruitment failure of Yellowstone Cutthroat Trout, an expedited schedule for implementation of remediation measures is essential.

In general, we support the preferred alternative selected by the Forest Service and the elements of the recommended combined remedy to reduce selenium concentrations. However, there are critical elements that are missing from the proposed remediation plan and some essential clarifications that are necessary:

- ARARs must be clarified to include requirements to meet water column and fish tissue standards for selenium.
- The remedy must include an aggressive implementation remediation schedule with hard deadlines. An expedited schedule for the water treatment plant (WTP) is particularly crucial, given the sharp increase in selenium fish tissue concentrations in Sage Creek.
- A more detailed and comprehensive monitoring plan is needed, including fish population monitoring, to evaluate the effectiveness of the remediation, and to determine if remedial objectives and goals are being met. This must include a program for continued engagement and coordination with stakeholders.
- The remedy must provide a detailed plan, with enforcement measures, to ensure that the WTP is consistently operational.
- Adequate, independently guaranteed financial assurance must be secured to cover the cost to the agency of long-term water treatment, including contingencies.

We are deeply concerned at the escalating selenium concentrations in fish in Lower Sage Creek, the ongoing harm to important public resources in what appears to be over 10 stream miles in the Hoopes Spring, Sage Creek and Crow Creek watersheds, and the lengthy delay in getting meaningful clean-up and treatment.

We urge the Forest Service to complete the Final CERCLA Remedy and expedite the construction of a water treatment plant and robust cover systems to rapidly reduce selenium levels to comply with standards and protect water quality, fish, and other public resources.

Please see our more detailed comments below and in the supporting documents (Source, 2023) and (Fish, 2023).

Sincerely

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1. **The Smoky Canyon Mine**

The J.R. Simplot Company (Simplot) operates the Smoky Canyon Phosphate Mine in southeastern Idaho. The mine is located approximately 24 miles directly east of Soda Springs, Idaho on National Forest System land in the Caribou-Targhee National Forest. It is operated under a U.S. Department of Agriculture Forest Service (USFS) Special Use Permit and Bureau of Land Management (BLM) phosphate leases.

Mining activities began at Smoky Canyon in 1983 and are ongoing today. Ore is recovered through open pit mining practices that follow the north-south trending Phosphoria Formation outcrop as it dips to the west. The overburden, which consists of Dinwoody, chert, limestone, and center waste shale, is used to backfill the previously mined pits and has also been placed in external ODAs just east of the pits.

In 2009, the USEPA, the IDEQ, the Forest Service, and Simplot (the latter as Respondent) entered into a mine-specific legal agreement calling for Simplot to conduct investigations and develop Remedial Investigation (RI) and Feasibility Study (FS) reports for the Site. The Forest Service was designated the lead agency to oversee this work.

2. **The preferred alternative in the draft CERCLA remedy.**

The elements of the recommended combined remedy are:

• Water Treatment Alternatives (Surface Water) Alternative 2b – Water Treatment at the Hoopes WTP (4,000 gpm), ICs, Chert/ Limestone Covers on Seeps and Ponds, O&M, MNA, LTM

• Water Treatment Alternatives (Alluvial Groundwater) Alternative 2c – PRB Downgradient of Pole Canyon ODA, ICs, O&M, MNA, LTM

• Source Control Cover Alternatives (Wells Formation Groundwater and Surface Water) Alternative 3c -- Enhanced Dinwoody Covers Over Target Areas, Revegetation, ICs, O&M, MNA, LTM.

3. **RAOs for surface water**

According to section 2.1.2, the FSTM#1 RAO for surface water is to reduce or eliminate unacceptable risks to human receptors from ingestion of non-regulated surface water (seeps and detention ponds) due to arsenic. The RAO should specify that the RAO for non-regulated surface water is to eliminate, not simply reduce, unacceptable risks to human receptors. If the human health risk is unacceptable, then that unacceptable risk must be eliminated.

Section 2.1.2. also states that RAO for surface water is to "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 (IDAPA58.01.02 – Water Quality Standards). This RAO seems to imply that selenium concentrations in the upper reaches of these watersheds (e.g., South Fork Sage Creek, North Fork Sage Creek and/or Hoopes Springs) will not be reduced to levels that pose unacceptable risks for aquatic life or comply with water quality standards.

