



March 16, 2017

Sent via ePermit system

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Industrial and Energy Minerals Bureau
1218 E 6th Avenue
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Permit ID: C1979012
Revision Type: Amendment
Permitting Action: Deficiency Response
Subject: APPAM5; Arrowhead Amendment-Round 1 Acceptability Deficiency Response

Dear Chris,

The purpose of this letter is to respond and address the deficiency comments on APPAM5. In addition to those responses, a few notes for clarity are presented here:

- ◆ A distribution line has been added to Plate 8 Field Map, Sheet 2 of 2 to represent the approximate location of the power and fiber-optic lines condensed to the Arrowhead Road corridor in order to minimize impacts to wildlife.
- ◆ The general comment at the end of the MDEQ review that was not associated with any specific rule regarded a request for a rule reference on all of the maps required by 17.24.305. Spring Creek has updated as many maps as possible with the rule reference in the title block of the map.
- ◆ The map affidavits have been streamlined into four (4) major categories. Please see the response to ARM 17.24.305(2)(a) for a more comprehensive listing, but the 4 categories are summarized as:
 1. Plates that require an affidavit, but not a PE certification.
 2. Plates that require a PE certification.
 3. Plates that require a PE certification stating that the designs were in accordance with 17.24.601-605.
 4. Plates that require a PE certification stating that the roads and rail lines were constructed in accordance to 17.24.321.

Additional categories of maps are also identified as:

1. Plates that have a PE Certification right on the exhibit and do not need an affidavit.
 2. Plates were renamed to remove volume references.
 3. Plates that do not need a certification statement because they are historic representations and do not meet any of the 305 map definitions.
- ◆ Images – Many of the maps for the Amendment use images as a background. These images almost always make a drawing file too large to load. By pre-arrangement with

Bob Smith, four (4) files have been loaded to the maps area as zip files containing only images (CPLX_BING_IMAGE_###-###.ZIP). A file has also been loaded to that same area entitled “Instructions for use of BING IMAGES.pdf”. This should allow the users to bring images into the background of drawing files. Additionally the image for the weed spraying map in 308 Addendum A will be mailed to MDEQ with a thumb drive because the file is 2.3 GB and is too large for uploading.

- ◆ While still presenting narrative with track changes on, page numbers will not always match up with a Table of Contents – this is clearly temporary until this application is approved at which time all documents will be updated with the correct pagination.
- ◆ Spring Creek (CPE) continues to work with the Army Corp of Engineers on a wetlands permit for the creek crossings. We are currently waiting for the “Alternatives” letter from the ACE. The status of all major milestones will be conveyed to you with the opportunity to participate directly where pertinent.

OPPORTUNISTIC CORRECTIONS MADE

304.1.b_Cultural_20170131_APPAM5.pdf – An incorrect acreage reference was removed in the listing of Appendix G-6.3. The letters “40ac-“ were removed from in front of the word “State”.

The Acreage Table in Admin/Mine Site Information for Permitted Mineral and Permitted Surface has been updated to accurately reflect the 11 acres from MR206.

COMMENTS AND RESPONSES

#1 **ARM 17.24.303(1)(b)**: The Legal Description does not match what DEQ currently has on record. Please provide the following: T8S, R40E, Section 35 and T9S, R39E, Section 1 in the legal description.

Response: *Bob Smith has advised that the WebForm legal will be updated automatically when APPAM5 is approved. If, for some reason it is not updated, SCM will update the legal with a minor revision after APPAM5 approval.*

#2 **ARM 17.24.303(1)(o)**: The signature for Bruce Jones on page 25 of the State Commercial Lease #3090005 for Addendum 303M AHA Right to Enter does not have the year in the notary block, which makes it invalid. Please correct signature block with proper notary.

Response: *The correct signature page has been incorporated into Addendum_303M, the file has an updated name of 303_AddmM_RightToEnter_20170131_APPAM5.pdf*

#3 **ARM 17.24.303(1)(r)**: Please reference the document to the Right to Enter document instead of duplicating the entry in two spots.

Response: *The file 303_AddmM_RightToEnter_20151001_APPAM5.pdf has been removed from 303(1)(r) and remains in 303(1)(o). Additionally a file has been created to contain a reference from 303(1)r to the Legal Right to Enter Section.*

#4 ARM 17.24.303(1)(t): A new certification of liability for insurance has been received, please update the expiration date to reflect this.

Response: *The file 303.1.t_CertLiability_20170131_APPAM5 is updated to reflect that the Certificate of Liability is updated every September. The current expiration date has been updated.*

#5 ARM 17.24.303(1)(v): The address for Montana Department of Environmental Quality should be updated to 1218 E 6th Avenue, Helena MT, 59601.

Response: *The address was updated in the webform at Admin-Public Copy of Application*

#6 ARM 17.24.303(1)(x): Please attach the affidavit of publication for the completeness determination.

Response: *The Affidavit of Publication for Completeness Determination has been loaded to Admin/ProofPublication.*

#7 ARM 17.24.304(1)(e): The hydrologic baseline collection is incomplete. See comments on ARM 17.24.304(1)(f)(i), ARM 17.24.304(1)(f)(i)(B), and ARM 17.24.304(1)(f)(i)(C).

Response: *The responses are given for each specific deficiency under this rule shown below.*

#8 In MQAP Table 2-4, the northings and eastings change columns after the first seven wells. Please correct.

Response: *MQAP Table 2-4 has been revised to correct the error identified by this comment. This table can be found in Baseline Hydrology, filename is ApxIV5_TableMQAP-2-4_20170131_APPAM5.pdf*

#9 ARM 17.24.304(1)(f)(i)(A): Section 2.3.1 states that "Water levels in piezometer PZ-LYC-1 have remained above the floor of the stream channel nearby, indicating temporary seepage from deep soils into the channel during spring. The piezometer was dry by the end of June 2015". This seems contradictory. Is it above the stream channel, or is it dry?

Response: *The text referenced in this comment has been revised to more clearly indicate that the condition of the well's static groundwater level being above the stream channel floor nearby was temporary.*

#10 In section 2.3.2, paragraph 1, replace "the seams having inferior properties" with "economic and operational considerations", or something similar.

Response: *The text referenced by this comment has been replaced with the comment's recommended text.*

#11 In Section 2.3.2, "it is apparent that well PM-OB-02 has some hydraulic connection with the alluvial groundwater source [should be system, not source]." Later in the same paragraph, "hydraulic communication between the overburden well and alluvium is minor". Please provide additional information to support these statements.

Response: *The word "source" was replaced with the word "system", as per this comment. Text has been added to the final paragraph of Section 2.3.2 to more clearly describe the limited hydraulic connection between groundwater at well PM-OB-02 and groundwater in the alluvial aquifer nearby.*

#12 Section 2.3.3. None of the tables seem to reflect what they are intended to. In particular, the claim that groundwater elevations are "nearly equivalent, within 15 feet or less, to the "static" (quasi-equilibrium) historic groundwater elevations". The table referenced for this claim only shows water levels from about 2008 onward, not the 1977-onward mentioned in the text. Also, I would not call ± 15 feet "nearly equivalent", unless the changes were on the order of thousands of feet.

Response: *The applicant understands that in this comment the DEQ disagrees with the permit text statement that recent groundwater elevations are nearly equivalent to historic elevations where they are within 15 feet of historic elevations. Pursuant to this disagreement, the permit text of Section 2.3.3 has been revised to replace this statement with text that focuses more on groundwater head recovery observed to date. Table I Vol. 5-5 does indeed provide dates as early as 1977 for when significant head declines began [see entry for well WR-30], and it provides dates as early as 1978 identifying the lowest static water levels [see entry for well WR-40]. Table I Vol. 5-5 is not intended to provide all of the groundwater elevations measured in the wells over any particular length of time. Rather, the table is intended to identify the approximate values and dates of the static [pre-decline] groundwater elevations, the values and dates of the lowest groundwater elevations, and recent groundwater elevations observed during the period of the amendment's baseline investigation.*

#13 In Section 2.3.3. it is suggested that any significant part of the water level declines is caused by "changes in gas buoyancy". Please provide an adequate explanation of how this is happening.

Response: *Section 2.3.3 has been revised by adding a technical explanation of how gas dissolved in groundwater within a confined coal aquifer causes the groundwater elevation to*

rise. This new text replaces the term “gas buoyancy”. The text has also been revised to remove the suggestion that a significant part of the referenced water level declines has been caused by changes in dissolved gas content of the groundwater. Reference added to documentation of impacts to models resulting from inadequately addressing this issue.

