

REVIEW COMMENTS

PROJECT: BLM Red Devil Mine

DOCUMENT: Draft FS, v3

DATE: 9/14/15

REVIEWER: DEC Contaminated Sites Program

PHONE: (907) 766-3184

Item No.	Location (page, par., sen.)	COMMENTS	BLM Response
1.	Page 2-5	<p>The following is not true as Arsenic was based off human health in the sediment according to the Table 2-3. Please clarify.</p> <p>“For biotic exposure media to humans, RGs developed for tailings/waste rock, contaminated soil, and contaminated Red Devil Creek sediment are based on background levels and are not based on calculated risk based concentrations addressing biotic exposure media to humans.”</p>	<p>The reference to Red Devil Creek sediments will be removed from the noted text.</p>
2.	Table 2.2	<p>For the exposure medium for tailing/ waste rock soil under the receptor (s) column: “human –future adult resident” is listed but the HI column has a footnote “future child resident scenario.” Please clarify.</p>	<p>The cell under the “Receptors” column for human resident will be changed to future child resident.</p>
3.	Table 2-3	<p>Is there a reason for not providing a RBCL for antimony in the human health column for Red Devil Creek sediment for transparency?</p>	<p>See the key symbol “-“which explains why the value for antimony is not presented.</p>
4.	Table 2-4	<p>Lead ROA doesn’t take into consideration groundwater protection as noted in the table.</p>	<p>The reference to protection of groundwater for lead will be removed from Table 2-4. This will also be corrected in the footnote of Table 2-3. An advance copy of Table 2-4 will be provided to ADEC.</p>
5.	Page 4-4	<p>Please include what ecological receptors for alternative 2 are being excluded from the contamination.</p>	<p>The text will be revised to state that the fencing will reduce the potential for small to large animals.</p>
6.	Table 2-1	<ul style="list-style-type: none"> a) Vanadium and Zinc are not COCs and these rows can be deleted. b) Petroleum Hydrocarbons should be Diesel-Range Organics to be consistent with Table 2-3. 	<ul style="list-style-type: none"> a) The proposed changes will be made. b) A global change to Diesel-Range Organics will be made.
7.	Section 2.1, RAOs	<p>The RAOs should be revised to remove the word ‘reduce’ and include the specific RGs. The phrase ‘acceptable level’ is too vague. It would be acceptable to use something like, “Prevent exposure....to levels designated in Table 2-3.”</p>	<p>A reduction in exposure to contaminants can achieve the RAOs. Additionally Table 2-4 summarized the RGs. No change to the text is proposed.</p>
8.	Table 2-3	<p>Previous comment #14: According to my notes, the footnote agreed upon in 2/2014 that should be included is: “The arsenic RGs for</p>	<p>This language will be added to the footnotes. An advance copy of Table 2-3 will be provided to ADEC.</p>

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		tailings/waste rock and soil represent the naturally-occurring background values for soil and the arsenic RG for Red Devil Creek sediments represents the risk of 1 in 100,000 for a future resident. As the background concentrations are higher than the calculated risk-based levels, the total residual excess lifetime cancer risk at the site will exceed ADEC's standard of 1 in 100,000. "	
9.	Table 2-3	<ul style="list-style-type: none"> a) Selenium was listed as a COC for contaminated soil in Table 2-1, but is not listed in Table 2-3. b) Methylmercury was listed as a COC for RDC sediments in Table 2-1, but is not listed in Table 2-3. (see section 1.2.3.5 about the RDC sediment.) c) The remedial goals for several T/WR and Soil COCs have not been identified....barium, lead, nickel, DRO. A (7) should be placed next to the proposed RG. 	<ul style="list-style-type: none"> a) Selenium will be added to Table 2-3. b) Methylmercury will be added to Table 2-3. c) The (7) footnote will be added to relevant COCs in Table 2-3. <p>An advance copy of Table 2-3 will be provided to ADEC.</p>
10.	Table 2-4	For Antimony, Chromium and Mercury in T/WR and Soil, the direct contact concentrations for the Under 40" climate zone should be used as the site does not meet the criteria for the Arctic Zone. Sb: direct contact is 41. Cr: direct contact is 300. Hg: direct contact is 30, outdoor inhalation is 18. RAO Conformity statements do not change.	The concentrations listed for these COCs in Table 2-4 will be reviewed and revised as appropriate.
11.	Page 2-12, 1 st para, last sentence	This sentence references a discussion of Kuskokwim River Sediments in Section 2.2.2 – suggest deleting sentence. Section 1.2.3.5 states that no exceedences of the comparison criteria for methylmercury were found.	The sentence referring to a discussion of Kuskokwim River sediments in Section 2.2.2 will be deleted. The sentence regarding methylmercury will be deleted from Section 1.2.3.5.
12.	Section 2.2.2, para 1, line 4	References sediment RG for methylmercury. Methylmercury not included in Table 2-3	Methylmercury will be added to Table 2-3. The statement in Section 1.2.3.5 regarding methylmercury exceedances will be deleted. An advance copy of Table 2-3 will be provided to ADEC.
13.	Section 2.2.2, para. 2, line 1	Missing word: "Contaminated ____ are..."	The text will be revised to read: contaminated sediments are...
14.	Section 2.2.2, para 2	<ul style="list-style-type: none"> a) Figure 2-3 referenced in this paragraph does not exist. b) I find the explanation of the evaluation of contaminated soil (higher than 164' elevation) and contaminated sediment (lower than 164' elevation) a bit confusing here. Figure 3-1 shows excavation to various depths, but the elevations are not 	<ul style="list-style-type: none"> a) The reference to Figure 2-3 will be deleted. b) The section will be revised to read: any material within the deltas at an elevation of 164 is assumed to represent low river elevation levels.

