

PART III – RESPONSIVENESS SUMMARY

INTRODUCTION

This Responsiveness Summary section of the Record of Decision (ROD) summarizes and responds to public comments on the Proposed Plan for the Red Devil Mine (Site), which were received during the public comment period on the preferred remedial action at the Site. The Responsiveness Summary was prepared in accordance with the requirements of Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 40 Code of Federal Regulations Section 300.430(f)(3)(i)(F) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and the Community Involvement Plan for the Red Devil Mine.

Pursuant to its lead agency authority under CERCLA, the Bureau of Land Management (BLM) issued a Proposed Plan for public review on Feb. 4, 2020, identifying its preferred alternative to address the release and threatened release of hazardous substances at or from the Site. The Proposed Plan was placed in the Administrative Record distributed via Certified Mail on Feb. 4, 2020 to 36 Tribes, local governments and Alaska Native Corporations in the middle Kuskokwim River region. The Proposed Plan was also distributed to the U.S. Environmental Protection Agency, Region 10, the Alaska Department of Environmental Conservation, the Alaska Department of Health and Human Services, and the Alaska Department of Natural Resources.

Pursuant to NCP Section 300.430(f)(3)(i)(C), a 30-day public comment period on the Proposed Plan began on March 1, 2020. Ten public meetings were scheduled for March and April 2020. Those meetings were postponed on March 16 due to the onset of the COVID 19 pandemic. In a letter to the BLM on April 15, 2020, the Calista Corporation requested an extension of the comment period. The BLM extended the comment period for the Proposed Plan through December 18, 2020. The public meetings originally scheduled for March and April were held virtually in October 2020.

On Sept. 17, 2020, the BLM sent Certified letters to the 36 Tribes, local governments, and Alaska Native Corporations notifying them of the opportunity to participate in the virtual public meetings. The letters included the link to BLM's Red Devil Mine web page, where participants could find links to the virtual public meetings, the meeting presentations, the Proposed Plan, and the Administrative Record. Toll-free conference lines were established as an alternative for those with limited internet access to participate in the virtual meetings. The letter also invited communities to suggest additional meeting dates. In addition, postcards with the meeting dates and the link to the BLM's Red Devil Mine web page were mailed to the 316 recipients of the Red Devil Mine newsletter.

In early October, meeting flyers and hard copies of the presentations were sent to each of the 36 organizations. Because the community of Red Devil has limited internet access, hard copies of the Proposed Plan and the meeting presentations were mailed to each Red

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Devil Post Office boxholder. In accordance with the NCP, the Notice of Availability of the Administrative Record was published on October 7, 14, and 21 in *The Delta Discovery*, a newspaper of general circulation printed and published weekly in Bethel, Alaska. The ads included the virtual meeting dates, times, and links as well as the BLM Red Devil Mine web page with the Proposed Plan, meeting presentations, and Administrative Record.

Virtual meetings were conducted on October 20, 22, 27, and 29, 2020, to present the Proposed Plan and solicit oral and written comments on the Proposed Plan from interested parties. A total of 16 people attended the virtual public meetings, including four representatives of contracting or consulting firms and four representatives of the BLM. The BLM representatives explained the Preferred Alternative and other alternatives under consideration and answered questions from the public.

The Administrative Record for the Selected Remedy, which is located at the BLM's State Office at 222 W 7th Avenue in Anchorage contains copies of the Proposed Plan, public comments received regarding the Proposed Plan, and technical reports and other documents upon which the ROD is based, including the Remedial Investigation (RI) and Feasibility Study (FS).

This Responsiveness Summary serves two functions:

1. Summarizing the public comments received on the Proposed Plan and the remedial alternatives described therein; and
2. Presenting the BLM's evaluation of and response to those public comments as it finalized the remedy selection process presented in this ROD.

SUMMARY OF AND RESPONSE TO SIGNIFICANT COMMENTS

Comments on the Proposed Plan were received from the Calista Corporation, The Kuskokwim Corporation (TKC), and private citizens.

Comments have been organized into the following categories:

- Environmental Impacts from Cleanup Activities;
- Groundwater; and
- Selected Cleanup Alternative.

A number of substantive comments were received during the public comment period; these are summarized by topic in the following paragraphs, along with the BLM's responses. In addition, a comprehensive list of individual comments and the BLM's responses is presented in the Comments and Responses section following this introduction. The comments presented in this Responsive Summary have been considered in the BLM's final determination of the Selected Remedy presented in this ROD.

