



GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

BRIAN C. STEED
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

January 30th, 2020

Karin Madsen, Resident Agent
Genwal Resources, Inc.
P.O. Box 910
East Carbon, Utah 84520-0190

Subject: Final Reclamation Plan (DO-19B), Genwal Resources, Inc., Crandall Canyon Mine, C/015/0032, Task #6049

Dear Ms. Madsen:

The Division of Oil, Gas and Mining (the Division) has reviewed your most recent application to revise the Crandall Canyon Mine's final reclamation plan. After reviewing the plans as submitted on 12/20/2019, the Division has determined the plans contain a number of deficiencies that must be addressed before final approval can be granted. The deficiencies are listed as an attachment to this letter. The deficiencies authors are identified so that your staff can communicate directly with that individual should questions arise.

You received Division Order DO-19B (DO-19B) on February 5th 2019. This deficiency letter marks the completion of the second round of review of the proposed final reclamation plan revision. The previous round of review (Task #5968) identified 32 deficiencies that needed to be resolved prior to final approval. With this most recent review, 30 deficiencies remain outstanding and we have yet to receive a complete reclamation plan design.

My staff and I have worked diligently and in a cooperative effort to help to facilitate the final approval of the reclamation plan. After extensive leg work and multi-agency/stakeholder coordination, we identified paths through not only our regulatory requirements but also those of other agencies (e.g. USDA Forest Service and Utah Division of Water Quality). We have provided examples of designs and modeling calculations to help address deficiencies. Multiple offers have been extended to meet with you and your staff to work through these issues, yet since DO-19B was issued in February of last year, only one conference call was conducted on December 12th, 2019. As we approach the one-year mark of the issuance of DO-19B, we are only marginally closer to a final approval since we received your first submission on July 3rd, 2019.

I would like to request and recommend a face-to-face meeting the week of February 10th or, at the latest, the week of the February 17th to go through each of the



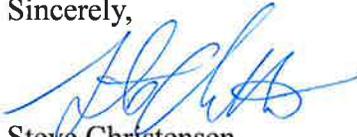
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deficiencies with you and Division staff to work towards getting this across the finish line with the next submission.

In summation, the plans as submitted on 12/20/2019 by Genwal Resources, Inc. for the are denied. Please resubmit the entire application by no later than April 30th, 2020.

If you have any questions, please call me at (801) 538-5350.

Sincerely,



Steve Christensen
Coal Program Manager



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Technical Analysis and Findings
Utah Coal Regulatory Program

PID: C0150032
TaskID: 6049
Mine Name: CRANDALL CANYON MINE
Title: FINAL RECLAMATION PLAN, DO-19B

General Contents

Right of Entry

Analysis:

The Permittee has stated that an application for a special use permit has been submitted to the Forest Service for right-of-entry required for the proposed pipeline that will run under Forest Service road #0248 (Crandall Canyon Road). The Permittee has state that the special use permit should be available from the Forest Service around February 2020. This must be provided to the Division prior to approval of the mine-water discharge pipeline.

The Permittee submitted appendix 5-27 *Crandall Canyon Mine Memorial, Emery County, Memorandum of Agreement*. This appendix contains the Quit Claim Deed documentation for the mine memorial area agreement between the Permittee and Emery County.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Right of Entry. The following deficiency must be addressed prior to final approval:

R645-301-114 The Forest Service Special Use Permit for the proposed mine-water pipeline must be submitted to the Division before approval can be given for the proposed application. This deficiency is repeated from Task 5968.

adaniels

Legal Description

Analysis:

The amendment does not meet the State of Utah R645 requirements for Legal Description.

The Permittee has updated the legal description within Chapter 1 of the MRP to include the area for the Mine Water Pipeline. However, the legal description for this area is too general to define the additions to the permit area. This must be expanded to include a clearly defined permit area that encompasses all reclamation and pipeline disturbances along the USFS road.