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		included so it is unclear if it is soil or sediment and how this removal will occur.	
15.	Section 2.4, ICs	The ICs described do not restrict access to and uses of the land, they merely provide information to the public. The differentiation between ICs and ACs in the FS is unclear. Please revise.	Administrative and legal controls placed on the deeds make it illegal to do intrusive work on the site. Additionally, ICs and ACs are further described on page 2-26. No change to the text is proposed.
16.	Sections 2.5.1.1 and 2.5.1.2	It should also be noted in these sections that ICs and ACs are less effective in rural areas with an absentee landowner than they would be in more populated areas with a landowner or representative who can check on the land frequently.	Given the isolated nature of the RDM site, the proposed controls would achieve the desired results. No change to the text is proposed.

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17.	Table 2-6	<p>Please add the following as applicable:</p> <ul style="list-style-type: none"> a) 18 AAC 60.025(a) – polluted soil b) 18 AAC 60.025(d) and (e) – demonstration requirements for landfills with polluted soil c) 18 AAC 60.330 - design standards for landfill that accepts polluted soil d) 18 AAC 60.485 – industrial solid waste monofills e) 18 AAC 60.490 - closure requirements for monofills f) 18 AAC 75.355(b) - requirement that sampling and analysis be conducted by a qualified, impartial third party. g) 18 AAC 75.360 - requirement that cleanup operations are conducted or supervised by a qualified person h) 18 AAC 75.370(a)(1) - requirement that a responsible person not blend contaminated soil with uncontaminated soil and how soil will be segregated i) 18 AAC 75.370(a)(3) and (5) - requirement that a responsible person place contaminated soil on a liner j) 18 AAC 75.370(a)(6) - requirement that a responsible person cover and protect the contaminated soil stockpile k) 18 AAC 75.370(a)(7) - requirement that a responsible person inspect and maintain the contaminated soil stockpile l) 18 AAC 75.375(c) - requirement that the use of institutional controls, to the maximum extent practicable be appurtenant to and run with the land so that the control is binding on each future owner of the site and be maintained by each responsible person or owner of the site. 	<ul style="list-style-type: none"> a) The material to be consolidated into the repository is not "polluted soil". Pursuant to 18 AAC 60.990(97)(a), "polluted soil" means, in relevant part, soil that is <u>placed</u> into a landfill to comply with <u>an approved contaminated site cleanup plan under 18 AAC 57 or 18 AAC 78</u>. In the case of the repository the material does not meet the definition of polluted soil because: (a) it will not be "placed" into the repository, given that placement will not occur under EPA's AOC policy; and (b) the cleanup plan will be approved by BLM under CERLCA and the NCP, not by ADEC under 18 AAC 57 or 18 AAC 78. Accordingly, this regulation is not applicable. Furthermore, it is not relevant and appropriate because: (a) the repository will not contain municipal solid waste, which contains various unknown contaminants; (b) EPA's AOC policy allows consolidation of contaminated materials into a repository without triggering land disposal requirements; and (c) ADEC approval under 60.025(b) – (e) is not required pursuant to CERCLA §121(e)'s on-site action permit exemption. b) ADEC approval under 60.025(d) and (e) is not required pursuant to CERCLA §121(e)'s on-site action permit exemption. c) See response to part a) of this comment. d) This regulation applies to monofills that accept "industrial solid waste", however mining waste is explicitly excluded from the definition of "industrial solid waste" by 18 AAC 60.990(63). Accordingly, it is not applicable. Furthermore, it is not relevant and appropriate because: (a) the repository will not contain industrial solid waste, which can contain a broad range of contaminants including chemicals, sludges, resins, ash, and many other harmful wastes; (b) the regulation is not intended to apply to mining waste; (c) EPA's AOC policy allows consolidation of contaminated materials into a repository without triggering land disposal requirements; and (d) ADEC approval of alternative repository designs under 60.485(e) and 60.330(b) is not required or appropriate pursuant to CERCLA §121(e)'s on-site action permit exemption - - this is instead BLM's role under the NCP.