Environmental Impacts

One comment was submitted regarding the lack of discussion of unintended adverse environmental impacts to the Kuskokwim River that would result from sediment excavation activities. The comment also inquired if there was heightened risk of mobilizing contaminants during excavation activities.

The dredging of sediment in Red Devil Creek may cause contaminants to mobilize and migrate downstream, which may present a limited short-term risk to the local fish population. The risk to the local fish population is anticipated to be minimal and is described in the decision summary section of the ROD.

Groundwater

A number of comments were received regarding groundwater contamination and the selection of applicable or relevant and appropriate requirements (ARARs) with respect to the proposed alternatives. One comment inquired if a background concentration could be established prior to removal of the tailings, and the other inquired about the Preferred Alternative meeting federal and state established ARARs. One comment questioned potential impacts to a nearby domestic drinking water well.

Groundwater in this area recharges at higher elevations and flows downward to the creek, with some portion flowing directly into the Kuskokwim River. The groundwater flows through a complex network of fractures. As it moves through the bedrock, it interacts with the aquifer, and naturally occurring minerals in the bedrock dissolve (very slowly) into the water. The fractures are not always well connected and natural mineralization is not evenly spread throughout the watershed, creating conditions that promote variable groundwater concentrations. Groundwater that comes into contact with mineralized bedrock contains higher contaminant concentrations than groundwater that is not in contact with mineralized bedrock. Investigation results demonstrate that the combination of poorly connected fractures and localized mineralization creates some areas where groundwater concentrations are elevated and others where concentrations are more than an order of magnitude lower.

Investigation results demonstrate that tailings influence groundwater concentrations in the lower watershed. The tailings generally increase groundwater concentrations more than the mineralization, inhibiting our understanding of natural groundwater concentrations near Red Devil Creek where tailings have accumulated. Consequently, it is technically infeasible to estimate a single background concentration for all three contaminants of concern. In keeping with the CERCLA process, RGs were identified for all three contaminants of concern and are listed in Table 2-4 of the Feasibility Study Supplement. The accompanying notes pertaining to Remedial Action Objective Conformity for arsenic and antimony reflect the high level of uncertainty in the selected RGs. The RG for mercury was selected based on applicable regulatory criteria rather than background concentrations.

Once tailings are removed, they will no longer influence groundwater concentrations. As groundwater continues to flow through the excavated area, concentrations will decrease

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as the impacts of tailings diminish. Over time, groundwater concentrations will come to reflect natural conditions throughout the watershed, including the lower elevations near Red Devil Creek.

As discussed above, the variability in contaminant of concern (COC) concentrations created by fractured flow and localized mineralization make it infeasible to calculate a single background concentration for each contaminant. Therefore, the Remedial Action Objective is to eliminate the influence of tailings on the groundwater and allow concentrations to return to a level defined by natural conditions. These levels are expected to be similar to levels presently observed in bedrock in the upper part of the watershed, which were used to develop groundwater Remedial Goals presented in the Feasibility Study Supplement. Because it is not feasible to define the separate impacts of natural mineralization and tailings on groundwater concentrations at this time, the BLM will develop long-term groundwater quality objectives based on post-remediation conditions and background water quality. Long term monitoring data will be summarized and reviewed every 5 years as required under CERCLA. Each 5 Year review will be performed in coordination with the AK Department of Environmental Conservation (DEC) and the AK Department of Natural Resources (DNR).

The observed variability in existing groundwater concentrations also make it impossible to meet the chemical-specific ARARs (specifically, Safe Drinking Water Act, Alaska Water Quality Standards, and Clean Water Act). After the Remedial Action is performed, the BLM will establish institutional controls to ensure the adequacy of groundwater protection at the site in coordination with the DEC and DNR.

TKC noted that the Proposed Plan does not address the use of domestic drinking water wells in the vicinity of the Site and the waste storage area. A groundwater detection monitoring system will be established and will include monitoring wells that are hydrologically downgradient of the repository, including locations generally north and northwest of the repository, east and northeast of the repository, and south and southeast of the repository.