#14 Section 2.4.1. Groundwater is only "effluent" if it is leaving the groundwater system, e.g. a spring or flowing well. Even then, the term is generally understood to mean a waste discharge from human activity.

Response: *Pursuant to this comment, the term “effluent” has been replaced with the word “discharging” in Section 2.4.1 and in Section 1.7.2.*

#15 Section 2.4.5. states that potentially over 100 feet of compacted fill, likely over 1,000 feet wide in places, will not have an impact on shallow groundwater, whether from compaction, removal of recharge areas, or alteration of surface water flow patterns. Evidence supporting this claim will need to be included.

Response: *Narrative in this section of the PHC has been revised as suggested and the discussion in Attachment H to the PHC has also been expanded.*

#16 Section 2.5.1 et seq. Hydraulic conductivity and permeability are not necessarily the same thing. Stick with hydraulic conductivity. Include range of values in any interpretive discussion of aquifer parameters.

Response: *In response to this comment, the term “permeability” has been replaced with the term “hydraulic conductivity” in Sections 2.5.1 and 2.5.2. By reference to values shown in Table I Vol.5-6, ranges of hydraulic conductivity and transmissivity values have been added to the text of Sections 2.5.1 and 2.5.2 in characterizing the hydraulic properties of the alluvial deposits.*

#17 Section 2.6. The term "enriched" suggests an addition. Don't use it in conjunction with ground water unless you are adding something.

Response: *The term “enriched” has been replaced with the adjectives “abundant”, “small” or “large” in text Sections 1.7, 1.7.2 and 2.6.1.*

#18 In Section 2.6.1 it is suggested that irrigation is the source of high sulfates. This will need references and more discussion. Irrigation generally results in increases of nitrogen and sodium, not sulfate.

Response: *MDEQ has reevaluated and thinks the narrative was misread. This is no longer a deficiency.*

#19 Section 2.6.1. Laboratory Reporting Limits (RDLs) change according to the nature of a sample, interferences, and other factors. Several different arsenic RDLs are evident on a quick examination of the WQ tables.

Response: *The laboratory's digital output reflected inconsistencies in the reported significant figures. This is true of both the Lower Reporting Limit and the Method Detection Limit, and the inconsistencies are not restricted to arsenic. Minor formatting changes were made to Attachment I Vol. 5-5, and the attachment is resubmitted with a consistent number of significant digits for all analytes. Please note that the analytical results and reporting limits for well PM-OB-02 are associated with the Wyoming LQD monitoring program*

#20 In attachment 5-6 (Precision and Sensitivity Quality Control Samples), there are samples with negative values, e.g. Sodium on P-SW-08 01/27/2015. Both the sample and the duplicate have values in Attachment 5-5 (Surface Water and Groundwater Quality Lab Analytical Results). Is there a reason these data are excluded? If so, it should be footnoted in the table and discussed in the text.

Response: *Table 1 of Attachment I Vol. 5-6 is modeled after Table 2-1 of the Spring Creek Mine MQAP. For example, see Appendix J Quality Assurance Summary Report 2012-2013 Water Year, Spring Creek Mine. Sample results are entered in Table 1 of Attachment I Vol. 5-6 as reported if the results are greater than or equal to the reporting limit [RL]. Sample results are entered as negative values of the RL if the results are less than the RL because values less than the RL are not considered suitable for statistical analyses.*

The amendment application uses the MQAP tables approved for Spring Creek Mine, and this includes the template employed in completing Attachment I Vol. 5-5. In the Information tab of that attachment, under "Measured Value", it is stated "If a value is not detected, leave this field blank". Attachment I Vol. 5-5 contains empty cells in the Measure Value column when the measured values are below the Method Detection Limit. A footnote providing this explanation has been added to the bottom of Attachment I Vol. 5-5.

Thank you for identifying this misunderstanding. We have reviewed Attachments I Vol. 5-5 and I Vol. 5-6 and made the necessary corrections. Missing sample field blanks that were noted in Attachment I Vol. 5-6 have been added to the attachment.

#21 ARM 17.24.304(1)(f)(i)(B): One year of quarterly monitoring of groundwater quality is required by ARM 17.24.304(1)(f)(i)(B) for baseline. Only two quarters of monitoring were

submitted for the nine piezometer monitoring locations. Please submit the results of a full year of quarterly groundwater quality monitoring.

Response: *During discussions that occurred between the Department, SCC and Aqua Terra Consultants during the May 5-6, 2015 AVF meeting and field tour, the Department requested piezometers be installed in the major drainages to a depth of approximately 10 feet to determine the availability of groundwater for sub-irrigation, and bracket temporal and spatial changes in sub-irrigation over the course of the growing season. Further, water level data was requested for only the growing season of 2015 (May/June to September 2015) and the Department specified that water quality samples from the piezometers would not be necessary.*

As an aside, SCC believes water quality samples from shallow (driven) piezometers can be susceptible to surface leakage and data collected from them should be interpreted in light of the possibility that some leakage may have occurred during sampling.

Though the Department's comment is entirely contrary to those May 5-6, 2015 discussions and agreements, SCC will complete the 12 months of quarterly groundwater monitoring in the 9 piezometers. This includes collection of water level and water quality sample data from the following piezometers: PZ-LYC-1, PZ-LYC-2, PZ-SQC-1, PZ-SQC-2, PZ-SQC-3, PZ-SQC-4, PZ-YC-1, PZ-YC-2 and PZ-YC-3.

When complete, the data will be submitted to the Department as an addendum to the Arrowhead Amendment baseline data in Appendix I.

#22 ARM 17.24.304(1)(f)(i)(C): The listing of known wells and springs provided in Attachment I Vol. 5-8 does not include the Montana Bureau of Mines and Geology, Groundwater Information Center (GWIC) database as a source. GWIC often contains records of wells and springs for which no DNRC water rights have been obtained, thus it is likely that the listing in Attachment I Vol. 5-8 is incomplete. Please use GWIC as an additional source for readily discoverable wells and springs.

Exhibit 1 Vol 5-4. The well names and symbols are extremely hard to see on this map.

Response: *As described in the narrative of Section 2.7.1, App.I, Vol.5 DNRC and MBMG /GWIC records were utilized as well as historic permit studies and field inventories to assimilate comprehensive datasets of wells and springs. Wells and springs that are known and have been used for monitoring but not necessarily permitted for beneficial use, but are of record with MBMG/GWIC or found in historic studies were presented graphically on Exhibit I Vol.5-1 and tabulated on Attachment I Vol 5-2h.*

Groundwater sources permitted for beneficial use by either MT DNRC or WY SEO were tabulated and mapped separately to provide focused consideration of potential impacts to legal estate rights and because their current condition and status are not readily verifiable.

A note has been added to Attachment I Vol. 5-8 and Exhibit I Vol. 5-4 referring the reviewer to Exhibit I Vol. 5-1 for graphic depiction of unpermitted groundwater springs and wells found in the field or of record with MBMG (GWIC) and to Attachment I Vol 5-2h for the tabulation of same. Likewise, notes have been added to Exhibit I Vol.5-1 and Attachment I Vol 5-2h directing the reviewer to documents pertinent to permitted groundwater sources.

#23 Exhibit 1 Vol 5-4. The well names and symbols are extremely hard to see on this map.

Response: *ApxIV5_ExhibitIv5-4_GW-Rights_20170131_APPAM5 - The font has been increased by 25% to assist in readability and well symbol blocks have also been increased for the Montana permitted wells and springs rights.*

#24 ARM 17.24.304(1)(f)(ii)(A): Section 2.6. At the first mention of groundwater classes, add a discussion of the classes and SC ranges. Since the classes are defined in specific conductivity, it might be better to replace discussions of TDS elsewhere with EC values, just for consistency.

Response: *Section 2.6.1 has been rewritten and the text re-organized to add descriptions for the groundwater classes set forth under ARM 17.30.1006, and to add the ranges of values in specific conductivities by which each sampled groundwater system was assigned to a groundwater class.*

#25 ARM 17.24.304(1)(f)(ii)(B): Section 2.6.2. Surface water and groundwater changes are not necessarily similar. Particularly given the difference in sampling frequency and data density, groundwater should have its own section, not just a "See Section 1.7.2".

Response: *Section 2.6.2 has been entirely rewritten in response to this comment. Text has been added describing the temporal changes that have been observed in the alluvial groundwater quality of the amendment's streams. The text is organized under new subsections entitled "Little Youngs Creek and Youngs Creek Drainages" and "Squirrel Creek and Dry Creek Drainages".*

#26 Attachment I Vol. 5-3b Continuous Flow Records includes pressure transducer data for Site ID: YC-SW-1. This site is not listed in MQAP Table 2-1 Stream Water Monitoring Plan or Attachment I Vol. 5-2a Surface Water Completeness Tables. Clarify the location of this site and include it in the baseline and surface water monitoring documents.

