

KMC Responses to BLM Comments on the Kirkland Mining and Reclamation Plan of Operations 041817 Draft

Cmt No.	Page Number	Line Number	BLM Commenter	Comment	Response
1.	BE	-	Buttazoni	<p>Page 1, paragraph 2 & 3 under “Methods”, the term “Project area” is not described in terms of acres or referred to in a Figure. Page 1, paragraph 2 and Table 1 on Page 2 uses “Study Area.” Are these the same areas? Be consistent.</p> <p>The survey tracks shown on Figure 24 largely missed the vegetated part of the area. Given that there is a portion of the area that is vegetated and appears to connect to more contiguous vegetation to the NE, it seems likely that BLM SS animals with potential for occurrence could forage there.</p>	<p>The Project area, Study area, and Project vicinity are referring to the same 160-acre area, shown as the Placer Mine on Figure 24.</p> <p>The survey was designed to provide a general overview of the existing conditions in the Project area at a reconnaissance level. Table 1 notes, for each species, whether there is potential habitat in or near the Project area, including the surrounding habitat and contiguous vegetated areas to the northeast of the survey track. Table 1 was completed based on the survey information as well as published information on the range and natural history of the species addressed.</p> <p>The BE will be revised for clarification.</p>
2.	3	Table 1	Buttazoni	Does Kirkland hold all the unpatented mining claims listed in Table 1?	Yes, this clarification has been made in Section 1 (Operator Information) of the Kirkland High Quality Pozzolan Mine Draft Mining and Reclamation Plan of Operations (MRPO).
3.	5	1 9	Cave	It may be good to clarify and add “as defined by Federal Land Policy and Management Act of 1976 (FLPMA) Section 302(b)” for a reference for the definition of the term ‘unnecessary or undue degradation’ here	This clause has been added to Section 2 (Description of Operations) of the MRPO.

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4.	6	6	Cave	Also, other names listed in the Arizona Geological Survey reference cited here actually included Kirkland Tuff Quarry and Maverick Mine as well...	We have included these mine names in the list of historic references provided in Section 2.1.1 (Previous Activities Conducted on the Site).
5.	6	15	Cave	The results of the mineral examination report can now be updated	This information has been updated in Section 2.1.1 (Previous Activities Conducted on the Site).
6.	6	16-28	Cave	Not necessary for MPO? Some comments could be construed as subjective if not referenced, also could introduce some politicization into public review. I have no issue with any particular point in this paragraph but broader statements related to use of pozzolan and environmental impact are extraneous for specific environmental analysis for Site...	KMC believes some information regarding the uses of HQP is good information for the public, but in light of this comment, portions of this paragraph were removed from the MRPO. Please see the second paragraph under Section 2.1.1 (Previous Activities Conducted on the Site).
7.	6	30	Cave	First and only mention of Homesteak placer claim, not on maps either, please clarify location and relevance for reader	The Homesteak Placer Claim, located immediately south of the Capital Association Placer Claim, is also held by KMC, but is not subject to any of the activities proposed in this MRPO. This has been provided in a footnote on page 6 under Section 2.1.1 (Previous Activities Conducted on the Site).
8.	7	20	Cave	Quartz in tuff is mostly phenocrysts and part of the unit composition, not foreign, entrained substrate lithics	Comment noted. KMC data indicates that quartz in the tuff is a mixture of both phenocrysts and fragments from granite lithics.

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9.	7	31	Sitzmann	The “ephemeral drainage” supports riparian obligate species which indicates that it should be referred to as an intermittent system which supports growth of riparian obligate species.	Portions of Copper Basin Wash do provide intermittent flows. The word “ephemeral” was removed to address this comment.
10.	8	13-20	Cave	Section should be rewritten, scientifically inaccurate, please see guidance below:	This paragraph in Section 2.1.2.2 (Surface and Groundwater Hydrology) has been revised based on the guidance, below.
11.	8	15	Cave	The ‘porosity’ in the volcanic rocks does not influence groundwater flow (porosity is void space, permeability is connection of void space, unlike sedimentary rocks volcanic porosity is typically not connected), only permeability is from fractures. Volcanic rocks are inherently impermeable except for fractures, except for intercalated volcanoclastic lenses that contain sand and rounded gravel. Occasionally volcanic rocks make good aquifers because of fracture density, usually basalts (there several basalt sections documented in drill hole #514426 shown on Dewitt et al., 2008, one mile northeast of Site). Rhyolites typically have low permeability to begin with, and tend to alter to devitrification clays that degrade permeability even along fractures, but could potentially have groundwater flow strongly localized along larger fractures or faults	We have removed the adjective “porous” in describing the volcanic rocks.
12.	8	17	Cave	Sand is permeable, clay is ‘confining’	We removed “sand and” from this sentence.