Please clarify where the standards must be met, and what stations will be used to determine compliance. The final remedy should clarify that water quality standards and fish tissue standards will be met throughout the Hoopes Springs watershed, beginning at the outlet from the water treatment plant, and throughout the Sage Creek and Crow Creek watersheds.

4. **RAOs for groundwater**

According to the 2023 Final Tech Memo, the RAO for groundwater is to reduce or eliminate concentrations of selenium in contaminated alluvial or Wells Formation groundwater to below the MCL within a reasonable time frame given the circumstances of the Site. This RAO is unacceptably vague. The Remedy must specify the amount of time that constitutes a "reasonable time frame," and the specific measures that will be taken if this time frame is not met.

5. **Preferred Alternative**

In general, we support the preferred alternatives (2b, 2c and 3c), however, there are some critical elements that are missing from the remediation plan and some essential clarifications that are necessary. The draft CERCLA remedy must include an aggressive implementation remediation schedule with hard deadlines. An expedited schedule for the water treatment plant is particularly crucial. We recommend a deadline of 2025 for achieving ARARs in surface water, given the rapidly escalating selenium fish tissue concentrations in Sage Creek.

We also recommend that the agencies add Alternative 3e (a cover for Panel A) to the preferred alternatives to address risks to birds in that area. According to the 2023 Tech Memo, Panel A had an HQ greater than 1 (HQ = 2) indicating that potentially unacceptable risks to bird populations are possible due to exposure to selenium in surface soils if it is assumed that the area with elevated concentrations has sufficient amounts of habitat available to support a population of small birds. Furthermore, it finds that surface soil selenium concentrations in Panel A ranged from 0.25 to 245 mg/kg and an average concentration equal to 15.1 mg/kg and a 95 UCL of the mean concentration equal to 50.8 mg/kg, which exceeds the PRG for the protection of birds (23.5 mg/kg). The memo points to one sample as an outlier sample, but it doesn't provide any data to demonstrate that this sample is in error. Based on the existing data, the CERCLA remedy should add Alternative 3e to the remedy to provide adequate protection for birds or conduct additional sampling to demonstrate that the concentrations are below the PRG.

6. **Other proposed alternatives are not adequate.**

Alternative 2a (2,000 gpm capacity WTP)

Alternative 2a does not meet the CERCLA criteria for overall protection of human health and the environment. Alternative 2a would leave roughly half of the contaminated water untreated. Furthermore, selenium concentrations in fish tissue have increased to unacceptable levels under the existing treatment scenario of 2,000 gpm. The recent rapid increase in selenium concentrations in fish tissue in Lower Sage Creek from 2021 – 2022 (See (Fish, 2023)) demonstrates that this alternative is failing to reduce selenium concentrations to adequately protect fish. Selenium concentrations in Sage Creek have already surpassed even the highest concentration at which recruitment failure in trout is predicted. According to the East Smoky FEIS, recruitment failure is the logical population-level consequence of reproductive impairment.

Alternative 2a also doesn't meet the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of waste materials. As noted above, this alternative does not permanently and significantly reduce toxicity since it leaves half of the contaminated flows untreated, and results in unacceptable impacts to fish.

Further, Alternative 2a doesn't meet the statutory preference for short-term effectiveness for the same reasons as noted above. As demonstrated by the most recent fish tissue concentrations in Sage Creek (2021-2022), selenium concentrations far exceed the EPA and site-specific criteria, and there is no indication that these concentrations will level off, let alone decline in the short term.

Alternative 2a allows half of the contaminated flows to go untreated, thus it does not meet the Clean Water Act Section 301(b) and Section 402, which are specified as ARARs (Tech Memo 2023, Table 4-1), and which require the best treatment and control technology to meet effluent limitations prior to discharge (40 CFR 125.3).

Alternative 3a and 3b

Alternative 3a and 3b are unacceptable. According to the draft CERCLA remedy, all covers result in reductions in predicted selenium concentrations in surface water after 2035.