Response: *RE Attachment I Vol. 5-3b Continuous Flow Records - This comment should refer to Attachment I Vol. 5-2b. The site referenced in this comment was mislabeled in the titles for water years 2007 through 2011. In all cases the site YC-SW-1 should have been labeled LYC-SW-1. This error has been corrected, and Attachment I Vol. 5-2b is being resubmitted.*

#27 ARM 17.24.304(1)(f)(ii)(B)(I): In Appendix I Vol 5 SW_GW_Hydrobase, Section 1.4, there is no explanation as to why Dry Creek is handled differently than the other stations. Please provide an explanation.

Response: *Pursuant to this comment, text has been added to Section 1.4 stating the rationale for employing stream flow recording and sampling techniques on Dry Creek that were different from the techniques used to acquire the same types of data for the other streams of the amendment area.*

#28 ARM 17.24.304(1)(f)(ii)(B)(II): Attachment I Vol. 5-2 Stream Flow Quality Statistical Summary does not include total phosphorus, which is listed as a sampled parameter in Table 5-1 of the MQAP. Please include total phosphorus in the surface water quality summary and analysis.

Response: *The applicant believes that this comment is intended to address Table I Vol. 5-2, not Attachment I Vol. 5-2. Table I Vol. 5-2 did erroneously omit the statistical values for total phosphorus, and this error has been corrected pursuant to this comment. Thank you for identifying this oversight.*

#29 Attachment I Vol. 5-2 Stream Flow Quality Statistical Summary cites ARM 17.30.647(1)(e) as the applicable standard for total nitrogen. In 2014, DEQ adopted Circular DEQ-12A Montana Base Numeric Nutrient Standards which prescribes numeric standards for total nitrogen and total phosphorous for wadable streams. Total nitrogen and total phosphorus water quality should be evaluated using the DEQ-12A numeric nutrient standards.

Response: *Attachment I Vol. 5-2 Stream Flow Quality Statistical Summary - Table I Vol. 5-2 (not an attachment) has been revised to apply Circular DEQ-12A numeric standards for total nitrogen and total phosphorus to Little Youngs Creek, Youngs Creek and Squirrel Creek. For Dry Creek, which is not a wadeable stream, it is assumed that the nutrient standards of ARM 17.30.637(1)(e) still apply. Small errors noted on Table I Vol. 5-2 with the statistical values of fluoride in Dry Creek have also been corrected. The text of Section 1.7 and the report references section have been revised to reference evaluation of Table I Vol. 5-2 data relative to the standards of Circular DEQ-12A.*

#30 Attachment I Vol. 5-2 Stream Flow Quality Statistical Summary describes Dry Creek as a Class F-1 Stream. Currently, Montana Rules have not designated any drainage as Class F-1. Regardless of the physical flow characteristics of Dry Creek, per ARM 17.30.611(1)(c), Dry Creek is currently classified as an C-3 Stream and should be evaluated as such.

Response: *In Note No. 2 of Table I Vol. 5-2 Stream Flow Quality Statistical Summary, the reference to Dry Creek as being a Class F-1 stream has been replaced with the statement that Dry Creek assumed to be a Class C-3 stream.*

#31 Attachment I Vol. 5-2 Stream Flow Quality Statistical Summary states that specific water quality standards do not apply to ephemeral streams. However, recent litigation has indicated that specific water quality standards may in fact apply to ephemeral streams as well. Dry Creek water quality should also be evaluated against specific water quality standards in DEQ-7 and DEQ-12A.

Response: *Table I Vol. 5-2 has been revised as described in response to this deficiency. However, the revision does not include evaluating Dry Creek water quality relative to the standards of Circular DEQ-12A because those standards apply only to wadeable streams.*

#32 ARM 17.24.304(1)(f)(iii): The baseline discussion states that the haul road will not disrupt water uses associated with stream flow. While surface water impacts are not predicted, the potential to impact surface uses still exists. The haul road will likely restrict shallow ground water flow. Little Youngs Creek and Youngs Creek receive baseflow from shallow ground water below the haul road, and any reduction in baseflow could affect downstream uses. Regardless of whether impacts are predicted to surface water uses, ARM 304(1)(f)(iii) still requires a description of alternative water supplies, should any impacts occur.

Response: *Text Section 2.7.2 has been divided into two subsections entitled “Alternative Surface Water Supplies” and “Alternative Groundwater Supplies”. Text has been added to the first subsection providing a comprehensive description of alternative surface water supplies available within and adjacent to the amendment lands. The ARM rules reference in the title of Section 2.7.2 has been corrected to be consistent with the title of this acceptability deficiency comment.*

#33 ARM 17.24.304(1)(g)(i): The rule requires "a detailed description of all overburden and mineral materials..." Referencing a section of this document for stratigraphic sections and lithologic logs is acceptable, but there needs to be a relatively complete narrative description within the text.

Response: *Please see the response to Acceptability Deficiency comment on ARM 17.24.304(1)(g)(ii) for changes made pursuant to this comment and ARM 17.24.304(1)(g)(ii).*

#34 ARM 17.24.304(1)(g)(ii): Referencing a completely separate document does not fulfill the requirement of a "detailed description". A fairly complete synthesis or summary of the documents referenced is needed within the text. Referencing the other documents for site-specific details or field data is fine, but the text needs to include sufficient information to stand on its own without any other documents. For each unique overburden material, the text should include a narrative summarizing the information required by 17.24.304(1)(g)(ii). "Unit X of the overburden is weakly lithified siltstone to fine sandstone, primarily comprising oxidized silicates and clays. Sodium content is generally moderate, water infiltration is slow. Soils formed on X are primarily Class III, due to slow infiltration and moderate salinity. See Document Y for detailed analysis" is acceptable. "See Document Y for discussion of material properties of the overburden" is not.

Response: *The text of Section 3.0 “Strata Quality Assessment 17.24.304, 17.24.314” has been reorganized with all original text of that section now placed under Section 3.1 “Overburden Quality Sampling”. A new Section 3.2 “Geological Units Description” has been added to provide detailed descriptions of the rock types identified in the geologic logs of Attachment N-1. The additional text also describes the physical, chemical and water infiltration and storage characteristics of those rock types and the soils that are associated with them that may limit the development of permanent vegetation or impact the quality of water resources. The Table of Contents for the text and Section 4.0 “References” have also been revised to reflect these changes.*

#35 ARM 17.24.304(1)(g)(iii): Again, the text only references other documents and "logs submitted to DEQ". The logs in question should be included in an appendix of this document, and a table summarizing log ID, date, location, depth, and page where the log is located would be perfectly adequate for the text.

Response: *The first paragraph of the text of Section 3.1 of Appendix N directs the reader to Attachment N-1 for the geologic logs referenced in this comment. The same text section references Table N-1 as listing all boring and sampling depths, and the other tabulated information requested by this comment. Pursuant to this comment, a note has been added to the bottom of Table N-1 directing the reviewer to Attachment N-1 for the boring geologic logs.*

#36 ARM 17.24.304(1)(g)(iv): Please cite the studies mentioned.

Response: *References in PHC Section 3.2.3.1.1 have been updated to reference the overburden studies. Reference to Suplee and Watson (2013) for DEQ-12A has also been added to Section 9.0.*

#37 ARM 17.24.304(1)(i): Summary Tables and Appendices to the Arrowhead Amendment Baseline Vegetation Inventory were not included in the permit materials. Please submit the Summary Tables and Appendices to complete the Baseline Inventory for the Amendment area.

Response: *The Arrowhead Amendment Vegetation Baseline Report PDF, including the Summary Tables and Appendices sections, has been loaded to the e-Permit site, in its entirety. The drawings B4-1 and B4-1 have not changed with this revision.*

#38 ARM 17.24.305(1)(h): Please include the reference of cultural resources and archaeological sites to Plate 7 Arch 2. Additionally, DEQ would prefer the Plate 7 maps be listed as 305(1)(h) maps to correspond with the appropriate rule.

Both Cultural Resource maps need to be re-submitted as locked pdf documents.

Response: *The list of maps in file 305_Maps_20170131_APPAM5.pdf now refers to both sheets of Plate 7. The reference to 17.24.305(1)(h) has been placed in the title blocks of Plate 7 Sheets 1 and sheet 2, and added rule language above the title block.*

#39 Both Cultural Resource maps need to be attached to the cultural resource report under the Baseline section rather than under Maps.