As part of the updates to Chapter 1, it became clear that the Permittee has not included any area along the USFS road from the surface facilities to Huntington Creek in the expanded disturbed area acreage. As this road, during reclamation, will be "reduced from a 27 foot subgrade and 22 foot running surface to a 20 foot subgrade and 14 foot running surface" (MRP section 5.42.60), this qualifies as disturbance related to coal mining reclamation and must be included in the disturbed area.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Legal Description. The following deficiency must be addressed prior to final approval:

R645-300-141, -301-521 The legal description of the expanded permit area is too general to define its location and must be updated. The legal description must also include all areas disturbed due to coal mining and reclamation activities.

R645-301-521 The disturbed area boundary must include the USFS road from the surface facilities to Huntington Creek, as this road, during reclamation, will be "reduced from a 27 foot subgrade and 22 foot running surface to a 20 foot subgrade and 14 foot running surface" (MRP section 5.42.60).

adaniels

Permit Application Format and Contents

Analysis:

The amendment meets the State of Utah R645 requirements for Permit Application Format and Contents.

Discrepancies with Appendices 5-27 thru 5-29 of the last submittal have been resolved. Appendix 5-27 and 5-28 were submitted for review, and the Chapter 5 table of contents were updated to indicate that Appendix 5-29 is unused.

adaniels

Environmental Resource Information

Historic and Archeological Resource Information

Analysis:

The amendment does not meet the State of Utah R645-301-411 requirements for Historic and Archeological Resource Information.

According to the Permittee's response from the previous Task (#5968), the proper clearances from the Forest Service and SHPO should be obtained as part of the Forest Service's Special Use Permit which is scheduled to be approved in mid-February of 2020. Until that information, or other documentation from SHPO and the Forest Service, is received, this portion of the amendment cannot be approved.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-411 requirements for Historic and Archeological Resource Information. The following deficiency must be addressed prior to final approval:

R645-301-411: The Permittee must demonstrate current clearances from Manti-La Sal National Forest and SHPO regarding the expanded project area and plan.

tmiller

Fish and Wildlife Resource Information

Analysis:

The amendment does not meet the State of Utah R645-301-322 requirements for Fish and Wildlife Resource Information. Threatened and endangered species information included in the MRP dates back to 1995 and must be updated to account for impacts that final reclamation, including the implementation of the pipeline discharge into Huntington Creek, may have on T&E species. Consultation with the Manti-La Sal National Forest biologists will take place following their issuance of the required Special Use Permit and these issues will be addressed at that time.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-322 requirements for Fish and Wildlife Resource Information. The following deficiency must be addressed prior to final approval:

R645-301-322: The Permittee must provide updated fish and wildlife resource information related to the proposed

Soils Resource Information

Analysis:

The application does not meet the State of Utah R645 requirements for Soils: Environmental Description.

There is no Order 1 soil survey information for the proposed disturbed area at the lower reach of the pipeline near Huntington Creek.

The disturbed area figures provided in Chapter 1, Section 114, p. 1-5, Permit Area Table differs from the disturbed area described in Appendix 5-30 pages 1-3.

Issue 1.

A soil survey investigation of the proposed disturbed area is required before disturbance in accordance with R645-301-222. During a meeting on December 12, 2019, the permittee suggested that the US Forest Service would be investigating archaeological and soil information as part of their Special Use permitting process and some of that information could potentially be used as part of the DOGM permitting process.

Issue 2.

Chapter 1, Section 114, page 1-5, Permit Area Table states that the pipeline disturbance will affect 1.52 acres, of which 0.95 acres is new disturbance. However Appendix 5-30 pages 1-3 describe a disturbed area closer to 3.0 acres.

Appendix 5-30 pages 1-3 state the "Middle Reach" of the pipeline as 6,300 ft, the "Lower Reach" as 200 ft and the "Terminus" as 70 feet (Appendix 5-30 pages 1-3). Thus the total buried pipeline length will be 6,570 ft. For all but the Terminus, the disturbed area will be 10 feet on either side of the pipeline, making a 20 ft wide disturbed area in which to bury the pipe. (The 5 foot trench may require blasting, drilling or digging depending on depth to rock.) Therefore the disturbed area for the buried pipeline would be 20 ft x 6,500 ft = 130,000 square feet. That equals 2.98 acres. This disturbed area does not include the 70 foot terminus shown on Appendix 5-30 Plate 5-30-3a, which is an additional 0.03 acres adjacent to the creek.