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13.	8	19	Cave	(Just FYI, volcanics is not actually a word even though often used informally, volcanic rocks or units is preferred)	We have replaced “volcanics” with “volcanic units” given this suggestion.
14.	8	20	Cave	Pathways of groundwater occur via [fractures and] faults in granite, metamorphic, [and volcanic rocks]. [add]	This revision has been made in the third paragraph of Section 2.1.2.2 (Surface and Groundwater Hydrology).
15.	8	30-31	Sitzmann	Citation format is different than other sections	The citation format used throughout the MRPO is Chicago Style
16.	9	3	Cave	Probably mean December instead of ‘winter’, also may want to reword sentence, repeating stats without clarifying here that these are historical stats vs current may be confusing	Clarifications have been made in this paragraph in Section 2.1.2.3 (Climate).
17.	9	5	Holden	This is an active grazing allotment. Livestock are present in this area during the fall and winter months. An open pit is a hazard to livestock and will need some method of preventing livestock access.	Grazing uses have been included in the description in Section 2.1.1 (Previous Activities Conducted on the Site). Mine access will be gated and signed and active mining operations will be fenced to prevent public, livestock, and wildlife access. Please see also revisions to Sections 4.9 (Fire Safety and General Safety) and 4.10 Maintenance and Public Safety).

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18.	9	18	Sitzmann	Recommend changing “ephemeral washes” to intermittent washes.	We revised this text throughout the MRPO in reference to the drainages that traverse the Site as either “ephemeral or intermittent washes” or simply “washes”.
19.	9	29	Sitzmann	Remove the sentence related to impact analysis in this Physical Settings section.	This sentence has been removed from Section 2.1.3 (Vegetation and Wildlife). This sentence was retained in Section 4.7 (Fisheries, Wildlife, and Plant Habitat) under Environmental Protection Measures.
20.	10	1	Sitzmann	Include similar table for migratory birds as required by EO-13186/BLM-FWS MOU (2010) and a similar table for Arizona State Species of Conservation Concern per the BLM-AGFD MOU #AZ-930-0703	KMC understands that migratory birds and Arizona State Species of Concern will require review in the Environmental Assessment.
21.	12	12	Cave	Should there be a ‘crushing/screening to 2”minus’ step before loading here?	Crushing and screening to two-inch minus material was added to the activities required for the stockpile removal. Please see Section 2.2.1.1 (Initial Mining Operations).

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22.	13	2	Sitzmann	Specify the location of the “to be determined” processing facility for impacts analysis because it is a connected action.	KMC is exploring the feasibility and potential locations for a secondary processing facility to begin processing HQP to a finer size. This facility would be placed on privately owned lands and is not considered to be a reasonably foreseeable activity associated with this MRPO. Section 2.2.1.2 (Full Production Activities) has been revised.
23.	13	15	Cave	Water well on private property (55-505179) collar is probably between 4000’ and 4040’ based on 7.5 minute topo map, current static water level reported as 25 ft bls (page 20, line 29), i.e. somewhere between 3975’-4015’ elevation. Ultimate pit depth is projected here at 3870’, well below reported water table, may need a pit dewatering component to mine design.	KMC is confident the groundwater level within the mine footprint is below an elevation of 3,870 feet above mean sea level and does not anticipate the need for pit dewatering. During drilling operations conducted by KMC, Drill Hole KMC 8, located in the northern portion of Capital Lode Claim 6, was drilled to a depth of 90 feet. The drill collar elevation based on detailed topographic mapping prepared for KMC is 3,965 feet above mean sea level. Drill Hole KMC 8 was drilled to a depth of approximately 3,875 feet and did not encounter water. Thus, KMC data suggest that no ground water would be encountered at the pit bottom at 3,870 feet.
24.	13	16	Cave	Extra ‘and’	Edit made. Please see second paragraph under Section 2.2.1.2 (Full Production Activities).