Response: *Plate 7, Sheets 1 and 2 have been removed from the Maps Section and placed in /Baseline/Cultural Resources Maps.*

#40 ARM 17.24.305(2)(a): There appears to be several maps tagged as APPAM5 which are not listed on the Map Affidavit submitted for this amendment. Please ensure that all maps that were submitted with AM5 are listed on the Map Affidavit.

Response: *The map affidavits have been updated and are uploaded to the Other Permit Information/Format and Supplemental Information Section.*

THE FOLLOWING PLATES WERE RENAMED TO REMOVE VOLUME REFERENCES.

Plate_13_1991_Anderson-Dietz_Potentiometric.pdf
Plate_14_Geologic_Cross-Section_Index_Map.pdf
Plate_17A_DragStripTechniques_SimpleSideCast.pdf
Plate_17B_DragStripTechniques_ExtendedBench.pdf
Plate_19_SodicOBTestSite_SampleLoca.pdf

THE FOLLOWING PLATES DO NOT NEED A CERTIFICATION STATEMENT BECAUSE THEY ARE HISTORIC REPRESENTATIONS AND DO NOT MEET ANY OF THE 305 MAP DEFINITIONS.

Plate_01A_HistoricBndy_20170131_APPAM5.pdf
Plate_22_MineProgress_20151001_APPAM5

THE FOLLOWING MAPS HAVE A PE SIGNATURE RIGHT ON THE EXHIBIT AND ARE NOT ON ANY AFFIDAVIT.

Plate_13_1991_Anderson-Dietz_Potent.pdf
Plate_14_Geologic_XS_IndexMap.pdf
Plate_17A_DragStripTechniques_SimpleSideCast.pdf
Plate_17B_DragStripTechniques_ExtendedBench.pdf
Plate_19_SodicOBTestSite_SampleLoca.pdf
Plate_21_SurveyCtrl_1_20151001_APPAM5.pdf
Plate_21_SurveyCtrl_2_20151001_APPAM5.pdf

THE FOLLOWING PLATES HAVE UPDATED RULE REFERENCES AND CERTIFICATES PER 17.24.305-2-a.

Plate_07_Arch_1_20170131_APPAM5
Plate_07_Arch_2_20170131_APPAM5
Plate_23_VegBaseline_1_20170131_APPAM5.pdf
Plate_23_VegBaseline_2_20170131_APPAM5.pdf
Plate_24_SoilBaseline_1_20170131_APPAM5.pdf
Plate_24_SoilBaseline_2_20170131_APPAM5.pdf

THE FOLLOWING PLATES HAVE UPDATED RULE REFERENCES AND CERTIFICATES PER 17.24.305-2-b.

Plate_01_Lease_20170131_APPAM5.pdf
Plate_02_SurfaceOwn_20170131_APPAM5.pdf
Plate_03_CoalOwn_20170131_APPAM5.pdf
Plate_03A_StructFeatures_20170131_APPAM5.pdf
Plate_03B_SurfWtrDiversions_WtrRights_20170131_APPAM5.pdf

Plate_04_PMT_1_20170131_APPAM5.pdf
Plate_04_PMT_2_20170131_APPAM5.pdf
Plate_04A_REVEG_1_20170131_APPAM5.pdf
Plate_04A_REVEG_2_20170131_APPAM5.pdf
Plate_04B_Premine_1_20170131_APPAM5.pdf
Plate_04B_Premine_2_20170131_APPAM5.pdf
Plate_05_MinePlan_20170131_APPAM5.pdf
Plate_06_RECPLN_1_20170131_APPAM5.pdf
Plate_06_RECPLN_2_20170131_APPAM5.pdf
Plate_08_FIELD_1_20170131_APPAM5.pdf
Plate_08_FIELD_2_20170131_APPAM5.pdf
Plate_09_OBDRILL_1_20170131_APPAM5.pdf
Plate_09_OBDRILL_2_20170131_APPAM5.pdf
Plate_10_CoalDrill_20170131_APPAM5.pdf
Plate_15_DragSequence_20170131_APPAM5.pdf
Plate_15A_DragSequence_20170131_APPAM5
Plate_16_RailAsBuilt_20170131_APPAM5.pdf; 321* certification
Plate_17_AccessRDAsBuilt_20170131_APPAM5.pdf; 321* certification
Plate_18_RDCenterline_1_20170131_APPAM5.pdf; 321* certification
Plate_18_RDCenterline_2_20170131_APPAM5.pdf; 600* certification
Plate_18A_RDProfile_1_20170131_APPAM5.pdf; 321* certification
Plate_18A_RDProfile_2_20170131_APPAM5.pdf; 600* certification
Plate_18A_RDProfile_3_20170131_APPAM5.pdf; 600* certification
Plate_18B_TypicalXS_20170131_APPAM5.pdf; 321* certification
Plate_18C_TpyXSDetail_1_20170131_APPAM5.pdf; 600* certification
Plate_18C_TpyXSDetail_2_20170131_APPAM5.pdf; 600* certification
AppK_Exhibit_1_20170131_APPAM5
AppK_Exhibit_2_20170131_APPAM5

#41 ARM 17.24.308(1)(f): The map in the Noxious Weed plan does not include the proposed Amendment area. Please update the plan to include this area.

Response: *The SCM Noxious Weed Control Plan has been revised to include the latest list of weeds from Big Horn County and it includes the AHA lands. This revised plan is included as Addendum 308A.*

#42 The CAD file that was included for the Noxious Weed Management Plan did not have an ortho photo attached. Please include appropriate data files for all maps.

Response: *The ortho photo is too large to load to this ePermit site and will be sent via regular mail on a flash drive.*

#43 **ARM 17.24.312(1)(d)**: The wetland mitigation plan should be developed and submitted to DEQ prior to permit approval.

Response: *The Arrowhead Amendment wetland delineation can be found in Appendix L2B. In the USACE Jurisdictional Determination (JD) [NWO-2015-01686-MTB] of that delineation, the USACE found that all delineated wetlands and perennial streams within the permit area and study area are subject to USACOE jurisdiction.*

SCM is currently working with the USACE on a 404 permit to disturb and mitigate certain areas of these wetlands. NO WETLANDS WILL BE DISTURBED PRIOR TO OBTAINING A 404 PERMIT. Upon obtaining the 404 permit, SCM will incorporate the appropriate portions of the 404 permit by reference or directly into this permit.

#44 **ARM 17.24.313(1)**: Topsoil stockpiles are indicated on two maps and noted using two unique map elements. Figure 313 B, Soil Salvage Map, only designates prime farmland topsoil stockpile locations marked with a blue border element. Plate 8, Field Map 2, shows all topsoil stockpiles marked with a common red border element. In other words, the field map shows that all topsoil stockpiles are the same and the soil salvage map only shows prime farmland topsoil stockpiles. Please reconcile the map elements for topsoil stockpiles on these maps. On Plate 8 differentiate the general soils from the prime farmlands and use the same topsoil stockpile layer to update figure 313 B soil salvage map. Additionally, evaluate the prime farmland stockpiles for a location not on other prime farmland soils.

Response: *Three maps, Figure 313-B, Plate 8 Field Map, sheet 2, and Appendix K, Exhibit 1 Sheet 2, have been reconciled to show the same topsoil stockpiles and to differentiate Prime Farmland stockpiles from other topsoil stockpiles. Additionally, topsoil stockpiles that are not prime farmland soil are not located on prime farmland.*

#45 Geologic suitability indicates elevated levels of Molybdenum (Mo) and Selenium (Se) in 2014 bore holes OB 7-10. These bore holes from 2014 drilling should not have used greases or lubricants suspect of Mo or Se. This is supported by comparing 2014 borings and historic borings in the Youngs Creek drainage. Drilling from 2014 shows OB-2 and 3 in Youngs Creek are non-detect for Mo and Se, where 1976 borings Concho-OB-5, 7, and 8 have exceedances of Mo and Se. Starting at the surface Squirrel and Dry Creek sampling indicated Mo and Se in sample results from borings OB-7, 8, and 9. The cut and fill for the creek crossings will excavate material with exceedances of these constituents. This material will be used in the road according to construction plans. Due to these elevated test results soils at the surface and excavation materials with possible concentrations of Mo and Se will be encountered in this portion of the road. Testing for Mo and Se could be limited for the road section that falls in T8S R39E Sec 33 and 34 and T9S R39E Sec 3, 4, 9, and 10. Additionally, due to the soil layers being included in drill sampling the soils should have these parameters tested pre-salvage. Include tests for Mo and Se for soils pre-salvage and spoil upon PMT regrade. Testing should at least occur in the following land sections: T8S R39E Sec 33, 34 and T9S R39E Sec 3, 4, 9, 10.