Selected Cleanup Alternatives

Several comments addressed the selected cleanup alternatives. Many of these included questions pertaining to the effectiveness of and selection criteria for a liner in Alternatives SW3B, SW3C, and SW3D. Other comments expressed concerns regarding the Preferred Alternative in relation to the spread of mine waste contamination and asked whether the Preferred Alternative is the best alternative to address tribal concerns and needs.

The BLM has engaged TKC since 2014 and provided them with information regarding project activities, the results of data collection, and the selection of the Preferred Alternative. Prior to making the Proposed Plan available to the public, the BLM met with TKC leadership to discuss the Preferred Alternative. TKC was given the opportunity to provide feedback on the Preferred Alternative. This discussion built on previous discussions with the objective of providing TKC with a detailed and complete

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understanding of the risk posed by contaminants at the Site and the rationale for the cleanup approach and selection of the Preferred Alternative.

TKC also inquired about the lack of a leachate liner under the Preferred Alternative and asked if cost was a major consideration in the selection of the Preferred Alternative. They also inquired why Alternatives SW3B and SW3D only received moderately favorable ratings. Additionally, the Georgetown Tribal Council (GTC) stated that they preferred Alternative SW4 because it is the only alternative that would remove all the waste and provide a permanent solution to protect residents near the Kuskokwim River.

Cost is one of the nine criteria established by the United States Environmental Protection Agency (EPA) to assess the feasibility of cleanup actions under CERCLA. Compliance with regulations and overall protection are the two most important criteria. Cost is a secondary criterion to other criteria such as consistency with applicable regulations and effective protection of human health and the environment. The detailed hydrologic analysis of the proposed repository and the effectiveness of the cap system demonstrated that it met the requirements for overall protection. Alternative SW3B leaves the existing monofill in place. Alternatives SW3B and SW3D were assigned “least favorable” status due to the significant increase in operations and maintenance requirements compared to the other alternatives and because of the significant increase in cost associated with these alternatives. Alternative SW3C also avoids the risks associated with transporting over 200,000 cubic yards of high-concentration materials hundreds of miles down the Kuskokwim River and thousands of miles to a facility on the Columbia River in Oregon, which would increase the potential for an accidental release.

The GTC raised the concern that implementation of the Preferred Alternative would spread contamination. They also raised concerns regarding the potential for runoff water to penetrate the repository, and an accidental catastrophic failure of the repository. The BLM believes the protective measures that would be implemented under the Preferred Alternative would effectively limit the potential migration of Site contaminants. The repository includes an engineered cap with measures to divert surface runoff and prevents groundwater from directly contacting the contents of the repository. In addition, the BLM performed a ground surface stability analysis to confirm that the structure is designed to withstand a seismic event. Finally, it is noteworthy that the repository will be located 300 feet above the Kuskokwim River, and the United States Geological Survey (USGS) records, dating back to 1964, do not indicate a flood event approaching a maximum stage of 300 feet.

The GTC also expressed concern that the Preferred Alternative is not in the best interest of the Georgetown tribal members and residents near the Kuskokwim River. The BLM has compiled extensive data on the conditions at the Site and performed a detailed analysis of the proposed repository design. The results of these investigations indicate that groundwater at the Site will continue to contain elevated levels of COCs due to the presence of naturally occurring mineralization (see the Groundwater section, above). The results of the hydrologic analysis indicate that the consolidation under the cap is protective of human health and the environment. The BLM will segregate the tailings that

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demonstrate the greatest potential to leach high concentrations of metals; these will be treated by solidification with Portland cement prior to placement in the repository, which will prevent water from leaching metals.

TKC requested the total volumes of material to be excavated based on the various alternatives. A technical memorandum outlining the estimated volumes is available in the project's administrative record (E & E 2019a).

Finally, TKC requested a more detailed description of the Monofill #2 geomembrane. "Geomembrane" is a general term for several different products that are composed of either plastic or rubber and are impermeable to water. However, under the Preferred Alternative, Monofill #2 would be deconstructed and the associated tailings would be consolidated into the onsite repository. The building material, old processing equipment, and Hypalon cap (currently in Monofill #2) would be transported offsite for disposal.

The following tables include comments received at the public meetings or during the public comment period. Oral comments are summarized or paraphrased, and written comments are included verbatim as they were received. The complete set of comment letters is available in the administrative record for the Red Devil Mine at:

Bureau of Land Management – Anchorage Field Office
4700 BLM Road
Anchorage, AK 99507
(907) 267-1246
Hours: Monday–Friday, 7:30 a.m. to 4:00 p.m.