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25.	13	31	Cave	Will no blasting be done on basalt cap? Just FYI, basalt cap is notoriously difficult to strip (hard) or blast (fractured), typically individual basalt blocks are drilled, blasted and then removed	Based on geologic mapping, KMC does not anticipate removal of basalt layers through blasting within the mine footprint. Basalt layers in the northern and northeastern portions of the mining claim will not be removed.
26.	14	8 & 10	Buttazoni	We need to provide the context that the off-site facility is not a part of this Mining Plan and not subject to BLM approval as that would occur on private lands. If the off-site facility is reasonably foreseeable, the BLM may have to include the impacts associated with it as part of non-federal actions in cumulative effects.	Comment Noted. KMC is exploring the feasibility and potential locations for a secondary processing facility to begin processing HQP to a finer size. This facility would be placed on privately owned lands and is not considered to be a reasonably foreseeable activity associated with this MRPO. Section 2.2.1.2 (Full Production Activities) has been revised.
27.	14	11	Sitzmann	Specify the location of the of “to be determined” processing facility.	KMC is exploring the feasibility and potential locations for a secondary processing facility to begin processing HQP to a finer size. This facility would be placed on privately owned lands and is not considered to be a reasonably foreseeable activity associated with this MRPO. Section 2.2.1.2 (Full Production Activities) has been revised.
28.	15	11	Buttazoni	“The report assumes...” Do you mean this Plan?	Yes, “report” was changed to “Plan”. Please see Section 2.2.2.2 (Watersheds).
29.	16	2	Cave	...is ‘freeboard volume’ used correctly here?	Yes, but given this question, we have provided clarification. Please see Section 2.2.2.3 (Retention).

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30.	16	5	Cave	All sumps and retention basins should be sloped enough at least on one side to allow a trapped person/wildlife a safe egress route	The proposed retention basins would have 3:1 side slopes. That slope is gentle enough to allow for safe egress route for people and wildlife.
31.	16	14	Cave	Perc may degrade with time as clays coat basin floor and fractures, may need maintenance plan to meet 36-hour requirement	Given high evaporation rates in this area, KMC does not anticipate that maintenance of the retention basins would be required for percolation.
32.	16	26	Buttazoni	Clarify "...within an existing access easement..." I assume that is the private land portion of the access road (we don't use the term 'easement') and that approval of Kirkland's use of the public land portion of the road would occur with this Plan.	Yes, we are referring to the main access road or Entrance Road where it crosses privately owned lands. Clarification has been provided in Section 2.2.3 (Roads).
33.	16	27	Holden	There is an existing gate at this location. Is a different gate planned? As an active grazing lease, the gate can't be left open, a cattle guard might be more appropriate.	The gate identified in the MRPO (Figures 9a and 9b) is located where there is an existing gate. A new automatic gate would be installed at this location for the mine operation and would be locked during periods of non-operation. KMC will coordinate with the existing grazing lessee to determine the appropriate measures for grazing activities, such as cattle guards. Please see revisions to Section 2.2.3 (Roads).