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18.	Table 2-6 (page 2-17 & 2-19)	Alaska Solid Waste regulations (all entries) should be 'Applicable', not 'Relevant and Appropriate'.	BLM has made the determination that these regulations are relevant and appropriate. No change to the table is proposed.
19.	Table 2-6	18 AAC 60.025(b)(4) is not an ARAR. Table 4-18 in the Remedial Investigation shows a maximum RRO concentration of 7800 mg/kg.	The ARAR will be removed from both Tables.
20.	Table 2-7, sections 2.5.1.5 and 2.5.1.6	All of these sections refer to 'Excavation/Dredging'. It is assumed that the inclusion of 'dredging' is a holdover from the previous FS when an action in the Kuskokwim River was being evaluated – suggest removing 'dredging'.	The change will be made.
21.	Section 3.1.2	Please include the specific ICs that are being proposed and how exactly would they be implemented?	For ICs, the term deed restrictions will be deleted. The BLM will issue an order, published in the federal register, to restrict use. Fencing and signage for ACs will be implemented. Additionally, BLM will develop a site management plan outside of the CERCLA process, which is stated in the text..
22.	Section 3.1.3.1, bullet 2	Does the "upper 5 feet" statement refer to the 'exposed delta material'? Figure 3-1 shows depths of 4-10' of proposed excavation of the deltas. Confusing.	The sentence, "Confirmation sampling will be performed to determine the final excavation limits." Will be added to the end of bullet 2.
23.	Section 3.1.3.1, bullet 3	<ul style="list-style-type: none"> a) Is the 'interim removal' noted here the 'early action'? If so, please revise for clarity throughout the document. b) Also, it is unclear as to the location for this reference – is this Red Devil Creek? There were no samples collected after the early action, thus it is unknown if the RGs were achieved. Suggest deleting this bullet as the same action is covered by bullet 4. 	<ul style="list-style-type: none"> a) A global change will be made to refer to the 2014 non-time critical action (NTCRA). b) The third bullet will be deleted.
24.	Page 3-5	Paragraph 1 (ICs and ACs) should be included below the 'Alternative Summary' paragraph and not above it.	The change will be made.
25.	Page 3-5, Excavation, line 4	The excavation can extend to the design depth (figure 3-1), or bedrock, whichever is encountered first....however, if the laboratory confirmation samples show that elevated concentrations remain, then additional excavation will need to occur. Excavation will occur until the RGs are achieved – this should be included in Alts. 3a-4.	The subject sentence will be revised to state that excavation may continue to depths below the design depth as appropriate based on results of confirmation samples.
26.	Page 3-6, para 2	We acknowledged that there may be some areas of naturally-mineralized soil present with concentrations of COCs that are greater	BLM agrees with the comment. No change to the text is proposed.

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		than the RGs. We agree that a process can be determined at a later date which identifies and sets out a procedure for addressing these areas.	
27.	Page 3-6, Monofill 2	What actions will be taken to protect the cap from human activities, such as 4-wheelers, etc. Suggest a fence similar to around the repository.	The site-wide fencing proposed in Alternative 2 is a component of Alternative 3a through 3d. No change to the text is proposed.
28.	Page 3-7, para 1, line 13	Missing word: ‘...assumed that ____ will be taken...’	The text will be revised to add the word “water” in the missing space.
29.	Page 3-7, SMA, lines 1-3	“Pockets of exposed ore....are actively eroding and transporting material into Red Devil Creek”. I don’t think this statement is accurate. The rationale for addressing the SMA is the safety issue of the open trenches and the elevated concentrations that have been made accessible to receptors.	<p>BLM agrees with the comment. The SMA alternative summary will be revised as follows:</p> <p>“Pockets of exposed naturally mineralized soil/bedrock have been observed within the Surface Mined Area along the surface trends of the Red Devil Mine ore zones. These areas encompass RI surface soil sample locations SM01 through SM09. In order to reduce the potential for direct contact with these areas, areas of exposed highly mineralized soil/bedrock would be delineated in the field and re-graded to provide stable slopes, and then these isolated areas would be covered with locally derived natural occurring silt (loess). Loess would provide a suitable vegetative growth medium. For the purposes of this FS, it was assumed that a total of approximately 5 acres of isolated areas within the Surface Mined Area would require a loess cover based on RI results.</p> <p>Additionally, drainage ditches would be installed around the upgradient perimeter of each exposed area to divert runoff and help mitigate possible future erosion of the protective cover in these areas.</p>
30.	Page 3-7, SMA	The volume of loess cover is not mentioned in this section, however the cost estimate in Appendix C shows 12”. If this area is going to be seeded similar to the rest of the site (as mentioned in the Backfilling section), a smaller layer could be placed as the cap.	This comment addresses design-level detail that has little to no effect on the analysis of alternatives at the FS stage of decision making. No change to the text is proposed.
31.	Page 3-7, RDC Sediment Excav.	Paragraph 1 discusses the 2014 early action. This action was conducted to reduce erosion and migration of tailings into the creek and down to the river. It was not based on contaminant concentrations, nor was any sampling conducted. All of the sediment in Red Devil Creek which contains concentrations of the RGs should be excavated, and	It is stated that sediments containing concentrations above the RGs left from the early action will be excavated. No change to the text is proposed.