Deficiencies Details:

The application does not meet the State of Utah R645 requirements for Soil Survey. The following deficiencies must be addressed prior to final approval:

R645-301-222, Provide a soil survey investigation of the proposed pipeline disturbed area. This deficiency is repeated from Task 5968.

R645-301-121.200, Please clarify the discrepancy in proposed disturbed area between Chapter 1, Section 114, page 1-5, Permit Area Table (which states that the pipeline disturbance will affect 1.52 acres, of which 0.95 acres is new disturbance) and Appendix 5-30 pages 1-3 (which describe a disturbed area closer to 3.0 acres).

pburton

Maps Archeological Site Maps

Analysis:

The amendment meets the State of Utah R645-301-411 requirements for Archeological Site Maps.

Plate 5-3 "Crandall Canyon Mine Overall Surface Facilities" indicates the proximity of the pipeline proposal to the known cultural resources in the area. However, due to the Forest Service's ongoing work to provide a Special Use Permit, additional cultural resource information may come to light that would need to be included on a map.

tmiller

Operation Plan

Topsoil and Subsoil

Analysis:

The application does not meet the State of Utah R645 requirements for Soils: Operation Plan.

The handling of topsoil within the pipeline disturbed area is not described. Based upon the soil survey, please describe the topsoil and subsoil removal.

Please state whether pipeline soils will be promptly redistributed or whether soils will be stockpiled during construction.

Please state whether topsoil stockpile #4 will be moved, since it appears to be in the path of the pipeline as shown on Dwg 2-3.

Deficiencies Details:

The application does not meet the State of Utah R645 requirements for Soil Handling. The following deficiencies must be addressed prior to final approval:

R645-301-232, Based upon the soil survey, please describe the topsoil and subsoil removal.

R645-301-234, Please state whether pipeline soils will be promptly redistributed or whether soils will be stockpiled during construction.

R645-301-234.240, Please state whether topsoil stockpile #4 will be moved, since on Dwg 2-3 it appears to be in the path of the pipeline.

pburton

Road System Plans and Drawings

Analysis:

The application does not meet the State of Utah R645 requirements for Road System Plans and Drawings.

The application does not meet the requirements of R645-301-527.200 because the narrative describing the anticipated post reclamation dimensions of FR 0248 contradicts itself in several different locations. The narrative on page 12 of Appendix 5-22 (PDF page 125), as well as Page 5-45 (PDF page 100), states that according to the USFS Special Use Permit the dimensions of the paved area within FR 0248 will be decreased in width from a 27-foot subgrade and 22-foot running surface to a 20-foot subgrade and 14-foot running surface. But then the narrative on page 100 changes to state that the Forest Service has indicated a preference for complete asphalt removal from the road upon reclamation. The narrative goes on to further state that the road may need to be repaved due to the Miner's Memorial. The Permittee must describe how the relevant R645 rules will be met, and the current indecisive narrative fails to do that. A coherent narrative must describe how the R645 rules will be adhered to in regards to Road Systems throughout reclamation. If there is doubt surrounding the current stipulations within the Special Use Permit, then the Permittee must collaborate with the Forest Service and proceed accordingly.

Should the Permittee follow through with the commitment to reduce the width of USFS 0248, the Division has concerns surrounding how this would be carried out since such an undertaking does not seem practical and would likely be very expensive. If this approach is to be executed the reclamation bond would need to be increased since this will be an expense that is not contemplated in the current bonding calculations.

This deficiency was originally submitted last year under Task# 5968.

Deficiencies Details:

The application does not meet the State of Utah R645 requirements for Road System Plans and Drawings. The following deficiency must be addressed prior to final approval:

R645-301-527.200, R645-301-534.140: The Permittee must commit to a definite plan for the reclamation of Forest Service road 0248. Should asphalt be stripped from the current road surface, the Permittee must describe how this will be achieved (i.e. the labor and machinery required, and plans for stabilization post removal, etc). Permittee must

also ensure that asphalt removal along FR 0248 is accounted for within the reclamation bond.

jeatchel

Road System Performance Standards

Analysis:

The application does not meet the State of Utah R645 requirements for Road System Performance Standards.