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34.	17	15	Sitzmann	Specify the location of where water would be trucked from.	Water would be trucked from an existing well on KMC's private parcel approximately 800 feet from the planned mining operations (ADWR Well #55-505179). The well registry dated May 13, 2015 and owned by KMC, reports this well has an intended capacity of 35 gpm. It has been calculated that a capacity of 20 gpm would provide adequate water for KMC daily operations. A contingency plan for additional water, if needed, is being developed where KMC would either use an existing local contractor for water delivery or explore for additional potential wells on privately owned lands. This clarification is provided in Sections 2.2.4 (Utilities) and 2.3.1 (Water Management Plan).
35.	17	16	Cave	May want to clarify that non-potable water 'trucked to site' can mean either from private parcel 800 ft away or from well to south	Section 2.2.4 (Utilities) has been revised. KMC does not believe an alternative water source will be required because the well registry dated May 13, 2015 for ADWR Well #55-505179, reports this well has an intended capacity of 35 gpm, and it has been calculated that a capacity of 20 gpm would provide adequate water for KMC daily operations. A contingency plan for additional water, if needed, is being developed where KMC would either use an existing local contractor for water delivery or explore for additional potential wells on privately owned lands. This clarification is provided in Sections 2.2.4 (Utilities) and 2.3.1 (Water Management Plan).

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36.	17-18	19	McLaughlin	<p>Within the first paragraph of 2.2.5 Support Facilities There should be a statement about none of these areas will be constructed within areas not previously surveyed by their archaeological contractor and that they will be avoiding sites in the placement of these locations. This would be done to comply with BLM standards, rules, and regulations. If this is not possible, these areas would need to be surveyed for cultural resources as well.</p>	<p>Section 4.8 (Cultural Resources), in the last sentence of the first paragraph the following is stated:” If necessary, an additional cultural survey would be conducted on KMC’s privately owned lands to ensure that potential impacts to cultural resources resulting from this Plan (if any) are identified.”</p> <p>KMC has agreed to have an additional cultural resource survey performed for activities on their privately owned lands.</p>
37.	18	10	Cave	<p>May want to mention fuel tank traffic barricade here as well for clarification, along with double sided container and secondary containment (mentioned on page 25, line 22)</p>	<p>The following statement was added to Section 2.2.5 (Support Facilities) in describing the fueling equipment: “Berms and protective barriers would be placed around the fuel tank to prevent accidental or malicious damage by vehicles or equipment.”</p>

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38.	20	5	Sitzmann	Include location of well number 55-625487 on a map and state whether or not it is in an AMA	Section 2.3.1 (Water Management Plan) has been revised. Well #55-625487 is no longer a contingency. The well registry for #55-505179, located 800 feet from the proposed mining operations on KMC's privately owned lands has an intended capacity of 35 gpm. It has been calculated that a capacity of 20 gpm would provide adequate water for KMC daily operations. A contingency plan for additional water, if needed, is being developed where KMC would either use an existing local contractor for water delivery or explore for additional potential wells on privately owned lands. This clarification is provided in Sections 2.2.4 (Utilities) and 2.3.1 (Water Management Plan).
39.	20	6	Buttazoni	Clarify "...an existing well on private land located...	Section 2.3.1 (Water Management Plan), has been revised. Well #55-625487 is no longer a contingency. A contingency plan for additional water, if needed, is being developed where KMC would either use an existing local contractor for water delivery or explore for additional potential wells on privately owned lands.
40.	20	6	Holden	The well indicated is located at the Single Six ranch, private land held by the Hamptons, and the well is in their name. Is there a written agreement guaranteeing this well use?	Section 2.3.1 (Water Management Plan), has been revised. Well #55-625487 is no longer a contingency. A contingency plan for additional water, if needed, is being developed where KMC would either use an existing local contractor for water delivery or explore for additional potential wells on privately owned lands.

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41.	20	7	Buttazoni	Tense use. "There is no chemical..." "There <u>would be</u> no chemical..."	This revision was made in Section 2.3.1 (Water Management Plan).
42.	20	25	Sitzmann	Specify whether or not well number 55-625487 is in an AMA and state details about well number 55-625487 as was done for well number 55-505179.	Section 2.3.1 (Water Management Plan) has been revised. Well #55-625487 is no longer a contingency.
43.	25	27	Buttazoni	"Where a notice or a plan of operations is required..." I am not sure if I follow, all roads needed for this Plan would already be approved/included in this approved Plan.	This sentence has been removed from Section 2.3.5 (Transportation Plan).
44.	26	14	Buttazoni	"...would add 30 to 50 truck round trips per day,..." Is this for the initial and full development, or just initial phase?	This information was provided for peak production. KMC has updated this information and anticipates that the mining operations would add 30 to 85 truck trips per day during peak production. This revision has been made in Section 2.3.5 (Transportation Plan).