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		demonstrated through the collection of analytical samples – this statement should be included in this section.	
32.	Page 3-8, para 2, line 11	Please provide additional detail on the ‘restoration activities’ that are mentioned.	This comment addresses design-level detail that has little to no effect on the analysis of alternatives at the FS stage of decision making. No change to the text is proposed.
33.	Page 3-10, para 2	The overall design of the repository is a bit unclear. Is there a way to incorporate all of the large drain rock that was used in the early action? The metal boxes filled with that rock will be removed during the soil excavation.	This comment addresses design-level detail that has little to no effect on the analysis of alternatives at the FS stage of decision making. No change to the text is proposed.
34.	Page 3-11, O&M, line 11	“...until it is determined they are no longer necessary...” What criteria will be used to make this determination and who will make it? 40 CFR §300.430(f)(4)(ii) states: <i>If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.</i> This sentence should be revised to state that Five Year Reviews will need to be conducted until UU/UE is reached.	BLM will make these decisions at the time of 5-year reviews in consultation with ADEC. This will be added to the text.
35.	Alts 3b, 3c, & 3d	Comments on Alt 3a which concern specific elements that are also included in Alts 3b, 3c, and 3d are intended to be applied to those alternatives as well.	The proposed changes to Alternative 3a will be applied, as appropriate, to Alternatives 3b through 3d.
36.	Page 3-13, Leachate	What was the rationale for disposing of the leachate off-site – this seems to be a costly option. (The cost estimate used 90,000 gallons per year, which seems high.) There are other less-expensive leachate treatment options such as a passive bioreactor which should be evaluated as well.	Given the remote nature of the RDM site and the volume of leachate that would be generated, it was determined establishing a treatment system would pose significant O & M issues with maintaining treatment equipment and supplies (e.g., resins). Therefore, it was determined that shipping off-site for disposal was a more reliable and certain method for the disposition of the leachate. Additionally, a passive bioreactor may be effective in treating organic constituents, but given the predicted metals concentrations, it would be ineffective. No changes to the text are proposed.

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37.	Section 3.1.3.3, para 1	Missing word: "...identical to Alternative ___:	The text will be revised to state: Alternative 3a.
38.	Page 3-16, bullet 5	The words "...with the addition of a liner and leachate collection system..." should be removed. Alternative 3c does not have a leachate collection system.	The requested change will be made to the text.
39.	Page 3-16, para 1	Missing words: "_____ differs from Alternative...."	The text will be edited to read: "Alternative 3c differs..."
40.	Page 3-16, monofill 2	RI sample results demonstrated that some of the material on top of Monofill 2 is considered hazardous waste and will need to be solidified prior to placing it in the repository.	The text will be changed to include solidification of Monofill #2 material. The alternative cost will also be revised accordingly.
41.	Page 3-16, monofill 2	Previous sample results showed that there is free-phase mercury in the area of the former retort condensing tubes. Will this soil be solidified and place in the repository – or, will it be sent out for disposal?	Material containing free-phase mercury will not undergo solidification and will be shipped off-site for disposal. The text will be revised accordingly.
42.	Section 3.1.3.4, bullet 2	The inclusion of 'Red Devil Creek sediment' here and in bullet 3 is repetitive.	The 3 rd bullet will be deleted.
43.	ERRATA: Section 3.1.4, bullets 1 & 2	Is the proposed area to be excavated in Alt 4 the same as Alts 3? The bullet wordings in Alt 4 is not exactly the same as in Alt 3a. Also, in Alt 4 bullet 2 there is a reference to the 'final remedy' – this FS is for the Interim ROD...the Final ROD will include the groundwater and river sediments.	The areas to be excavated for Alternative 3a and 4 are same except Monofill #2 is not excavated under Alternative 3a and 3b. No change to the text is proposed. With regards to the use of "Final remedy", the sentence will be change to read "under this remedial action."
44.	ERRATA: Section 3.1.4, bullet 5	This sentence is duplicative – already stated in bullet 2.	The fifth bullet will be deleted.
45.	ERRATA: Section 3.1.4, last bullet	Is this maintenance and monitoring of the ditches in the SMA? If so, that should be stated as what is required in this Alt is different than in Alt 3.	The bullet will be revised to read: Perform operations and maintenance associated with the loess cover in the Surface Mine Area.
46.	ERRATA: Monofills	It should be stated that the excavations at the monofills will extend until the RGs are met. Monofills 1 and 2 were constructed within areas of contamination.	This statement will be incorporated into the text.
47.	Figure 3-1	a) It is unclear in the text of Alts 3a-d and 4 as to which areas on this figure will be excavated in those alternatives. It would be	a) The text will be revised for Alternatives 3a through 4to indicate which areas will be excavated for the individual