According to the report, "Although selenium concentrations are anticipated to reduce over time as the load from Wells Formation groundwater discharge decreases and are predicted to be in the range of the surface water standard around 2060 (the limit of the modeling)." However, the model includes considerable uncertainty, and "in the range of the surface water quality standard"

isn't the same as demonstrating compliance with surface water standards. Additional source controls are necessary to increase the certainty that water quality standards will be met and ARARs and RAOs achieved in a timely manner.

Additional source controls are also necessary because modeling predictions at this mine have consistently been wrong, resulting in significantly greater impacts than predicted.

> Specifically, the EIS (BLM and USFS 2007) predicted that selenium concentration at the mouth of South Fork Sage Creek would eventually reach a peak of 0.01 mg/L. Baseline data collected between 2014 and 2016 for the East Smoky Panel Mine at LSS in lower South Fork Sage Creek averaged 0.018 mg/L. The 2007 EIS predicted that selenium concentration at the mouth of Sage Creek would peak at 0.009 mg/L; baseline data collected for the East Smoky Panel Mine at that location (LSV-4) averaged 0.041 mg/L. Lastly, the 2007 EIS predicted that selenium concentration at Crow Creek downstream of Sage Creek (CC-1a) would peak at 0.006 to 0.007 mg/L; baseline data collected for the East Smoky Panel Mine in that location averaged 0.0173 mg/L. (FEIS, p. 5-23)

Once again, additional source controls are necessary to provide greater certainty that the remedial actions will achieve ARARs and RAOs.

In terms of CERCLA criteria, the cover systems will reduce mobility of selenium. As stated in the 2023 Tech Memo, "The Geomembrane and Enhanced Dinwoody covers would reduce long-term average percolation to less than 1 inch per year (in/yr.) resulting in infiltrations of 0% and 3%, respectively (Table 4-3 and Table A-2 in Appendix A). Alternative 3a and 3b are substantially less effective: The Capillary cover would reduce the long-term average percolation to about 5.7 in/yr. resulting in an estimated infiltration of 24%. Whereas the long-term average percolation into the Dinwoody/Chert cover would reduce to about 10 in/yr. resulting in estimated infiltration of 42%. Alternative 1 would not reduce the mobility of selenium.

The cover systems will also reduce the volume and toxicity of selenium in surface water by substantially reducing infiltration. According to Figure 4-23, predicted selenium concentrations in surface water at LSV-4 for covers (geomembrane and enhanced dinwoody) on target areas indicates that water column standards will be met during low flow conditions years before the no action alternative or the other cover system alternatives. This is important, given the rapidly increasing selenium concentrations in fish tissue at that location. Similarly, Figure 4-24 indicates that selenium concentrations will be much closer to standards at CC-WY-01 at year 2060. The model should have been continued until it demonstrates that concentrations will be reduced sufficiently to comply with applicable standards.

7. ARARs

The draft remedy should clarify that the ARARs include compliance with fish tissue concentrations and water column concentrations. Please specify how and when the ARARs will be enforced. How often and where will monitoring occur? What are the protocols that will apply? The ARARs should also require that if water column standards for selenium are met, but fish tissue standards continue to stay elevated, then water column targets must be revised downward (See Source 2023).

Selenium concentrations exceed the water quality standard at the Idaho/Wyoming border (CC-WY-01). The CERCLA remedy identifies Idaho regulations (IDAPA 58.01.02) for water quality standard compliance. Please specify what ARARs will apply in Crow Creek in Wyoming. Where will that be monitored, and how will it be enforced?

The remedy should be more specific about how these standards will be implemented and enforced and which protocols will apply. According to IDAPA 58.01.02, the standard will be based on a "single measurement of an average or composite sample of at least five individuals of the same species where the smallest individual is no less than seventy-five percent (75%) of the total length (size of the largest individual). Not to be exceeded; DEQ will evaluate all representative whole-body or muscle data to determine compliance with this criterion element." We are concerned that this does not specify that the samples should be taken at the same sampling event, or even in the same year. It doesn't specify what fish species will be sampled, or specify that the target should be resident fish. We recommend that the remedy adopt the selenium working group protocols to provide consistency with existing data.