This deficiency was originally submitted in August, 2019 under Task# 5968. The response to this deficiency stated that the Permittee has proposed that the North Emery Water Users Special Service District (NEWUSSD) acquire the pipeline upon reclamation. Should this occur, the NEWUSSD would assume maintenance obligations for the pipeline beyond reclamation. At present no agreement between the Permittee and NEWUSSD has been struck which means the reclamation obligations for the pipeline remain with the Permittee until other arrangements may be arranged. Until such time that ownership of the pipeline is transferred to a third party, a maintenance plan describing how the pipeline will be maintained throughout its use needs to be provided.

Deficiencies Details:

The application does not meet the State of Utah R645 requirements for Road System Performance Standards. The following deficiency must be addressed prior to final approval:

R645-301-527.210 - 527.230: Permittee must provide a maintenance plan describing how the pipeline will be maintained throughout its use until such time that ownership of the pipeline is transferred to a third party.

jeatchel

Spoil Waste Disposals of Noncoal Mine Wastes

Analysis:

The application meets the State of Utah R645 requirements for Disposal of Noncoal Mine Waste.

The application satisfies the requirements of R645-301-542.741 and - 542.742 because of narrative on page 12 of Appendix 5-22 (PDF page 125) that commits to the removal of accumulated iron sludge within the water treatment pond for disposal in the Burma Pond. A review of the current reclamation bond reveals that there is approximately \$60,600 earmarked within the bond for the complete reclamation and revegetation of the Burma Pond, although this amount should be increased to address the cleanup and haulage of the sludge to the Burma Pond upon reclamation.

jeatchel

Hydro Surface Water Monitoring

Analysis:

The amendment does not meet the State of Utah R645 requirements for Surface Water Monitoring.

The Permittee has proposed a pipeline to carry mine-water discharge from the current UPDES outfall 002 to a discharge point directly into Huntington Creek at the bottom of Crandall Canyon. This will require a revision to the Permittee's current UPDES permit outfall 002 location. In addition to this the Permittee has proposed installing a Parshall Flume within the concrete vault outlet structure that would part of the energy dissipater feature at the outfall of the new pipeline. The Permittee has not proposed new surface water monitoring sites that would facilitate the monitoring of potential impacts to Huntington Creek. Monitoring points should be added to Huntington Creek above and below the pipeline discharge point.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Surface Water Monitoring. The following deficiency must be addressed prior to final approval:

R645-301-731.220 The Permittee must provide an updated Surface Water Monitoring Plan, including update relevant maps, to include monitoring of Huntington Creek that would detect impacts from the proposed relocated mine-water discharge point. This would include monitoring points on Huntington Creek above and below the pipeline discharge point. This deficiency is carried over from Task 5968.

Hydrologic Water Quality Standards

Analysis:

The amendment does not meet the State of Utah R645 requirements for Water Quality Standards.

The Permittee has proposed a pipeline to carry mine-water discharge from the current UPDES outfall 002 to a discharge point directly into Huntington Creek at the bottom of Crandall Canyon. This will require a revision to the Permittee's current UPDES permit outfall 002 location. By changing the receiving waters of the mine-water discharge, it is likely that the Total Iron limit (currently 1.24 mg/l at the Crandall Creek discharge point) will increase due to the increased flow of Huntington Creek. However, until the appropriate studies have been completed by the Utah Division of Water Quality (DWQ) this new limit has not been established. The Permittee must apply for this revision to their current UPDES permit and provide a draft permit to the Division prior to approval can be made to the change in mine-water discharge location. The Permittee has indicated with this task amendment that DWQ has indicated that the draft will be completed in the next month or two.

The Permittee has added a commitment to Appendix 5-30 that indicates that prior to removal of the water treatment system, a report will be submitted to the Division for review and approval analyzing the mine-water compliance to the UPDES standard.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Water Quality Standards. The following deficiencies must be addressed prior to final approval:

R645-301-751 The Permittee must provide the Division a revised UPDES permit for the proposed discharge location of the mine-water pipeline. This deficiency is carried over from Task 5968.

adaniels

Hydrologic Diversion General

Analysis:

The amendment does not meet the State of Utah R645 requirements for Diversion, General.