COMMENTS & RESPONSES

Table A Environmental Impacts

<i>TABLE A. ENVIRONMENTAL IMPACTS</i>			
Comment Number	Organization	Comment	BLM Response
1	TKC	There is no discussion in the text regarding the potential for unintended adverse environmental impact to the Kuskokwim River as a result of planned sediment excavation activities at the mouth of Red Devil Creek. It is appreciated that the intent is to remove this source of contamination from the shore environment, but is there not a heightened risk of mobilizing contaminants in the process and potentially impacting fish populations? This is worth addressing at least in summary form for this Proposed Plan.	FS Supplement Sections 4.3.4.5 and 4.3.5.5, which address the short-term effectiveness of Kuskokwim River Alternatives KR4a and KR4b, respectively, note that “during dredging operations, contaminated sediments may become mobilized and migrate downstream, which may present a limited short-term risk associated with the local population. (E & E 2019b)” It is expected that such potential short-term mobilization of contaminants would result in a limited risk for fish populations. This potential limited short-term risk is described in the decision summary section of the ROD.

Table B Groundwater

<i>TABLE B. GROUNDWATER</i>			
Comment Number	Organization	Comment	BLM Response
2	TKC	<p>Pg. 12 – The first sentence states “Groundwater COC concentrations in the area near Red Devil Creek are strongly influenced by the presence of tailings and waste rock”, implying elevated concentrations of COC’s relative to background conditions. However later the statement is made “it is reasonable to assume that concentrations of COCs in groundwater after excavation would be similar to those observed in bedrock in the upper elevations of the watershed”. It is not understood how it reasonable to assume COCs would return to baseline conditions in an impacted section of the watershed. The summary goal is vague that “the BLM will develop long-term groundwater quality objectives based on post-remediation conditions and background water quality data”. Why can’t these be established now, pre-excavation? Can naturally occurring conditions be established as the goal? Table 2 provides some limited Groundwater Remedial Goals which seems to contradict the above statement that objectives will be established in the future.</p>	<p>A detailed discussion of background groundwater concentrations is contained in Section 2.3.3.2.1 of the FS Supplement. While the discussion in Section 2.3.3.2.1 is thorough, it is quite technical. There are several questions within the comment that build toward the larger question of why background concentrations cannot be established before tailings are removed from their current location along lower Red Devil Creek. The response below addresses specific elements of the comment in an attempt to clarify the discussion in Section 2.3.3.2.1 (E & E 2019a).</p> <p>To understand groundwater conditions in the Red Devil Creek watershed, it is important to know: The groundwater is recharged in upper elevations and discharges into Red Devil Creek COC concentrations in groundwater are highly variable throughout the watershed due to complex fracture flow patterns and the influence of natural mineralization The tailings piles near Red Devil Creek exert considerable influence on groundwater concentrations in the lower watershed, making it impossible to estimate natural background concentrations in this area</p>

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<i>TABLE B. GROUNDWATER</i>			
Comment Number	Organization	Comment	BLM Response
			<p>Once tailings are removed, their influence on groundwater concentrations will decrease and water from the upper watershed flushes through to the creek. Over time, groundwater concentrations will come to reflect natural conditions in the watershed. These natural levels are expected to approximate levels presently observed in bedrock in the upper part of the watershed, which were used to develop groundwater Remedial Goals presented in the Feasibility Study Supplement. Therefore, the Remedial Action Objective is to eliminate the influence of tailings on the groundwater and allow concentrations to return to a level defined by natural conditions. Because it's not possible to estimate background conditions in the lower watershed at present, long term monitoring data will be reviewed through the 5 Year Review process to ensure that Remedial Goals accurately reflect natural conditions throughout the watershed. The 5 Year Review process is performed in coordination with the DEC and the DNR.</p> <p>Monitoring results demonstrate that .</p>