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		<p>helpful to correlate the text and figure.</p> <p>b) Alts 3a-d include a fence around the repository only, not a fence around the entire site. The repository fence should be included on this figure.</p> <p>c) It this figure intended to show the potential excavation areas for all of the alternatives? The areas of the monofills are not labeled nor included on the chart.</p>	<p>alternatives.</p> <p>b) The proposed fence surrounds the site as described in Alternative 2. The site-wide fence is depicted on figure 3-1.</p> <p>c) Figure 3-1 and the text will be revised to indicate the areas of potential excavation for all alternatives.</p>
48.	Table 4-1	<p>Add the following as applicable:</p> <p>a) 18 AAC 60.490 - closure requirements for monofills</p> <p>b) 18 AAC 75.375(c) - requirement that the use of institutional controls, to the maximum extent practicable be appurtenant to and run with the land so that the control is binding on each future owner of the site and be maintained by each responsible person or owner of the site.</p>	<p>BLM has determined these are administrative, not procedural requirements, and thus are not ARARs. No change to the table is proposed.</p>
49.	Section 4.1.7	<p>For the purposes of comparing the alternatives with each other, the use of cost data in 2013 dollars is acceptable, however for the ROD, BLM should refresh the cost estimate.</p>	<p>BLM will evaluate this at the time of ROD preparation.</p>
50.	Section 4.2.2, PHH&E and LTE&P	<p>Fencing does not reduce migration of contamination to the groundwater or the Kuskokwim River. Also, the fence does not prevent people from accessing the site from the river – this should be noted. It is acknowledged that placing a fence on/near the barge landing would not be a long-term solution as it would likely be destroyed during the ice breakup in the spring.</p>	<p>BLM agrees that fencing does not reduce migration of contamination. In the LTE and P section, it is stated that the alternative would not be effective in reducing contaminant migration from the site. A similar statement will be added to the PHH&E section.</p> <p>Figure 3-1 will be revised to better illustrate the location of the proposed fencing.</p>
51.	Section 4.2.3, lines 1-5	<p>I think that it would be clearer just to state that all sediments in Red Devil Creek that exceed the RGs will be removed, as opposed to making a distinction regarding location and the early action.</p>	<p>The subject sentence (lines 3-6) will be deleted.</p>
52.	Section 4.2.3, PHEE, last sentence	<p>For Alternatives 3a-3d: The main repository is on a slope facing the Kuskokwim River, not Red Devil Creek. Stating that the cover would reduce the likelihood of erosion of materials into Red Devil Creek</p>	<p>The reference to erosion of materials from the area of the repository to Red Devil Creek will be deleted.</p>

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		doesn't make much sense. Delete this.	
53.	Section 4.2.3, ARARs & Table 4-3	Alternative 3a will not be consistent with chemical-specific ARARs as there will still be contamination remaining under monofill 2 which will not be addressed.	A note will be added to the appropriate cell(s) in the table and text acknowledging that contamination could potentially remain beneath the monofill. An advance copy of the proposed language will be submitted to ADEC.
54.	Section 4.2.3, ARARs	A FS is supposed to describe <u>how</u> the alternative will comply with ARARS so that it can be completely evaluated. This document says that different alternatives "could" meet ARARs. This is not adequate. In order to do a full 9 criteria analysis, you need to describe how ARARs will be met, not just make conclusory statements (so you can evaluate extra cost, short term effectiveness, and implementability).	Text in the appropriate ARARs section will be supplemented with additional text stating how the alternatives will meet the ARARs.
55.	Table 4-3	Add the following as applicable: <ul style="list-style-type: none"> a) 18 AAC 60.025(a) – polluted soil b) 18 AAC 60.025(d) and (e) – demonstration requirements for landfills with polluted soil c) 18 AAC 60.330 - design standards for landfill that accepts polluted soil d) 18 AAC 60.485 – industrial solid waste monofills e) 18 AAC 60.490 - closure requirements for monofills f) 18 AAC 75.355(b) - requirement that sampling and analysis be conducted by a qualified, impartial third party. g) 18 AAC 75.360 - requirement that cleanup operations are conducted or supervised by a qualified person h) 18 AAC 75.370(a)(1) - requirement that a responsible person not blend contaminated soil with uncontaminated soil and how soil will be segregated i) 18 AAC 75.370(a)(3) and (5) - requirement that a responsible person place contaminated soil on a liner j) 18 AAC 75.370(a)(6) - requirement that a responsible person cover and protect the contaminated soil stockpile k) 18 AAC 75.370(a)(7) - requirement that a responsible person inspect and maintain the contaminated soil stockpile 	See response to comment #17.