According to the Draft Remedy (p. 6) Pole Canyon Creek at the LP-1 seep "poses unacceptable risks to higher trophic level organisms that may obtain food or water from that location; however, the physical habitat does not support any fish due to lack of connectivity to fish bearing waters." The remedy should prevent unacceptable risks to higher trophic level organisms, regardless of whether these higher trophic level organisms are fish.

North Fork Sage Creek (NSV-6) likely supports fish, but tissue levels were not quantified for this stream due to flow limitations during sampling. If NSV-6 likely supports fish, ARARs for water quality and fish tissue should apply, and should be specified. Neither of these monitoring stations (LP-1 or NSV-6) are included on the maps in the document. The final remedy should include maps that specify all of the relevant monitoring stations.

8. Data

<u>Fish tissue</u>

The latest data on fish tissue concentrations demonstrate that there has been a sharp increase in selenium concentrations in fish tissue in Lower Sage Creek (LSV-4) from 2021-2022. The latest water quality and fish tissue data should be included as an appendix in the final remedy. This data emphasizes the urgency of the situation, and the need for accelerated implementation of treatment technology. We have included a table of the most recent fish tissue data from the Idaho Department of Environmental Quality (IDEQ) in Fish (2023) attached. However, as noted, updated graphs that document the change in selenium concentrations in water and fish should be provided.

Soils

The 2023 Tech Memo provides inadequate data for surface soil arsenic concentrations to make an adequate determination about safety for future seasonal ranchers. The data outlined in Table 2-2 indicates that only 1 arsenic sample was collected for Panels B, C, and Pole ODA which collectively cover roughly 300 acres. This one sample was collected from Dinwoody Borrow west of D-Panel, and apparently used to represent soils from all three Panels. The Tech Memo says that the PRG is met because the area-weighted 95 UCL mean concentrations is calculated at 11.1 mg/kg: below the PRG of 11.5 mg/kg. However, this conclusion is based on inadequate data. Additional data should be collected to provide an adequate determination of risk. The decision to discontinue any further discussion on this issue is not supported by adequate data.

Water

Figure 2-12 and 2-13 provides a graph of cadmium concentrations in surface water in seeps at DS-7 and LP-1, which indicates that cadmium concentrations were increasing, and well over the MCL in 2012 and 2015, respectively. Current data isn't provided, but it is necessary to understand current conditions and potential risks. There is considerable literature about the toxicity of cadmium to birds, which should be factored into the clean-up plan for seeps. Please specify how this will be addressed.