<i>TABLE B. GROUNDWATER</i>			
Comment Number	Organization	Comment	BLM Response
3	TKC	Alternative SW3C is stated on pg. 20 as meeting Applicable or Relevant and Appropriate Requirements (ARAR’s). However, it is not clear that ARAR’s will be met for groundwater quality, as previously discussed on pg. 12. The text on that page again states that the BLM will, in the future, “develop long-term groundwater quality objectives”. This does not appear consistent with ARAR’s, which are defined on pg. 19 as presumably quantitative applicable federal and state statutes, regulations and other requirements. Is it the justified waiver that would be used to fulfill ARAR’s?	Proposed Plan pages 19–20, Section 2, Compliance with Other Regulations, states that “Alternatives SW3C, SW3D, and SW4 would comply with <u>all associated regulatory requirements.</u> ” Alternative SW3C incorporates groundwater alternative GW2. It is stated in FS Supplement Section 4.2.2.2, Compliance with ARARs, that “compliance with chemical-specific ARARs would not be achieved—specifically, the Safe Drinking Water Act, Alaska Water Quality Standards, and Clean Water Act Water Quality Standards. It should be noted that under all alternatives, cleanup to chemical-specific ARARs is not achievable at the Site due to the influence of naturally occurring mineralization, and the final cleanup action will require that Institutional Controls be required.” (E & E 2019b)
4	TKC	On pg. 22 it is not clear how the selected alternative would be protective of groundwater because the excavated materials would be “adequately isolated”. Without a liner the materials are only partially isolated. The plan for long-term monitoring without pre-established COC goals for groundwater concentrations does not appear to meet the goal of being protective of groundwater.	The BLM’s assessment that the excavated materials would be adequately isolated from groundwater is based on results of the Final Technical Memorandum - Red Devil Mine Proposed Repository, Refined Hydrologic Analysis (E & E 2019). The following summary of the analysis is presented on page 8 of the Proposed Plan (BLM 2020): “The results of the refined analysis show that for all COCs, the concentrations in leachate decrease

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<i>TABLE B. GROUNDWATER</i>			
Comment Number	Organization	Comment	BLM Response
			<p>from the initial leachate concentrations to levels below State of Alaska drinking water criteria within the unsaturated zone at depths of less than 4 feet below the base of the repository.” The Alaska Department of Environmental Conservation agreed with the analysis provided in this document. Although the EPA divested itself from the Red Devil CERCLA project before this document was complete, they provided technical input on the overall concepts and draft versions of the document.</p> <p>Remedial Goals (RGs) for groundwater are listed in Table 2-4 of the Supplemental Feasibility Study Report (ref). As discussed in the introduction of this document, the long term monitoring data will be compiled and formally reviewed every 5 years in coordination with DEC and DNR to ensure they accurately reflect watershed conditions.</p>
5	TKC	<p>The plan does not address the impacts of the groundwater in direct relation to the existing population that is currently using individual wells near the mine site and the waste storage site. The closest individual lives approximately ½ mile downhill from the proposed waste storage site. The resident has been living at that location full</p>	<p>Under site-wide alternative SW3, a groundwater detection monitoring network will be established to evaluate the protectiveness of the onsite repository. This network will include monitoring wells that are positioned at locations hydrologically downgradient of the repository, including locations generally to the north and</p>

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<i>TABLE B. GROUNDWATER</i>			
Comment Number	Organization	Comment	BLM Response
		time for over 40 years and utilizes an individual well for water. The proposed plan does not address impacts to the immediate population near the site.	northwest of the repository (between the repository and the McCally Creek drainage), east and northeast of the repository (between the repository and the Kuskokwim River), and south and southeast of the repository (between the repository and the Red Devil Creek drainage).

Table C Selected Cleanup Alternatives

<i>TABLE C. SELECTED CLEANUP ALTERNATIVES</i>			
Comment Number	Organization	Comment	BLM Response
6	Calista Corporation	First, to the extent that one our regional stakeholders and partners, The Kuskokwim Corporation ("TKC"), raises substantive concerns about the preferred alternative, Alternative SW3C, we ask that BLM take any additional time needed to address those concerns before finalizing the proposed plan.	<p>The BLM has proactively engaged TKC through multiple phases of the project, extending back to 2014. Through multiple meetings, TKC leadership has been informed of project activities and the results of data collection and analysis leading up to the selection of a preferred remediation alternative.</p> <p>Prior to making the Proposed Plan available to the public, the BLM met with TKC leadership to discuss the Preferred Alternative. The BLM's objective in meeting with TKC at that time was to describe the Preferred Alternative and the analysis used to identify that alternative. Further, it was an opportunity for the TKC to provide feedback. That discussion built on previous discussions from earlier phases of the project, with the overall objective of providing TKC with a detailed and complete understanding of the risks posed by site contaminants and the rationale for the cleanup approach defined under the Preferred Alternative.</p> <p>Comments 3 through 11 below were submitted by TKC and reflect the concerns expressed in this comment. Those comments speak to concern about whether the action defined under the</p>