Response: *Text has been added to Section 17.24.313-1-g-ii to indicate that samples on a 500-foot grid will be analyzed for selenium and molybdenum prior to soil salvage in the land sections cited in the comment. Upon final reclamation, the regraded surface will be tested for selenium*

and molybdenum (in addition to the standard parameters such as pH, SC, SAR, etc.) in the sections cited in the comment.

#46 Alluvial soil salvage indicates a topsoil lift followed by use of a geotextile for protecting the remaining alluvial sub-soils. The permit discussion does not address if there will be alluvial subsoil cut and fill beyond salvage and prior to placing the textile. Additionally, information regarding the purpose and performance of the geotextile is required. It can be inferred that the idea here is to protect the alluvial subsoil layers from compaction and to support continued conveyance of subsurface waters. Without demonstration, as mentioned above, justification for use of a textile is missing. This may result in unnecessary efforts for the goal of protecting the sub-soils. Add justification and performance of the geotextile for use of protecting the soils it is intended for. Additionally, if the textile has these parameters it could be used in the prime farmlands to minimize the need to salvage to 36 inches.

Response: *Added a paragraph to 17.24.313-1-g-iii describing the purpose of the geotextile and a table listing its mechanical properties.*

#47 ARM 17.24.313(1)(e): Please submit channel center lines and cross sections surveyed in Squirrel Creek, Youngs Creek, and Little Youngs Creek documenting pre-disturbance conditions.

Response: *Channel center line profile and cross section profile point files have been prepared as requested by this deficiency comment. The spreadsheet containing these point files, entitled "AppJ_Vol2_Att-5_SQC-DC-YC-LYC-XYZ-Data_20170131_APPAM5", is now provided in the Drainage Basin Reclamation Plan. Additionally Appendix J narrative now lists this file as a source of data in the Table of Contents, along with various exhibits in Appendix O4 that portray the stream channel longitudinal profiles, the stream cross section locations, and the stream cross sections.*

#48 ARM 17.24.313(1)(g)(iii)(B): Table 313-2b "Mean Soil Replacement Quantity for Arrowhead Amendment" shows a deficit of soil between the needed and available soil volumes of 80,668 cubic yards. This must be reconciled to achieve an adequate soil balance.

Response: *Footnote 2 has been added to Table 313-2b describing that the projected deficit amounts to about 33 acres of land that would potentially not receive topsoil, ~3% of disturbed lands. SCC routinely constructs successful reclamation as described in detail in Section 17.24.313-1-g-ii using alternative substrates such as suitable spoil and scoria, i.e. no topsoil, to achieve habitat diversity and bond release for lands designated as Wildlife Habitat. In many cases, shrubland reclamation, i.e. Wildlife Habitat, constructed with alternative substrates is superior to generic topsoil reclamation. SCC does not expect the potential topsoil deficit to preclude successful reclamation of the Arrowhead Amendment lands.*

#49 ARM 17.24.313(1)(h): Page 29 of the Reclamation Plan states that “Construction across Squirrel Creek, Youngs Creek, and Little Youngs Creek will consist of removal and salvage of alluvial topsoil...”. Dry Creek has not been included in this statement. Please explain how construction and reclamation of Dry Creek will be conducted.

Response: *There are no alluvial soils identified in the Dry Creek area. Dry Creek will be constructed and reclaimed as any other upland ephemeral drainage using the methodology in Appendix J.*

#50 ARM 17.24.313(1)(h)(i): Table 313-4 includes a Summary of PMT Component, Vegetation, Substrate, and Acreages. Cropland is listed as utilizing generic topsoil, when prime farmland soils are designated to be salvaged and stockpiled separately. Please include prime farmland soils in Table 313-4 as appropriate. Also update appropriate portions of the “Targeted Substrate Depth Range” for Prime Farmland soils.

Response: *Table 313-4 has been updated to include the cropland utilizing prime farmland topsoil and a targeted substrate depth of 48”.*

#51 ARM 17.24.313(1)(h)(iii): Four new seed mixes have been added to Spring Creek mine through AM5. Two of these are for riparian areas, and two are for pastureland and cropland. Both the pastureland and cropland seed mixes include very aggressive introduced species of smooth brome and crested wheatgrass. Other options should be considered for these land uses as these are aggressive species that SCCC, and other companies, have been combating in other reclamation areas. As the rest of the amendment area is being reclaimed as wildlife habitat, consider utilizing native species in these areas that have the potential to provide adequate food sources for those wildlife species.

Response: *This comment is addressed in the response to the comment on ARM 17.24.313-1-h-iv.*

#52 ARM 17.24.313(1)(h)(iv): The third circumstance included in this section does not meet the definition of the rule in that there is no “... documentation of the desirability and necessity of using the introduced species to achieve the approved postmining land use.” Please include additional language to meet the requirements of this rule.

Response: *The proposed Pastureland and Cropland revegetation mixtures are compatible with the intended postmining land uses -Pastureland/Hay Cropland-, and the anticipated site conditions -topography, aspect, slope, soils. They have similar species composition and seasonality as the premining vegetation types, are capable of self-regeneration, are compatible with plant and animal species in the area, and meet requirements of applicable seed, poisonous and noxious weeds, and introduced species regulations.*

Within premine Pastureland and Hay Cropland, the common denominator is a prevalence of introduced species, non-native grasses and legumes, hence the use of introduced species is appropriate to achieve the intended postmining land uses. Introduced species are desirable and necessary to support the postmining land use based on premining land use in the permit area

and prevailing land use patterns in the area. Technical standards currently approved for Pastureland and proposed for Cropland are based on premine baseline vegetation inventories of these types in the permit area.

#53 ARM 17.24.313(1)(h)(x): See comments for ARM 17.24.724.

Response: *Please see responses in 17.24.724*

#54 ARM 17.24.314(1)(c): See deficiencies under ARM 17.24.304(1)(e) and (f) and 17.24.648.

Response: *Please see responses in ARM 17.24.304-1-e and -f and 17.24.648.*

#55 ARM 17.24.314(3): The AHA PHC should be updated to include data and conditions described in the Spring Creek Major Revision TR1 PHC.

Response: *The applicable TR1 PHC sections were added into the AHA PHC with tracked changes. Notable additions include adding the DEQ-12A discussion, added Table 24.B, previously Table 4.2.3-1, added Figure 21A, previously Figure 5.2.1-1, discussion on dispersion, calculation on TRR water quality, and added Figure 21B, previously Figure 5.2.3-1.*

#56 The PHC and Table 12 evaluate surface water quality using human health standards from DEQ-7. Based on stream flow conditions in the AHA and recent court decisions, DEQ-7 and DEQ-12A numeric aquatic life standards apply to all streams in the AHA. Thus, surface water quality should be evaluated using aquatic life standards, unless an applicable human health standard for a specific constituent is more stringent.

Response: *As requested, Table 12 and Attachment B-1 have been revised to include the DEQ-12A criteria.*

#57 Section 3.1.8 only discusses historic and current water uses. Surface waters in the AHA are classified as C-3 waters and as such must be maintained suitable for bathing, swimming and recreation, and growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. Further, while naturally marginal, other uses for these waters include drinking, culinary and food processing purposes, agriculture, and industrial water supply. Include these uses in the PHC discussion, including Section 4.1.1.4.

Response: *Water classification discussion in sections 3.1.8 and 4.2.2.4 have been updated as requested.*

#58 Section 3.1.8.1 describes downstream water quality from mining and related operations as better than baseline conditions. DEQ does not agree that the loss of natural levels of suspended sediments results in an improvement in water quality. Please discuss changes in water quality expected within the context of 'gains' or 'losses' rather than value judgments.

Response: *The narrative in Section 3.1.8.1 has been revised as requested.*

#59 The PHC only discusses historical and current uses of ground water. Ground water uses includes all beneficial uses for each ground water class as described in ARM 17.30.1006. Update the PHC to include all ground water beneficial uses, and whether adverse impacts to beneficial uses may occur outside of the permit area.