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		l) 18 AAC 75.375(c) - requirement that the use of institutional controls, to the maximum extent practicable be appurtenant to and run with the land so that the control is binding on each future owner of the site and be maintained by each responsible person or owner of the site.	
56.	Page 4-25, LE&P	With a life-expectancy of about 25 years, a cloth cover on monofill 2 may be a long-term solution, but is not a permanent one.	The words, “and permanence” will be removed from the sentence. An advance copy of the proposed language will be submitted to ADEC.
57.	Page 4-26, STE, last sentence	There are no areas of RDC that have been determined to be ‘clean’ after the early action. The SWPPP will address overland flow potential. This sentence should be deleted here and in all subsequent Alternatives. The following sentence addressed this issue as well and is sufficient.	The text will be revised as suggested.
58.	Table 4-4	a) DCIC4 is the cost for 5000 lf of fencing. This is appropriate for Alt 2 when the entire site is fenced, but not for Alts 3a-3d. b) Item OM2a is listed as \$38,100 in Appendix C, not the 23,100 in Table 4-4 (this is the OM1 cost). c) There should be a cost included for replacing the monofill 2 cover every 25 years.	a) See response to Comment 47b. b) These costs will be reviewed and revised as appropriate. c) Although the Monofill #2 cover has a life expectancy of 25 years, it is more likely that only portions of the cover would require repair or replacement within a 25-year span. Therefore, a yearly O&M cost of \$10,000 to repair portions of the cover will be included into the O&M cost estimate for Alternatives 3a and 3b.
59.	Section 4.2.4, ARARs, Table 4-5	This alternative will not be compliant with chemical-specific ARARs at the end of the remedial action as there will be tailings and contaminated soil left in place around Monofill 2 which cannot be excavated.	See response to Comment 53.
60.	Table 4-5	Add the following as applicable: a) 18 AAC 60.025(a) – polluted soil b) 18 AAC 60.025(d) and (e) – demonstration requirements for landfills with polluted soil c) 18 AAC 60.330 - design standards for landfill that accepts polluted soil d) 18 AAC 60.485 – industrial solid waste monofills	See response to comment 55.

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		<ul style="list-style-type: none"> e) 18 AAC 60.490 - closure requirements for monofills f) 18 AAC 75.355(b) - requirement that sampling and analysis be conducted by a qualified, impartial third party. g) 18 AAC 75.360 - requirement that cleanup operations are conducted or supervised by a qualified person h) 18 AAC 75.370(a)(1) - requirement that a responsible person not blend contaminated soil with uncontaminated soil and how soil will be segregated i) 18 AAC 75.370(a)(3) and (5) - requirement that a responsible person place contaminated soil on a liner j) 18 AAC 75.370(a)(6) - requirement that a responsible person cover and protect the contaminated soil stockpile k) 18 AAC 75.370(a)(7) - requirement that a responsible person inspect and maintain the contaminated soil stock pile l) 18 AAC 75.375(c) - requirement that the use of institutional controls, to the maximum extent practicable be appurtenant to and run with the land so that the control is binding on each future owner of the site and be maintained by each responsible person or owner of the site. 	
61.	Page 4-29, ARARs	A FS is supposed to describe <u>how</u> the alternative will comply with ARARS so that it can be completely evaluated. This document says that different alternatives “could” meet ARARs. This is not adequate. In order to do a full 9 criteria analysis, you need to describe how ARARs will be met, not just make conclusory statements (so you can evaluate extra cost, short term effectiveness, and implementability).	See response to Comment 54.
62.	Page 4-38, LTE&P	Similar to Alt 3a, there should be a provision made for replacement of the concrete cloth.	See response to Comment 58c.
63.	Table 4-6	<ul style="list-style-type: none"> a) DCIC4 is the cost for 5000 lf of fencing. This is appropriate for Alt 2 when the entire site is fenced, but not for Alts 3a-3d. b) Item OM2a is listed as \$38,100 in Appendix C, not the 23,100 in Table 4-6 (this is the OM1 cost). c) There should be a cost included for replacing the monofill 2 	See response to Comment 58.