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<i>TABLE C. SELECTED CLEANUP ALTERNATIVES</i>			
Comment Number	Organization	Comment	BLM Response
			Preferred Alternative will provide sufficient protection of human health and the environment, which is a primary feasibility criterion established by the EPA as part of the RI/FS elements of the process applied to Red Devil Mine. Several comments address other specific feasibility criteria. There are nine criteria, and seven of those were used to identify the Preferred Alternative. Figure 4 in the Proposed Plan illustrates how each alternative was rated relative to seven criteria. Only Alternatives SW3C and SW4 meet the requirements for the two most important criteria—regulatory compliance and overall protection. Alternative SW3C best meets the requirements of the other five criteria, and so it was designated as the Preferred Alternative. Elements of the Preferred Alternative identified by TKC in their comments are discussed in the responses that follow.
7	Calista Corporation	Second, due to the COVID-19 pandemic, we believe that the comment period should be extended beyond April 30, 2020. Adequate time should be allocated for BLM to conduct public outreach in Kuskokwim River communities before the preferred alternative is finalized. Unfortunately, all of the public meetings previously scheduled by BLM in March and April were postponed due to COVID -19-related travel restrictions and public health precautions.	The BLM extended the comment period for the Proposed Plan through December 18, 2020. The public meetings originally scheduled for March 2020 were held virtually in October 2020.

<i>TABLE C. SELECTED CLEANUP ALTERNATIVES</i>			
Comment Number	Organization	Comment	BLM Response
8	TKC	<p>Pg. 20 suggests that Alternatives SW3B and SW3D, which includes a bottom liner and a leachate collection system, would present “significant long-term operational challenges related to leachate collection, storage and management”. However, these challenges are not identified or described so it is not clear why this option is identified as rating low for implementation ability. Overall liners are commonly used at landfills, mining operations, and other solution recovery operations. The challenges appear more related to cost than implementation ability. It is appreciated that the alternatives include transportation of collected leachate offsite. Is this the driving challenge? There is no discussion here of the potential for on-site management.</p>	<p>Operational challenges associated with collection, storage, and management of leachate are described in FS Section 3.2.3.2, Alternative 3b – Excavation of Solids and Sediments, Solidification, Onsite Consolidation, Capping, and Collection and Offsite Disposal of Leachate. In addition to transportation of collected leachate, other operational challenges are described in the section as follows: “In addition to the Operation and Maintenance (O&M) requirements presented for Alternative 3a, evaluation of the leachate collection system and the bottom liner would be required annually to assess whether damage to the bottom liner had occurred, clogs exist in the collection piping, sump and pipeline operational issues are occurring, or repairs are needed. Repairs would be performed on an as-needed basis. The system should be inspected during the spring thaw when melting ice and snow produce maximum seasonal runoff, as this is the time period when infiltration potential will be highest.” (E & E 2016)</p> <p>Cost is one of nine criteria established by the EPA to assess the feasibility of cleanup action under CERCLA. As stated in the response to comment 1, compliance with regulations and overall protection are the two most important of the nine criteria. Had the detailed hydrologic</p>