Response: *Section 3.2.3.5.3 has been added which discusses GW classes and the section 4.2.5.3 narrative has been revised to discuss all beneficial uses as listed in the new Attachment I.*

#60 The PHC discusses the impacts to alluvial ground water as insignificant due to minimal compaction from the haul road. The basis for this generalization is a geotechnical compaction report which indicates that compaction will occur generally in clay materials. However, this report is inadequate, as it only analyzes one soil sample from an unknown location in Youngs Creek. Furthermore, while the compaction may be limited to clay materials, alluvial drill logs and ground water depths indicate saturated clays at many locations, implying that some alluvial ground water may be impacted. Impacts from forest road compaction on shallow ground water flow is well documented, and given the disturbance area and fill volume of the haul road some compaction and alluvial ground water impacts are likely. Furthermore, since Youngs Creek and Little Youngs Creek are gaining stream reaches through the haul road path, some impact on surface flows is also possible. The PHC should be updated to include a quantitative analysis of possible impacts to alluvial ground water and surface flows, and how these impacts may affect off permit uses.

Response: *The discussion in Attachment H has also been expanded to include calculations, bore logs, test results, and a discussion of anticipated impacts to alluvial groundwater flow at stream crossings.*

#61 Section 8.0 Summary discusses "potential for impacts to surface water use (livestock watering), to private wells (livestock watering and domestic) located near the mine until groundwater levels recover, and to downgradient surface mine reclamation." The later part of this sentence is unclear, and needs clarification. Further, potential impacts should be examined in the context of inside or outside the permit boundary, not the distance from mining.

Response: *This section has been revised as requested.*

#62 Section 4.2.5.2 Groundwater Quality discusses the impacts of dust control agents (magnesium chloride) on shallow groundwater. These impacts should be placed in the context of occurring outside or inside the permit boundary, and how increased chloride concentrations may affect agriculture uses in the alluvial valleys. In addition, given the interaction between shallow groundwater and streams at road stream crossings, there is potential for similar impacts to streams from magnesium chloride, which should be discussed in Section 4.2.2.2 Surface Water Quality.

Response: *Discussions related to magnesium chloride two annual applications have been included in Sections 4.2.2.2 and 4.2.5.2.*

#63 PHC section 3.1.7 states that precipitation-driven discharges in May 2005 exceeded MPDES permit limitations for total iron. Effluent limitations for total iron are not applicable to storm-driven discharges; please remove this statement.

Response: *The statement has been removed as requested.*

#64 PHC Table 9 presents the status of permitted MPDES outfalls (e.g. active or planned) as of June 2015. Please ensure this information is current.

Response: *Table 19 and Figure 15 have been revised to reflect recent MPDES outfall changes.*

#65 **ARM 17.24.314(3)(b)(ii):** Please describe whether acid-forming or toxic-forming materials that could result in the contamination of surface or ground water supplies are present.

Response: *Text has been added to Section 17.24.314-3-b-ii to reference the requirement and to address the presence of acid-forming or toxic-forming materials. This information is also contained in the PHC in Appendix L.*

#66 **ARM 17.24.315(1):** The Youngs Creek diversion discussion refers to ARM 17.24.236. This is an incorrect citation and should be updated to reference ARM 17.24.636 Special Requirements for Temporary Diversions.

Response: *Since the original submittal, SCM has matured it's wetland mitigation plans in the Youngs Creek area. As such, there will no longer be a temporary diversion on Youngs Creek, instead an on-site in-kind permanent diversion will be built in this area associated with the ACOE 404 Permit. This mitigation will be within the permit boundary, but outside the disturbance boundary. Permanent plans will be submitted via an NSR process upon final approval of the 404 permit.*

Reference to a temporary diversion was removed and replaced with "permanent diversion" and referenced ARM 17.24.637 in Appendix K – Hydrologic Control During Mining, Section 2.0.

Reference to the Youngs Creek Diversion has been removed from Appendix K, Table K-2, and has been removed from Appendix K, Exhibit 1, Sheet 2. In addition, design drawings for the Youngs Creek Diversion found in Appendix Ka have been removed.

#67 **ARM 17.24.317(1):** The proposed Youngs Creek diversion has no narrative explaining how it will be compliant with ARM 17.24.751. As this will be diverting an active channel with fish species present, SCCC must address fish passage for this diversion.

Response: *A paragraph was added to Appendix K – Hydrologic Control During Mining, Section 2.0, discussing the culvert crossing of Youngs Creek, and discusses shaped concrete channels in the bottom of those culverts, concentrating low flows meeting the requirements of ARM 17.24.636 and ARM 17.24.751.*

#68 ARM 17.24.324(1)(a)(ii): The root abundance tables starting on page 324-3 require an update. The column "Roots^2" has a number and letter system that indicates abundance and size of roots of a soil type and its horizon depth. The footnote needs updating in the "Abundance" category so that the number used in the table is described. Currently the footnote says the "Abundance" categories are: f=few, c=common, m=many. Please update the table footer to explain the number designations of 1, 2, and 3.

Response: *The root abundance tables have been updated in Appendix A3, and the revised Arrowhead Amendment Soils Baseline Report has been loaded to the ePermit site, in its entirety. Drawings A3-1 and A3-2 have not changed with this revision.*

#69 ARM 17.24.324(1)(b): Prime farmland soil types McR-a and Th-a indicate that the prime farmland status is valid to 36 inches. Soil practices for prime farmland rule 17.24.811 describes these soil types will be salvaged and replaced to 48 inches. Per the soil survey this would mean 36" must be salvaged. The salvage plan in 17.24.324 and on the salvage map indicates a 12" inch salvage for prime farmlands. Please increase the Prime Farmland soil salvage depths or indicate other means of protection.

Response: *Narrative was added to the first and third paragraph of 17.24.324(1)(b) describing how prime farmland soils will be handled, including full-depth salvage. Areas of prime farmland over saturated alluvium will only be stripped to a depth of 12" with the remainder being protected with geosynthetic separation fabric. In addition, the topsoil volumes table was updated with revised salvage depths and volumes.*

#70 Prime farmland topsoil stockpiles have been designated with the intent of returning them to the area they were salvaged from in order to maintain soil quality. Studies have shown stockpiling soil for long periods of time, greater than 10 years, degrades soil quality. The haul route for the Arrowhead amendment will conceivably be in service for longer than ten years. To retain soil quality through soil biologic interaction the depth of a stockpile should only be as deep as roots can penetrate (Strohmayr 1999). Prime farmland stockpile footprints are separated from general soil stockpiles with the intent of returning them to their original locations. Minimizing the stockpile depths will help retain soil quality. Additionally, using alfalfa or other deep rooted plants as cover species also enhances soil quality through maintaining biologic activity in the soil. For prime farmland soils using a maximum stockpile depth of 12-15 feet with a deep rooted cover crop including alfalfa will enhance material quality for reclamation. Prime farmland was calculated with a one foot stripping depth for an area of about 14 acres. Based on one foot an acre would accommodate a soil stockpile 14 feet thick. If salvage were set to three feet the stockpile footprint should fit on 4 acres. These stockpile footprint sizes should be achievable.

Please determine if the volume of prime farmland topsoil to be stripped will fit in the stockpile footprints at a depth of 14 feet or less and designate the depth in the permit. Reference Patti Strohmayr: Soil Stockpiling for Reclamation and Restoration activities after Mining and Construction; Restoration and Reclamation Review, Student On-Line Journal Department of Horticultural Science, Vol. 4, No.7, Spring 1999 University of Minnesota, St. Paul, MN.

Response: *Topsoil stockpiles in Youngs and Little Youngs Creeks have been re-evaluated and reconfigured to accommodate all prime farmland soils to a maximum depth of 14'. The new configurations can be found on Figure 313B.*

#71 ARM 17.24.324(1)(c): The current plan shows soil stockpile zones on prime farmland soils. Prime farmland disturbance should be minimized to as small as possible. Unless the operator can justify additional soil disturbance for stockpiling purposes, stockpile locations should be located outside of prime farmland soils.

Response: *Proposed topsoil stockpile locations have been moved off of prime farmlands. The new locations can be found on Figure 313B.*

#72 ARM 17.24.324(1)(e): The fourth criteria utilized for monitoring prime farmlands states that sampling techniques will be approved by the NRCS. This should be updated to include MT DEQ technical guidelines as well.

Response: *"...and MT DEQ Vegetation Sampling Guidelines." was added to the last sentence of paragraph 324 (1)(e)(4)*

#73 ARM 17.24.324(1)(h): Four reference area locations are shown on Plate 23, Sheet 2. These locations should all be upgradient of the intended haul road disturbance. Production at downgradient locations has the potential to be impacted by the haul road disturbance. Therefore, un-impacted reference areas should be the standard for reclamation and the downgradient location on Little Youngs Creek will need to be moved upgradient of the projected disturbance.