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		cover every 25 years.	
64.	Page 4-42, PHHE, and Page 4-55, PHEE	There should be some text included about how the placement of Monofill 2 in the repository will increase overall protection (what makes this alternative different from 3a); i.e. the repository is a more permanent solution, cap won't degrade/fail, lower risk of potential exposure, removal of free-phase mercury and all tailings (haz waste and non-haz waste), no remaining metals to leach to groundwater.	Text will be added to address protectiveness of this alternative compared to alternatives that leave Monofill #2 in place. An advance copy of the proposed language will be submitted to ADEC.
65.	Page 42, ARARs	A FS is supposed to describe <u>how</u> the alternative will comply with ARARS so that it can be completely evaluated. This document says that different alternatives "could" meet ARARs. This is not adequate. In order to do a full 9 criteria analysis, you need to describe how ARARs will be met, not just make conclusory statements (so you can evaluate extra cost, short term effectiveness, and implementability).	See response to Comment 54.
66.	Table 4-7	Add the following as applicable: <ul style="list-style-type: none"> a) 18 AAC 60.025(a) – polluted soil b) 18 AAC 60.025(d) and (e) – demonstration requirements for landfills with polluted soil c) 18 AAC 60.330 - design standards for landfill that accepts polluted soil d) 18 AAC 60.485 – industrial solid waste monofills e) 18 AAC 60.490 - closure requirements for monofills f) 18 AAC 75.355(b) - requirement that sampling and analysis be conducted by a qualified, impartial third party. g) 18 AAC 75.360 - requirement that cleanup operations are conducted or supervised by a qualified person h) 18 AAC 75.370(a)(1) - requirement that a responsible person not blend contaminated soil with uncontaminated soil and how soil will be segregated i) 18 AAC 75.370(a)(3) and (5) - requirement that a responsible person place contaminated soil on a liner j) 18 AAC 75.370(a)(6) - requirement that a responsible person cover and protect the contaminated soil stockpile 	See response to comment 55.

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Item No.	Location (page, par., sen.)	COMMENTS	BLM Response
		<ul style="list-style-type: none"> k) 18 AAC 75.370(a)(7) - requirement that a responsible person inspect and maintain the contaminated soil stockpile l) 18 AAC 75.375(c) - requirement that the use of institutional controls, to the maximum extent practicable be appurtenant to and run with the land so that the control is binding on each future owner of the site and be maintained by each responsible person or owner of the site. 	
67.	Page 4-52, RTMVT	Alt. will provide for treatment of all tailings that exceed TCLP criteria for arsenic, rather than just some of the tailings.	The text will be modified to make this point clear.
68.	Table 4-8	<ul style="list-style-type: none"> a) DCIC4 is the cost for 5000 lf of fencing. This is appropriate for Alt 2 when the entire site is fenced, but not for Alts 3a-3d. b) Item OM2a is listed as \$38,100 in Appendix C, not the 23,100 in Table 4-8 (this is the OM1 cost). c) Why is DC2 for 12 mos in Table 4-8, but only 10 mos in Table 4-10 (ERRATA). d) The rationale for the assumption that the leachate will be considered hazardous waste is unclear; please explain. 	<ul style="list-style-type: none"> a) See response to Comment 58. b) See response to Comment 58. c) The 12 month time period should have been used for Alternative 3d (Table 4-10) instead of Alternative 3c (Table 4-8). Alternative 3d requires additional construction time due to the fact that Monofill #2 will be excavated/backfilled and a liner/leachate system will be installed. Alternative 3c's (Table 4-8) should have been 10 months. The construction duration will be changed and costs adjusted in the Final FS. c) See response to EPA General Comment #3
69.	Page 4-56, ARARs	It is unclear what is meant by the following statement <i>"..process, although not necessarily for the volume associated with this alternative."</i>	The text noted in italics will be deleted.
70.	Page 4-56, ARARS	A FS is supposed to describe <u>how</u> the alternative will comply with ARARS so that it can be completely evaluated. This document says that different alternatives "could" meet ARARS. This is not adequate. In order to do a full 9 criteria analysis, you need to describe how ARARS will be met, not just make conclusory statements (so you can evaluate extra cost, short term effectiveness, and implementability).	See response to Comment 54.
71.	Page 4-56, LTE&P, line 9	Missing word: "...collection system has ___ incorporated."	The word "been" will be added to the sentence.

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Item No.	Location (page, par., sen.)	COMMENTS	BLM Response
72.	Table 4-9	Add the following as applicable: <ul style="list-style-type: none"> a) 18 AAC 60.025(a) – polluted soil b) 18 AAC 60.025(d) and (e) – demonstration requirements for landfills with polluted soil c) 18 AAC 60.330 - design standards for landfill that accepts polluted soil d) 18 AAC 60.485 – industrial solid waste monofills e) 18 AAC 60.490 - closure requirements for monofills f) 18 AAC 75.355(b) - requirement that sampling and analysis be conducted by a qualified, impartial third party. g) 18 AAC 75.360 - requirement that cleanup operations are conducted or supervised by a qualified person h) 18 AAC 75.370(a)(1) - requirement that a responsible person not blend contaminated soil with uncontaminated soil and how soil will be segregated i) 18 AAC 75.370(a)(3) and (5) - requirement that a responsible person place contaminated soil on a liner j) 18 AAC 75.370(a)(6) - requirement that a responsible person cover and protect the contaminated soil stockpile k) 18 AAC 75.370(a)(7) - requirement that a responsible person inspect and maintain the contaminated soil stockpile l) 18 AAC 75.375(c) - requirement that the use of institutional controls, to the maximum extent practicable be appurtenant to and run with the land so that the control is binding on each future owner of the site and be maintained by each responsible person or owner of the site. 	See response to Comment 55.
73.	Page 4-65, RTMVT	This sentence states that the collection of leachate would increase mobility and volume of contaminated material that needs to be addressed. Mere collection of leachate that already exists in the environment does not increase the amount that needs to be addressed. This is misleading. Delete sentence.	This sentence will be deleted.
74.	Section 4.2.6	For all sections, some text about how the excavation and inclusion of Monofill 2 in the repository is different in Alt 3d than in 3b would be helpful.	The text will be added that further explains the differences between the two alternatives (i.e., the excavation of Monofill #2)