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<i>TABLE C. SELECTED CLEANUP ALTERNATIVES</i>			
Comment Number	Organization	Comment	BLM Response
			analysis of the proposed repository not demonstrated that the cap system effectively prevents leachate impacts to groundwater, Alternative SW3C would not have met the requirement for overall protection and would not have been selected as preferred.
9	TKC	It is not understood why Alternative SW3C has received a “most favorable” criterion rating for Long-Term Effectiveness, whereas Alternatives SW3B and SW3D are only moderately favorable. Having a liner in place ensures no long-term seepage into the groundwater system which is hydrologically connected to the Kuskokwim River. Also the Implementability evaluations are assign a “least favorable” criterion to Alternatives SW3B and SW3D which drives the overall selection of the cheaper Alternative SW3C. Lastly cost for all SW3 options are listed as “moderately favorable” despite the SW3B and SW3D options being twice as expensive as the selected preferred SW3C option. The Proposed Plan reads like cost is a driving factor to the Preferred Alternative decision, although it is not identified as such in Figure 4.	Regarding long-term effectiveness, Alternative SW3D was assigned “most favorable” for long-term effectiveness, the same as Alternative SW3C. Alternative SW3B was assigned “moderately favorable” because, unlike Alternatives SW3C and SW3D, it leaves the existing monofill in place. Regarding implementability, Alternatives SW3B and SW3D were assigned “least favorable” for implementability due to significantly increased operations and maintenance requirements compared to the other alternatives. Regarding cost, the assignments for cost favorability reflect order of magnitude cost ranges.
10	TKC	It would be helpful to have a summary table of total volumes of material to be excavated under the various evaluated scenarios. For example, it is not stated what total volumes of materials will	The total estimated volume of material to be excavated varies depending on the SW3 option (A through D). An updated estimate of volumes of materials to be excavated in individual areas of

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<i>TABLE C. SELECTED CLEANUP ALTERNATIVES</i>			
Comment Number	Organization	Comment	BLM Response
		be excavated for the SW3 scenarios including Red Devil creek sediments and sediments at the Kuskokwim River mouth. It is stated that 940 yd ³ of material will be excavated from the Monofill #2 and 1,700 yd ³ of old tailings.	the Site is provided in the Final Technical Memorandum - Red Devil Mine Proposed Repository, Refined Hydrologic Analysis (E & E 2019). This tech memo is part of the online project administrative record A table summarizing estimated volumes of materials to be excavated under the various evaluated site-wide remedial alternatives is provided in the ROD.
11	TKC	The description of the cover system for Monofill #2 is “geomembrane”. Can this be further described? The follow-on text states that it will “inhibit” leaching – does this mean it will be semi-impermeable? It would be helpful to have more of a description of the geomembrane.	<p>“Geomembrane” is a general term for several different products that are all constructed of either a form of plastic or rubber compound. The important characteristic for this application is that the material is essentially impermeable to water. The material is manufactured in sheets that are welded together when installed as a cap such as the one specified for Monofill # 2 in Alternatives SW3A and SW3B. It should be noted that under the Preferred Alternative, SW3C, Monofill #2 will be deconstructed and the tailings associated with this monofill will be consolidated into the onsite repository. The building material, old processing equipment, and Hypalon cap currently incorporated into Monofill #2 would be transported offsite for disposal.</p> <p>A description of the cover system that would be constructed for Monofill #2 is described in Section 3.2.3.1 of the Final FS (E & E 2016). The</p>

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<i>TABLE C. SELECTED CLEANUP ALTERNATIVES</i>			
Comment Number	Organization	Comment	BLM Response
			FS completed in 2016 is available via the online project administrative record.
12	GTC	While the GTC is pleased to see progress move forward on a plan to remediate RDM, the GTC also has some reservations concerning the Bureau of Land Management’s preferred alternative. Residents of Red Devil who are Tribal members of the NVG are also concerned with the mine waste at RDM. They are concerned that any action at the mine will further the spread of toxic material due to the remedial work at RDM.	The BLM recognizes the importance of the potential for spreading of contamination as a result of the remedial activities. The BLM believes that the protective measures that would be taken during implementation of Alternative SW3 (including dust control) would effectively limit the potential migration of contaminants.
13	GTC	Respectfully, the Georgetown Tribal Council remains unconvinced that the BLM’s preferred alternative is the best alternative for Georgetown’s tribal members in the area and residents of the Kuskokwim River. The GTC is concerned that if the mine waste is interred at RDM instead of removed, the waste will continue to pose a threat to human health and the environment.	The BLM appreciates and shares the GTC’s concern for the wellbeing of local residents. The detailed analysis of groundwater at the mine site demonstrates that groundwater migrating into the Kuskokwim River from the mine site, even in its current state, presents no measurable impact on the Kuskokwim River. Regarding the Preferred Alternative, which includes consolidation of tailings and waste rock in an onsite repository, the BLM has compiled extensive data on site conditions and performed detailed analysis of the proposed repository design. Investigation results clearly show that groundwater at Red Devil Mine will contain elevated COC concentrations regardless of any action taken, due to the presence of naturally