The Permittee is proposing an 8 inch HDPE pipeline to be buried under the Crandall Canyon Forest Service road that would transport raw mine water discharge to an outfall directly in to Huntington Creek instead of at its current discharge point to Crandall Creek at the outfall of the mine water treatment system. This pipeline is considered a permanent diversion as it will remain in place indefinitely to handle the discharge coming from the Crandall Canyon Mine. Since the previous submittal of this amendment under Task 5968 the Permittee has provided more detailed designs of pipeline features and given more specifics on the alignment of the pipeline itself.

Under Task 5968 the design included pipeline vents placed periodically down the length of the pipeline. However, these vents have been eliminated as part of this revision. The Permittee must provide engineering justification for the pipeline's vent placement.

The Permittee has stated that along the length of the pipeline there may be areas where they will encounter sandstone as they trench. In this area they have stated that instead of burying the pipeline 5 feet deep, the pipeline will be placed 3.5 feet deep. The Permittee must justify the proposed section of pipeline being 3.5 feet deep in bedrock sections to ensure there won't be problems with freezing temperatures creating flow problems and damage.

The placement and sizing of riprap at the discharge end of the pipeline has not yet been designed per a statement from the Permittee. This design must be reviewed and approved by the Division.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Diversions, General. The following deficiency must be addressed prior to final approval:

R645-301-742.312 The Permittee must provide engineering justification for the removal and placement of vents along

the length of the pipeline.

R645-301-742.312 The Permittee must justify the proposed section of pipeline being 3.5 feet deep in sections with bedrock to ensure there won't be problems with freezing temperatures causing damage.

R645-301-742.312 The site specific design of the discharge structures for the pipeline (i.e. riprap sizing and placement) must be submitted to the Division for review and approval.

adaniels

Hydrologic Stream Buffer Zones

Analysis:

The amendment does not meet the State of Utah R645 requirements for Stream Buffer Zones.

The Permittee has proposed a pipeline to carry mine-water discharge from the current UPDES outfall 002 to a discharge point directly into Huntington Creek at the bottom of Crandall Canyon. Huntington Creek is a perennial stream and a tributary to the San Rafael River. In addition to the mine-water discharging directly in to Huntington Creek, the Permittee is proposing an energy dissipater structure to minimize erosion on the banks of the receiving creek. The Permittee has committed to obtaining a Stream Alteration Permit from the Division of Water Rights prior to initiating work, and this permit will be provided to DOGM. The Permittee must provide the Division with details of how work taking place during installation of the discharge feature will not degrade the receiving stream or contribute to the addition of suspended solids leaving the permit area.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Stream Buffer Zones. The following deficiency must be addressed prior to final approval:

R645-301-731.600 A detailed plan, including design drawings, must be submitted that ensures that the quantity or quality of Huntington Creek waters will be protected during the installation of the discharge structure. This includes a drawing indicating the placement of specified sediment control features. This deficiency is carried over from Task 5968.

adaniels

Hydrologic Sediment Control Measures

Analysis:

The amendment does not meet the State of Utah R645 requirements for Sediment Control Measures.

The Permittee has proposed a pipeline to carry mine-water discharge from the current UPDES outfall 002 to a discharge point directly into Huntington Creek at the bottom of Crandall Canyon. Chapter 2 of Appendix 5-30 states that sediment control structures, (i.e., silt fences, excelsior logs) will be installed below all construction areas to prevent loose sediment from entering either Huntington Creek or Crandall Canyon Creek, and that they will remain in-place until all reclamation and revegetation (or paving) is complete. No details were provided giving specific control measures taken and where they would be located. Plate 5-17 indicates that an "alternative sediment control" will be placed along each side of Crandall Creek during reclamation. Using quantitative methods the Permittee must demonstrate that the proposed sediment control features will be sufficient.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Sediment Control Measures. The following deficiency must be addressed prior to final approval:

R645-301-732.100 Sediment control measures for the installation of the pipeline, its outfall structures, and all other reclamation work must be clearly defined in the MRP and be detailed on design drawings. This deficiency is carried over from Task 5968.