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75.	Table 4-10	<ul style="list-style-type: none"> a) DCIC4 is the cost for 5000 lf of fencing. This is appropriate for Alt 2 when the entire site is fenced, but not for Alts 3a-3d. b) Item OM2a is listed as \$38,100 in Appendix C, not the 23,100 in Table 4-10 (this is the OM1 cost). c) The rationale for assumption that the leachate will be considered hazardous is not clear; please explain. 	<ul style="list-style-type: none"> a) See response to Comment 58. b) See response to Comment 58. c) See response to EPA General Comment #3.
76.	Page 4-69, ARARs	<p>A FS is supposed to describe <u>how</u> the alternative will comply with ARARS so that it can be completely evaluated. This document says that different alternatives “could” meet ARARs. This is not adequate. In order to do a full 9 criteria analysis, you need to describe how ARARs will be met, not just make conclusory statements (so you can evaluate extra cost, short term effectiveness, and implementability).</p>	See response to Comment 54.
77.	Table 4-11	<p>Add the following as applicable:</p> <ul style="list-style-type: none"> a) 18 AAC 60.025(a) – polluted soil b) 18 AAC 60.025(d) and (e) – demonstration requirements for landfills with polluted soil c) 18 AAC 60.330 - design standards for landfill that accepts polluted soil d) 18 AAC 60.485 – industrial solid waste monofills e) 18 AAC 60.490 - closure requirements for monofills f) 18 AAC 75.355(b) - requirement that sampling and analysis be conducted by a qualified, impartial third party. g) 18 AAC 75.360 - requirement that cleanup operations are conducted or supervised by a qualified person h) 18 AAC 75.370(a)(1) - requirement that a responsible person not blend contaminated soil with uncontaminated soil and how soil will be segregated i) 18 AAC 75.370(a)(3) and (5) - requirement that a responsible person place contaminated soil on a liner j) 18 AAC 75.370(a)(6) - requirement that a responsible person cover and protect the contaminated soil stockpile k) 18 AAC 75.370(a)(7) - requirement that a responsible person 	See response to Comment 55.

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		inspect and maintain the contaminated soil stockpile 1) 18 AAC 75.375(c) - requirement that the use of institutional controls, to the maximum extent practicable be appurtenant to and run with the land so that the control is binding on each future owner of the site and be maintained by each responsible person or owner of the site.	
78.	Table 4-12	Why are there O&M costs associated with this alternative? There won't be any ACs to inspect, and with no wastes remaining on-site, there is no need to conduct a Five Year Review. Thus, these items should be removed.	The surface mined area will have protective measures and surface water diversions installed that will require periodic inspections and maintenance. No change to the text is proposed.
79.	Section 4.3.2, 2 nd sentence	a) Alt. 3a and 3b would also continue to leach metals into the groundwater and RDC as there would be contaminated material remaining near Monofill 2 that could not be removed, and thus these Alts do not meet the RGs and chemical-specific ARARs. b) Only Alts. 3c, 3d, and 4 would be compliant with all ARARs at the end of the action.	a) With the increased protection associated with the installation of an engineered cover system on top of the existing containment system, potential leaching of metals to the groundwater and surface water would be greatly reduced or eliminated. A groundwater monitoring program will provide data to evaluate potential leaching to groundwater. b) See response to 79a.
80.	Section 4.3.2	A FS is supposed to describe <u>how</u> the alternative will comply with ARARS so that it can be completely evaluated. This document says that different alternatives "could" meet ARARs. This is not adequate. In order to do a full 9 criteria analysis, you need to describe how ARARs will be met, not just make conclusory statements (so you can evaluate extra cost, short term effectiveness, and implementability).	See response to Comment 54.
81.	Appendix C	DC4a and DC4b: It is acknowledged that what an appropriate number of confirmation samples is to determine that the RGs have been met cannot be determined at this time, however it will likely be a number larger than 20 (or 1 every 10,000 sf) for the entire site. ADEC guidance recommends 1 sample every 250 sf. This would equal 800 samples.	The number of confirmation samples will be changed to 400 per discussion with ADEC on 10/28/15. The cost estimates will also be revised accordingly.
82.		--end--	