<i>TABLE C. SELECTED CLEANUP ALTERNATIVES</i>			
Comment Number	Organization	Comment	BLM Response
			<p>occurring mineralization. The detailed hydrologic analysis of the proposed repository demonstrates that onsite consolidation under the cap, as designed, is protective of human health and the environment. The BLM is committed to regular operation and maintenance of the repository to ensure that the repository continues to prevent adverse environmental impacts. The site-wide remedy will undergo a 5-year review to assess its effectiveness and BLM will work with federal and state stakeholders to monitor remedy performance on a regular basis.</p> <p>As an additional protective measure, the BLM intends to segregate tailings that demonstrate the greatest potential to leach high concentrations of metals. The segregated tailings will be treated by solidification prior to incorporation into the repository. Solidification is process that coats the tailings with Portland cement, which prevents water from leaching metals.</p>
14	GTC	The Native Village of Georgetown is concerned that interring the mine waste will lead to an unnecessary risk of exposure in the future. The risks that the GTC are most concerned with is the potential for runoff water to penetrate the repository, and the risk of an accidental catastrophic failure of the repository in the long-term.	<p>Water infiltrating through the cap and catastrophic failure of the repository are two very different issues, explained below:</p> <p>As discussed in the response to comment 13, the BLM has conducted detailed analysis of the cap’s ability to prevent infiltration, and the results of that analysis indicate that the cap, as designed, is</p>

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<i>TABLE C. SELECTED CLEANUP ALTERNATIVES</i>			
Comment Number	Organization	Comment	BLM Response
			<p>effective in both the long term and short term in preventing measurable infiltration of rainfall and snowmelt. The BLM will regularly monitor the cap to ensure that it remains in good working order.</p> <p>The repository is a large pile of earthen material with an engineered cap that includes measures to divert surface runoff and prevent groundwater from directly contacting the repository contents. The BLM has also performed a slope stability study of the ground surface beneath the repository to confirm that the designed structure will withstand a seismic event. It is also worth noting that the proposed repository will be approximately 300 feet above the Kuskokwim River. USGS records of Kuskokwim River flooding reach back to 1964, and no flood on record approaches a maximum stage of 300 feet.</p>
15	GTC	The Georgetown Tribal Council prefers alternative SW4 for the remediation of the site as it is the only alternative that removes the waste at the site and provides a permanent solution that protects the residents of the Kuskokwim river from the mine waste at RDM.	The EPA has developed nine criteria for evaluating the feasibility of remedial actions under the CERCLA. All of the alternatives for the Site were evaluated according to the EPA criteria. Cost is one criterion but is secondary to others such as consistency with applicable regulation and effective protection of human health and the environment.

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<i>TABLE C. SELECTED CLEANUP ALTERNATIVES</i>			
Comment Number	Organization	Comment	BLM Response
			Alternative SW3C was selected because this action protects future potential exposure of people and wildlife to the tailings by preventing offsite migration of tailings through consolidation into an engineered repository located well away from Red Devil Creek and the Kuskokwim River. The Preferred Alternative effectively protects human health and the environment in the long term by preventing COC migration in water. Onsite consolidation also avoids risks inherent in transporting over 200,000 cubic yards of high-concentration material hundreds of miles down the Kuskokwim River and thousands of miles to a facility on the Columbia River in Oregon.
16	GTC	The Native Village of Georgetown acknowledges the extraordinary cost of alternative SW4, however The GTC sees the expense of alternative SW4 as an investment in the future. The NVG also acknowledges the risk in transporting the RDM waste such a long distance, the NVG is confident in the BLM’s ability to mitigate these risks and safely transport the waste materials to its remediation facility.	Please refer to the response to the previous comment.
17	Private Individual	Governmental agencies need to do a better job of getting guaranteed assurances from the corporations before these mines are allowed to open. I would suggest 100 billion dollars in bonds for cleanup and yearly pop surprise inspections.	Red Devil Mine was operated at a time when the federal government had no authority to regulate mines. In the late 1970’s the BLM was authorized to regulate active mines on land the BLM manages. Our mining compliance program actively inspects mines at least once a year to

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<i>TABLE C. SELECTED CLEANUP ALTERNATIVES</i>			
Comment Number	Organization	Comment	BLM Response
			ensure good mining practice and responsible mine reclamation.
18	Private Individual	The Preferred Alternative should be undertaken to ensure the environment and wildlife and birds are protected.	Thank you for your comment, comment noted.