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45.	26	14	Cave	50 round trips = 100 haul truck ingress/egress + light vehicles (how many anticipated employees? Will use 6 as a minimum, 12 ingress/egress) + possible multiple water truck round trips, in 8-12 hour time frame which could result in ~120 vehicles per ~480 minutes as written, equals potentially on average one vehicle every 4 minutes? (clustered and fluctuating). Please document discussions with ADOT specifically related to public safety at entry point onto state highway, such if there is a need for caution signs, lower speed limit, turn lanes, caution light, etc.	<p>The proposed mine is accessed from Iron Springs Road, which is a currently a county maintained road. It is KMC's understanding that there is some potential for this road's jurisdiction to be transferred to ADOT. KMC has reached out to the Yavapai County Public Works Department and ADOT to determine any requirements for the management of ingress and egress associated with the mine operations.</p> <p>Appropriate signage will be posted based on the requirements of either the County or ADOT.</p> <p>KMC has updated this information and anticipates that the mining operations would add 30 to 85 truck trips per day during peak production. This revision has been made in Section 2.3.5 (Transportation Plan).</p>
46.	26	17 - 18	Buttazoni	"...would use about 20,000-35,000 gallons per day (gpd) during time of peak production." Of fuel?	This language is discussing water that would be used for dust suppression. This clarification has been made in Section 2.3.5 (Transportation Plan).
47.	26	22	Sitzmann	Remove references to the BLM Field Offices and replace with "BLM's Phoenix District Office."	This revision has been made in Section 2.3.6 (Fire Prevention Plan).

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48.	27	21	Cave	Need to coordinate after-hours access and safety protocols with local sheriff and fire department (trespass and potentially fire events can occur even if all safety and security protocols are followed through gate malfunctions, willful breaches, electrical malfunctions, lightning, etc.). Please document as part of MPO.	KMC will coordinate with local law enforcement and fire departments to provide 24-hour access as needed for emergency response. This has been stated in Section 2.3.6 (Fire Prevention Plan).
49.	27	27	Cave	Will do EA analysis for 24 hour operation since 24 operation is possible, unless operator volunteers an illuminated hours cap, seasonal restrictions, etc.	KMC does not propose 24 hour operations. Section 2.4 (Section) has been revised.
50.	29	11	Sitzmann	The BLM requests reclamation cost estimate.	KMC will provide the reclamation bond cost estimate when required by BLM.
51.	30	11	Sitzmann	Add a bullet related to the removal of all equipment and other infrastructure (such as fences) associated with the mine.	This bullet has been added to Section 3.1 (Purpose, Approach, and Schedule).
52.	31	4	Sitzmann	Change ephemeral drainages to “drainages”	Revision has been made to Section 4.2 (Surface Water and Groundwater).

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53.	31	8	Cave	Mike Langley at USACE is a good contact for this permitting	KMC will assume any drainage with OHWM is jurisdictional. Mining activities on BLM lands will not impact any potentially jurisdictional waters. The main access road crosses one ephemeral drainage with OHWM. This crossing qualifies for coverage under Nationwide Permit 14 (Linear Transportation Projects) and does not require notification to the US Army Corps of Engineers.
54.	31	20-22	Sitzmann	Specify the location of additional wells because there may be additional impacts associated with any additional wells	<p>KMC does not believe an alternative water source will be required because the well registry dated May 13, 2015 for ADWR Well #55-505179, reports this well has an intended capacity of 35 gpm, and it has been calculated that a capacity of 20 gpm would provide adequate water for KMC daily operations. A contingency plan for additional water, if needed, is being developed where KMC would either use an existing local contractor for water delivery or explore for additional potential wells on privately owned lands.</p> <p>Please see revisions to Section 4.2 (Surface Water and Groundwater).</p>