Response: *Following discussion with MDEQ, it was determined that the downgradient reference site on Little Youngs Creek should be eliminated for the reason cited above, and that the upgradient site will suffice as a reference area to monitor prime farmland soils productivity associated with the Little Youngs Creek floodplain. Plate 23, Sheet 2 has been adjusted accordingly.*

#74 ARM 17.24.503(1): The attachment "Vol1A_503_20110426_APP183.pdf" no longer exists and has been replaced by "503_SmDepressions_20110426_APP183.pdf". Please reference the correct attachment.

Response: *The correct attachment (503_SmDepressions_20110426_APP183.pdf) has now been referenced.*

#75 ARM 17.24.605(1): The attachment "Vol1A 605.pdf" no longer exists and has been replaced by "605_RdRailHydroImpact_20151001_APPAM5.pdf". Please reference the correct attachment.

Response: *The correct attachment, 605_RdRailHydroImpact_20151001_APPAM5.pdf, has now been referenced.*

#76 ARM 17.24.631(1): The attachment "Vol1A_631_20110426_APP183.pdf" no longer exists and has been replaced by "631_HydroRequire_20151001_APPAM5.pdf". Please reference the correct attachment.

Response: *The correct attachment, 631_HydroRequire_20151001_APPAM5.pdf, has now been referenced.*

#77 ARM 17.24.632(1): The attachment "Vol1A 632.pdf" no longer exists and has been replaced by "632_SealDrillHoles.pdf". Please reference the correct attachment.

Response: *The correct attachment (632_SealDrillHoles.pdf) has now been referenced.*

#78 ARM 17.24.633(1): The attachment "Vol1A 633.pdf" no longer exists and has been replaced by "633_WQ_Stnds.pdf". Please reference the correct attachment.

Response: *The correct attachment (633_WQ_Stnds_20170131_APPAM5.pdf) has now been referenced.*

#79 The permit states that sediment ponds will be maintained until revegetation requirements have been met. Per Western Alkaline standards at 40 CFR 434 Subpart H, all drainages associated with MPDES outfalls can be permitted under an approved Sediment Control Plan. Therefore, ponds may be removed prior to meeting all vegetation requirements.

Response: *Text in Section 17.24.633(2) has been updated to reflect that upon reclamation completion, SCC will submit a Sediment Control Plan for approval and incorporation into the mine's MPDES permit for handling of surface water discharges from reclaimed lands.*

#80 ARM 17.24.633(5)(a): The statement, "There have been no unplanned discharges from the sediment control ponds except as a result of storms in excess of 10-year, 24-hour events," is no longer applicable and should be removed. Discharges occurred in 2014 as the result of spillway leaks following a snow melt event.

Response: *Text in Section 17.24.633-5-a and -b has been updated to remove the inaccurate statement and to reflect that discharges may not be subject to the effluent limitations or BTCA standards of ARM 17.24.638 if the discharge exceeds the 10-year, 24-hour event size and if the discharge is from BTCA practices designed, constructed, and maintained in accordance with ARM 17.24.633-1 through -4 and ARM 17.24.639.*

#81 ARM 17.24.634(1): The attachment "Vol1A_634_20110426_APP183.pdf" no longer exists and has been replaced by "634_ReclaimDrainage_20151001_APPAM5.pdf". Please reference the correct attachment.

Response: *The correct attachment (634_ReclaimDrainage_20151001_APPAM5.pdf) has now been referenced.*

#82 ARM 17.24.635(1): The attachment "Vol1A 635.pdf" no longer exists and has been replaced by "635_FlowRequire.pdf". Please reference the correct attachment.

Response: *The correct attachment (635_FlowRequire.pdf) has now been referenced.*

#83 ARM 17.24.636(1): The attachment "Vol1A 636.pdf" no longer exists and has been replaced by "636_DiversionTempRequire.pdf". Please reference the correct attachment.

Response: *The correct attachment (636_DiversionTempRequire.pdf) has now been referenced.*

#84 ARM 17.24.637(1): The attachment "Vol1A 637.pdf" no longer exists and has been replaced by "637_DiversionPermRequire.pdf". Please reference the correct attachment.

Response: *The correct attachment (637_DiversionPermRequire.pdf) has now been referenced.*

#85 ARM 17.24.638(1): The attachment "Vol1A 638.pdf" no longer exists and has been replaced by "638_SedControlMeasures_20151001_APPAM5.pdf". Please reference the correct attachment.

Response: *The correct attachment (638_SedControlMeasures_20151001_APPAM5.pdf) has now been referenced.*

#86 ARM 17.24.639(1): The attachment "Vol1A_639_20110426_APP183.pdf" no longer exists and has been replaced with "639_SedPondsOtherTrtmnt_20110426_APP183.pdf". Please reference the correct attachment.

Response: *The correct attachment (639_SedPondsOtherTrtmnt_20110426_APP183.pdf) has now been referenced.*

#87 ARM 17.24.640(1): Attachment "Vol1A 640.pdf" no longer exists and has been replaced by "640_DischargeStructure_20151001_APPAM5.pdf". Please reference the correct attachment.

Response: *The correct attachment (640_DischargeStructure_20151001_APPAM5.pdf) has now been referenced.*

#88 ARM 17.24.641(1): The attachment "Vol1A 641.pdf" no longer exists and has been replaced by "641_SpoilsAcidToxic.pdf". Please reference the correct attachment.

Response: *The correct attachment (641_SpoilsAcidToxic.pdf) has now been referenced.*

#89 ARM 17.24.642(1): The attachment "Vol1A 642.pdf" no longer exists and has been replaced by "642_Impoundments.pdf". Please reference the correct attachment.

Response: *The correct attachment (642_Impoundments.pdf) has now been referenced.*

#90 ARM 17.24.643(1): The attachment "Vol1A_643_20110426_APP183.pdf" no longer exists and has been replaced by "643_GW_Protect_20110426_APP183.pdf". Please reference the correct attachment.

Response: *The correct attachment (643_GW_Protect_20110426_APP183.pdf) has now been referenced.*

#91 ARM 17.24.644(1): The attachment "Vol1A_644_20110426_APP183.pdf" no longer exists and has been replaced by "644_GW_Recharge_20151001_APPAM5.pdf". Please reference the correct attachment.

Response: *The correct attachment (644_GW_Recharge_20151001_APPAM5.pdf) has now been referenced.*

#92 ARM 17.24.645(1): The attachment "Vol1A_645_20110426_APP183.pdf" no longer exists and has been replaced by "645_GW_Monitor_20131014_MR191.pdf". Please reference the correct attachment.

Response: *The correct attachment (645_GW_Monitor_20131014_MR191.pdf) has now been referenced.*

#93 ARM 17.24.646(1): The attachment "Vol1A_646_20110426_APP183.pdf" no longer exists and has been replaced by "646_SW_Monitor_20131014_MR191.pdf". Please reference the correct attachment.

Response: *The correct attachment (646_SW_Monitor_20131014_MR191.pdf) has now been referenced.*

#94 ARM 17.24.647(1): The attachment "Vol1A 647.pdf" no longer exists and has been replaced by "647_WellsTransfer.pdf". Please reference the correct attachment.

Response: *The correct attachment (647_WellsTransfer.pdf) has now been referenced.*

#95 ARM 17.24.648(1): The attachment "Vol1A 648.pdf" no longer exists and has been replaced by "648_Water_Rights_and_Replacement_20151001_APPAM5.pdf". Please reference the correct attachment.

Response: *The correct attachment (648_Water_Rights_and_Replacement_20151001_APPAM5.pdf) has now been referenced.*

#96 ARM 17.24.649(1): The attachment "Vol1A 649.pdf" no longer exists and has been replaced by "649_WaterUnderMines.pdf". Please reference the correct attachment.

Response: *The correct attachment (649_WaterUnderMines.pdf) has now been referenced.*

#97 ARM 17.24.650(1): The attachment "Vol1A 650.pdf" no longer exists and has been replaced by "650_PostmineRehabStruct.pdf". Please reference the correct attachment.

Response: *The correct attachment (650_PostmineRehabStruct.pdf) has now been referenced.*

#98 ARM 17.24.651(1): The attachment "Vol1A 651.pdf" no longer exists and has been replaced by "651_StreamChannel_20151001_APPAM5.pdf". Please reference the correct attachment.

Response: *The correct attachment (651_StreamChannel_20151001_APPAM5.pdf) has now been referenced.*

#99 ARM 17.24.652(1): The attachment "Vol1A 652.pdf" no longer exists and has been replaced by "652_WellsOpeningsSafety.pdf". Please reference the correct attachment.