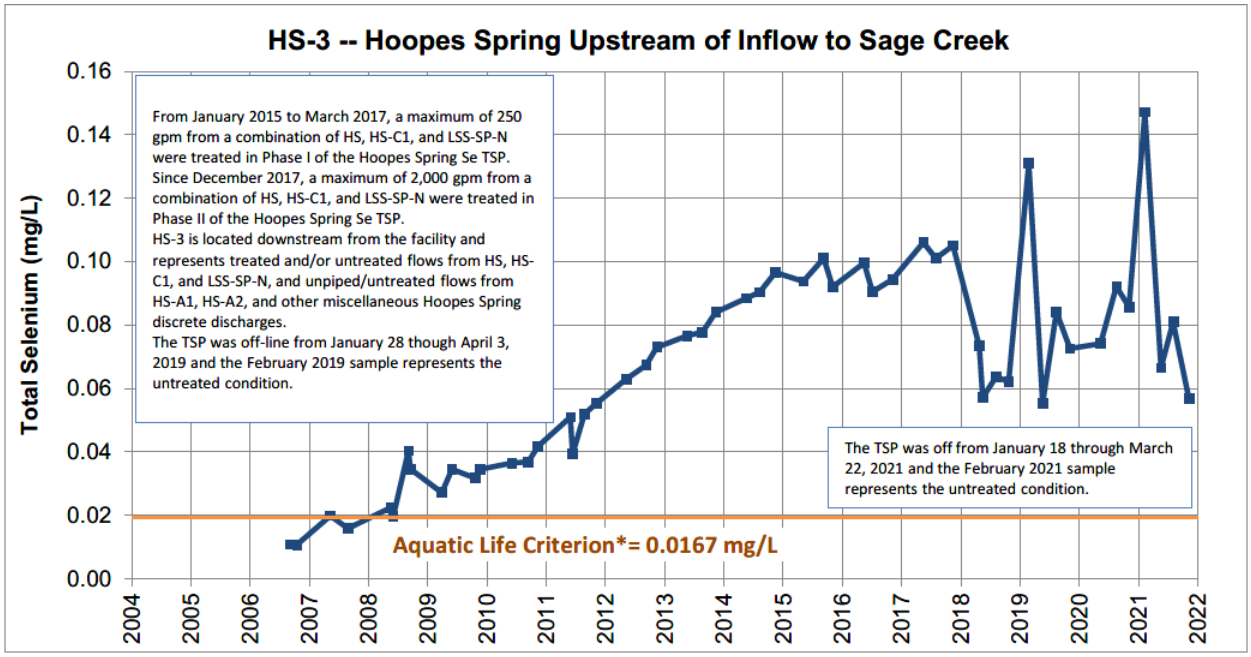
9. Water monitoring

Although there is a monitoring site on Crow Creek at the Wyoming Border, there are no monitoring sites beyond that location, even though selenium concentrations exceed water quality standards at the border. Without additional downstream monitoring sites, it's impossible to know the extent of selenium pollution in Crow Creek beyond the Idaho/Wyoming border. The CERCLA remedy should include additional monitoring sites to measure water quality concentrations and fish tissue concentrations across the Wyoming border and delineate and monitor the full extent of the impacts. Without this, it is impossible to determine whether mitigation measures are adequately addressing these impacts.

The draft remedy does not specify which surface water monitoring stations will be required in the long-term monitoring plan. Without this information, it is impossible to determine whether monitoring stations would be adequate to determine whether the proposed remedial activities are effective and public resources are protected. Please see the recommendations in the attached Fish Memo (2023).

10. Water Treatment Redundancy

We are concerned about how frequently the water treatment plant has been offline, and the length of time it has taken to bring the facility back online, resulting in significant releases of untreated water while the system isn't operating. According to Simplot, there have been several operation and maintenance issues, including power outages, pump failures, failure of the nutrient delivery device (plugged lance), etc.



The final remedy should identify redundancy measures to address these issues, including requirements for backup power sources and equipment. Please see recommendations from Source (2023).

11. The final remedy should include provisions for meaningful stakeholder communication and engagement in ongoing monitoring activities.

Private landowners (e.g., members of the Crow Creek Conservation Alliance), who reside downstream from the Smoky Canyon Mine, are adversely affected by the selenium pollution from the mine, which has resulted in elevated concentrations of selenium in water and fish in

Sage Creek and Crow Creek. The uncontrolled selenium pollution from the Smoky Canyon Mine impairs their recreational fishing activities and opportunities on private and public lands, and diminishes the work that these stakeholders have invested in fish habitat improvement in the region. These stakeholders have invested considerable resources to monitor fish tissue and water quality data in Sage Creek and Crow Creek over the past decade, and they are deeply concerned about the lengthy delays in clean-up at the site, and the potential for lasting harm to this important native fish population.

The CERCLA remedy should include adequate resources to maintain the multi-stakeholder selenium working group for the duration of the CERCLA clean-up effort, have ready access to annual monitoring data, participate in annual monitoring activities and conduct independent, but coordinated monitoring activities, including the collection of water quality and fish tissue data for selenium-effected streams.

12. Financial Assurance

The federal agencies should require independently guaranteed financial assurance to cover the full cost to the agencies of securing a third party to complete and maintain all aspects of the proposed CERCLA remedy, to ensure that funds are in place if the company files for bankruptcy, or is otherwise unable or unwilling to complete the required remediation and long-term monitoring. Financial assurance should capture indirect costs and long-term costs, such as O&M. The agencies should estimate costs based on the considerable uncertainties associated with model projections and other complexities. The agencies should include the potential cost to maintain the water treatment plant in perpetuity until actual monitoring data demonstrates that fish tissue concentrations are in compliance with ARARs. The agencies should not accept corporate guarantees or corporate financial tests as a source of financial assurance.