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55.	33	5	Cave	FiberQuant found no fibers related to asbestos, but did not test for erionite specifically. BLM tested independently and found no fibers related compositionally to asbestos minerals or erionite at KMC property. Will recommend monitoring which should include periodic bulk testing for asbestos and erionite, and testing of layers exposed as pit progresses by Operator, please include with MPO. Also BLM will occasionally test as part of site inspections.	<p>KMC understands that a General Permit would be required from the Air Quality Division of ADEQ. KMC will provide annual air monitoring in accordance with federal and state regulations and to meet the following objectives of 43 CFR 3809.401(b):</p> <ol style="list-style-type: none"> 1. to demonstrate compliance with an approved plan and other Federal or state environmental laws and regulations; 2. to provide early detection of potential problems; and 3. to supply information that will assist in directing corrective actions should they become necessary. <p>KMC will provide annual monitoring for airborne carcinogens if such monitoring is warranted.</p> <p>Section 4.5 (Air Quality) has been revised accordingly.</p>
56.	33	25	Sitzmann	Vehicle cleaning may not be required prior to arriving on site if there is no need. If vehicles are arriving on site that have been traveling across unmaintained roads, then vehicle cleaning should be required.	Comment noted. Clarification has been provided in Section 4.7 (Fisheries, Wildlife, and Plant Habitat).
57.	33	27	Sitzmann	Work may occur at night (see page 27, line 27). Rectify the discrepancy.	Mining operations are not proposed at night. Mining activities would be conducted during day light hours. Section 2.4 (Section) has been revised.

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58.	34	8	Buttazoni	The specific location and supporting map (Figure 8) of inventoried historic properties needs to be removed from the Plan. Only a general description can be retained. The Plan will be made available for public comment and the location of the sites cannot be disclosed to the public.	Figure 8 has been removed from the Draft MRPO.
59.	34	18	Cave	Should we define 'vicinity'?	"vicinity" was changed to "area" as worded in 43 CFR 10.4
60.	35	11	Cave	To be MSHA compliant, there will need to be a barrier such as a berm or fence that can sustain a person's weight (not snow fencing) around the open pit. A fence around any open holes is good practice for managing ATV traffic, livestock, wildlife, security, etc. as well.	Fencing will be installed around active mining operations as stated in Sections 4.9 (Fire Safety and General Safety) and 4.10 (Maintenance and Public Safety).
61.	35	14	Cave	To be MSHA compliant, all drivers on site should have current MSHA 5000-23 certification and site-specific pit-driver training. Any driver who does not have that training should be escorted by someone who does.	KMC and KMC contractors and customers will be in compliance with MSHA regulations.
62.	BE		Sitzmann	The BE should include a table based on HDMS of species known to occur in this quad	Arizona State Species of Concern will be evaluated in the Environmental Assessment.

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63.			Sitzmann	May need a fence for public safety, exclusion of wildlife and livestock.	Fencing will be installed around active mining operations as stated in Sections 4.9 (Fire Safety and General Safety) and 4.10 (Maintenance and Public Safety).
64.			Sitzmann	Require open pipes (<12”) to be covered to reduce wildlife entrapment IM 2016-023	No piping is proposed as part of the proposed action. Therefore, this was not added to the measures taken to reduce impacts to wildlife listed in Section 4.7 (Fisheries, Wildlife, and Plant Habitat).
65.	Figure 9b initial mine operations	n/a	McLaughlin	In comparing this figure to the cultural report, surveyed area, It is unclear if all this (specifically the areas outside the green dotted line) are within the cultural survey boundaries. They should be. It prevents temporary storage etc from being placed on top of sites.	KMC will contract cultural resources survey on KMC’s privately owned lands. This was discussed with BLM during the May 24 th Site Visit.
66.	Maps		Cave	There appears to be multiple small, steep, NW-SE trending faults crossing proposed pit. Will be conduits for groundwater, and can be sources of topple, sloughing, wedge failures, etc. Mine plan should include daily inspection and daily monitoring (electronic or by personnel) of slope stability.	Section 2.2.1.2 (Full Production Activities) has been revised. KMC continues to gather detailed geotechnical information to identify all faults and fracture zones to ensure slope stability and will conduct daily slope stability monitoring per the requirements of MSHA.