Response: *The correct attachment (652_WellsOpeningsSafety.pdf) has now been referenced.*

#100 ARM 17.24.713(1): Permit language references ARM 17.24.131.1(h)(ii). This should actually reference 17.24.313(1)(h)(ii). Please correct this to the appropriate reference.

Response: *The correct reference to 17.24.313(1)(h)(ii) is now used.*

#101 ARM 17.24.724(3): Technical standards regarding ARM 17.24.724 were generated and are included in the application under Addendum 313B. The table of contents for this addendum incorrectly references the Appendices page as page 28. This page is blank and appendices are actually listed on page 29. These Appendices are not attached. Please update the Table of Contents to accurately reflect the location of the appendices and attach them to the addendum.

Response: *The technical standards in Addendum 313B pagination problem results from not "accepting" the tracked changes in the document. Tracked changes have been accepted and a*

red line cross out version was generated for this submittal. Typically pagination in the TOC will likely be incorrect during the review phase until the final clean PDF version is generated.

The Appendices to 313B were mistakenly not submitted during the initial Arrowhead Amendment e-Permit filing. The AHA does not revise the 313B Appendices. Additional technical standards necessitated by features of the Arrowhead Amendment are addressed in table footnotes in 313B, rather than in the Appendices -thus no changes to the Appendices. For instance, the addition of Woody Riparian standards was addressed in footnote #5 in Table 5 and footnote #2 in Table 7 of 313B. Also see footnote #2 in Table 313-6 of the Reclamation Plan.

#102 Table 5 sets a woody plant density standard of 2,800 woody plants per acre based on a 90% density requirement, according to note 5, for the Woody Riparian Areas. This standard should be set at the weighted mean for that community type of woody species and thus be set at 3,040 woody plants per acre. As these communities had strong components of currant, snowberry, chokecherry, box elder trees, and cottonwood trees, the weighted means of trees and shrubs has been added, 25 and 3,015, to make a standard of 3,040 woody plant density per acre.

Response: *The woody plant density standard in Table 5 of Addendum 313B has been adjusted to 3,040 woody plants per acre, as correctly noted by the Department. The 90 percent density requirement, about 2,800 woody plants per acre, would later be evaluated upon submittal of a bond release application.*

#103 Footnote 6 for Table 5 has not been included. Please explain footnote 6 for Table 5. Footnote 3 from Table 7 is not necessary. This appears to be a comment for the operator, but should not be included as part of the permit. If there are needed changes that result from future data collection or data interpretation, they can be addressed at that time. If there are changes that need to be done, please make them now. Otherwise, please remove this footnote.

Response: *Footnote 6, Table 5 in 313B, is no longer valid and has been deleted, as it applied to the 90 percent density requirement addressed in the above response. Footnote 3 in Table 7 in 313B, has been deleted per the Department's request.*

#104 Table 1 has not been updated to include pre-mine community types and acreages present in the amendment area. Please update Table 1 to reflect the amendment area.

Response: *The acreages in Table 1 in Addendum 313B, have been adjusted to include the Arrowhead Amendment permit area, including proposed disturbance acreages, per the request and a subsequent discussion with MDEQ. The acreage adjustments in Table 1 have been incorporated into other tables in 313B as appropriate.*

#105 **ARM 17.24.725(2):** Current permit material does not take into consideration rule changes in 2012 to this rule. MCA 82-4-235(3) allows for phase III bond release to be applied for prior to the ten growing seasons required in specific instances. This section should be updated to incorporate these changes if SCC intends to utilize the 2012 rule changes.

Response: *17.24.725 has been updated to include the 10% language.*

#106 ARM 17.24.751(1): Attachment Vol1A_751_2011426_APP183.pdf no longer exists and has been replaced by 751_FishWildProtection_20151001_APPAM5.pdf. Please update the reference.

Response: *The correct attachment (751_FishWildProtection_20170131_APPAM5.pdf) has now been referenced.*

#107 ARM 17.24.751(2)(f): The wetland mitigation plan should be developed and submitted to DEQ prior to permit approval.

Response: *The Arrowhead Amendment wetland delineation can be found in Appendix L2B. In the USACE Jurisdictional Determination (JD) [NWO-2015-01686-MTB] of that delineation, the USACE found that all delineated wetlands and perennial streams within the permit area and study area are subject to USACOE jurisdiction.*

SCM is currently working with the USACE on a 404 permit to disturb and mitigate certain areas of these wetlands. NO WETLANDS WILL BE DISTURBED PRIOR TO OBTAINING A 404 PERMIT. Upon obtaining the 404 permit, SCM will incorporate the appropriate portions of the 404 permit by reference or directly into this permit.

#108 ARM 17.24.801(1): The attachment "Vol1A_801_20110426_APP183.pdf" no longer exists and has been replaced by "801_20110426_APP183.pdf". Please reference the correct attachment.

Response: *The correct attachment (801_20110426_APP183.pdf) has now been referenced.*

#109 ARM 17.24.802(1)(a): The attachment "Vol1A_802_20110426_APP183.pdf" no longer exists and has been replaced by "802_20110426_APP183.pdf". Please reference the correct attachment.

Response: *The correct attachment (802_20110426_APP183.pdf) has now been referenced.*

#110 ARM 17.24.804(1): The attachment "Vol1A_804.pdf" no longer exists and has been replaced by "804.pdf". Please reference the correct attachment.

Response: *The correct attachment (804.pdf) has now been referenced.*

#111 ARM 17.24.806(1): The attachment "Vol1A_806_20110426_APP183.pdf" no longer exists and has been replaced by "806_20110426_APP183.pdf". Please reference the correct attachment.

Response: *The correct attachment (806_20110426_APP183.pdf) has now been referenced.*

#112 ARM 17.24.811(1): The file name referenced for ARM.17.24.811 is incorrect and should be corrected.

Response: *The reference is corrected to:
811_PrimeFarmland_SoilHandling_20151001_APPAM5.pdf*

#113 ARM 17.24.815(1): The file name referenced for ARM 17.24.815 is incorrect and should be corrected.

Response: *The reference is corrected to:
815_PrimeFarmland_Revegetation_20170131_APPAM5.pdf Additionally, a typo in the header has been corrected.*

#114 ARM 17.24.821(1): The file name referenced for ARM 17.24.821 is incorrect and should be corrected.

Response: *The reference is corrected to: 821-825_AlternateReclaim.pdf*

#115 ARM 17.24.823(1): The file name referenced for ARM 17.24.823 is incorrect and should be corrected.

Response: *The reference correctly refers to: 821-825_AlternateReclaim.pdf*

#116 ARM 17.24.831(1): The file name referenced for ARM 17.24.831 is incorrect and should be corrected.

Response: *The reference correctly refers to: 831-833_AugerMining.pdf*

#117 ARM 17.24.832(1): The file name referenced for ARM 17.24.832 is incorrect and should be corrected.

Response: *The reference correctly refers to: 831-833_AugerMining.pdf*

#118 ARM 17.24.833(1): The file name referenced for ARM 17.24.833 is incorrect and should be corrected.

Response: *The reference correctly refers to: 831-833_AugerMining.pdf*

#119 ARM 17.24.834(1): The file name referenced for ARM 17.24.834 is incorrect and should be corrected.

Response: *The reference is corrected to: 834-837_Remining_20170131_APPAM5.pdf
The file has been renamed to correct a typo.*

#120 ARM 17.24.835(1): The file name referenced for ARM 17.24.835 is incorrect and should be corrected.

Response: *The reference is corrected to: 834-837_Remining_20170131_APPAM5.pdf
The file has been renamed to correct a typo.*

#121 ARM 17.24.836(1): The file name referenced for ARM 17.24.836 is incorrect and should be corrected.

Response: *The reference is corrected to: 834-837_Remining_20170131_APPAM5.pdf
The file has been renamed to correct a typo.*

#122 ARM 17.24.837(1): The file name referenced for ARM 17.24.837 is incorrect and should be corrected.

Response: *The reference is corrected to: 834-837_Remining_20170131_APPAM5.pdf
The file has been renamed to correct a typo.*

#123 ARM 17.24.805(1): The attachment "Vol1A 805.pdf" no longer exists and has been replaced by "805.pdf". Please reference the correct attachment.

Response: *The correct attachment (805.pdf) has now been referenced.*

If you have any questions or comments, please contact me at (406) 757-4236 or via email at gabriel.johnson@cldpk.com.

Sincerely,



Gabe Johnson
Environment Engineer
Cloud Peak Energy, Spring Creek Mine