Robust financial assurance is particularly important in light of the extent of damage and financial liability throughout southeast Idaho. According to a 2012 GAO report that evaluated the regulatory oversight at phosphate mines in Idaho, federal agencies were overseeing mining operations or selenium cleanup at 18 phosphate mines, of which 5 are active and 13 inactive.[1] Of the 18 mines, 16 are contaminated with selenium and most are being assessed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for future cleanup. Federal agencies reported that they have spent about $19 million since 2001 to oversee these assessments and undertake a limited number of remediation actions, roughly half of which has been reimbursed by the mine operators under cleanup settlement agreements. Agency officials told GAO that they have not developed estimates for the remaining cleanup costs because final cleanup remedies have not yet been identified. However, their informal

[1] US Government Accountability Office, Phosphate Mining: Oversight Has Strengthened, but Financial Assurances and Coordination Still Need Improvement, May 2012. Available at: http://www.gao.gov/assets/600/590642.pdf

estimates suggest that remaining cleanup costs may total hundreds of millions of dollars for the contamination from mining in Idaho.[2]

Table 1. Phosphate Mine Status and Associated Selenium Contamination in Southeast Idaho (adapted from GAO 2012) .

MINE NAME	ACTIVE	INACTIVE	ACRES DISTURBED	SELENIUM CONTAMINATION DETECTED	LIVESTOCK DEATHS HAVE OCCURRED
Ballard		•	635	•	
Blackfoot Bridge[1]	•		NA		
Champ		•	392	•	
Conda/Woodall		•	1,506	•	•
Diamond Gulch		•	32	•	
Dry Valley		•	888	•	
Enoch Valley		•	581	•	
Gay[2]		•	4,736	•	
Georgetown Canyon		•	251	•	•
Henry		•	1.074	•	•
Lanes Creek	•		29	•	•
Mountain Fuel		•	716	•	
North Maybe		•	1,228[3]	•	
Rasmussen Ridge	•		756	•	
Smoky Canyon	•		2,506	•	
South Maybe Canyon		•	See North Maybe Mine	•	•
South Rasmussen	•		389	•	
Wooley Valley		•	808	•	•
Total	4	14	16,527	17	6

1. The Blackfoot Bridge Mine is a newly permitted mine (Record of Decision signed in 2011), and as such will not be included in the NRDA.
2. Gay Mine occurs on Shoshone-Bannock Tribal lands. For purposes of this PAS, Trustees, at this time, are not considering Gay Mine. Such consideration may be made at a later date.
3 Acres of disturbance provided include disturbance for North Maybe Mine and South Maybe Canyon Mine combined.

How long does the Forest Service anticipate that long-term water treatment will be required to ensure compliance with ARARs? How will the agency address potential damages to, or failures of the water treatment plant in the financial assurance calculation? There are numerous examples of mines that require long-term water treatment, which have resulted in substantial harm to environmental resources due to inadequate financial assurance to address contingencies. For example, at the Beal Mountain Mine in Montana, which is regulated under the CERCLA program, the water treatment plant has been struck by lightning, overcome by toxic mold, and vandalized .[3]

We encourage the Forest Service to include substantial contingencies to fund the replacement of the existing water treatment plant and myriad other repairs/potential costs over the course of the CERCLA remedial action, particularly given the history of problems with the existing water treatment plant.

[2] Id.
[3] https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd686817.pdf

13. Quantification of impacts

It's difficult to tell from the draft CERCLA remedy the extent of selenium impacts in each watershed. A rough estimate based on Figure 3-2, indicates selenium exceedances in fish tissue extending along an estimated10 stream miles.

Hoopes Spring ~ 1 mile
Lower Sage Creek ~ 2 miles
South Fork Sage Creek ~ 1 mile
Crow Creek (from the confluence of Sage Creek to Wyoming border) > 5 miles

Please specify the number of stream miles in each watershed (Hoopes Spring, Sage Creek, Crow Creek, and others) that are exceeding water and/or fish standards.