Signs and Markers

Analysis:

The application meets the State of Utah R645 requirements for Signs and Markers.

The application satisfies the requirements of R645-301-521-251 because of narrative on pages 5-7 and 5-8 that commits to clearly marking the perimeter of all disturbance areas within the permit area. The Permittee commits to maintaining signage during the period of time that mining and reclamation activities are actively conducted within the permit area.

jeatchel

Reclamation Plan

General Requirements

Analysis:

The application does not meet the State of Utah coal rules for General Requirements.

The application does not satisfy the requirements of R645-301-541.100, -541.400, -542.500, and -121.200 because the following items within the reclamation narrative in Appendix 5-22 are vague and require clarification:

- On pages 18 and 19 (PDF pages 131, 132) the narrative claims that a 40-foot wide berm acting as a headwall will be left in place in the initial stages of Expansion Area reclamation, although there is no discussion of when or how this headwall is removed once the 72" culvert and underdrain system are removed in the later stages of reclamation.
- The narrative on pages 28 and 29 (PDF Page 141, 142) claims that in areas requiring new roadways over newly reclaimed lands, new road base and asphalt will be laid to meet the requirements and specifications of the Utah Department of Transportation (UDOT). The narrative does not elaborate on this, nor is there a map showing exactly where new asphalt roads will be constructed. Further, the current reclamation bond does not cover the costs associated with constructing new sections of asphalt road nor repairing sections of existing asphalt paving as claimed on page 29.
- A variety of proposed items in Appendix 5-22 are not addressed in the current reclamation bond. These include: Sediment structures such as Excelsior logs, check dams, etc. (PDF page 121), the use of fertilizers, inoculum, and polyacrylamide soil amendments (PDF page 132), and the use of excessive labor to hand rake amendments into the newly laid topsoil (PDF pages 132, 133).

Deficiencies Details:

The application does not meet the State of Utah coal rules for General Requirements. The following deficiency must be addressed prior to final approval:

R645-301-541.100, -541.400, -542.500, and -121.200: The Permittee must clarify the following inconsistencies within Appendix 5-22:

- Add discussion of when or how a 40-foot headwall is removed at the head of Crandall Creek once the 72" culvert and underdrain system are removed in the later stages of reclamation as proposed on pages 18 and 19.
- Elaborate on where newly paved roads will be constructed, and include a map showing where new asphalt may be constructed and existing asphalt repaired. The reclamation bond must cover the costs associated with constructing new sections of asphalt road as well as repairs to sections of existing asphalt paving as claimed on page 29.
- The following items in Appendix 5-22 must be addressed in the reclamation bond: sediment structures such as Excelsior logs, check dams, etc. (PDF page 121), the use of fertilizers, inoculum, and polyacrylamide soil amendments (PDF page 132), and the use of excessive labor to hand rake amendments into the newly laid topsoil (PDF pages 132, 133).

jeatchel

WildLife Protection

Analysis:

The amendment does not meet the State of Utah R645-301-342 requirements for Fish and Wildlife Protection and Enhancement Plan. In previous consultation with the Utah Division of Wildlife Resources, the need for inclusion of a fish barrier to remain in place in Crandall Creek was identified (see DOGM Division Order DO-19b, Item 2, under Design Considerations). The barrier must be at least 6 feet high and not be designed in a way that would result in a pool forming at its base. The barrier must be in Crandall Creek within the permit area.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-342 requirements for Fish and Wildlife Protection and Enhancement Plan. The following deficiency must be addressed prior to final approval:

R645-301-342: The amendment must include the placement of a fish barrier in Crandall Creek. The barrier must be at least 6 feet tall and designed in order to prevent pooling at its base.

tmiller

Approximate Original Contour Restoration

Analysis:

The application meets the State of Utah R645 requirements for Approximate Original Contour Restoration.

The application satisfies the requirements of R645-301-553.520 because a detailed geotechnical report from RB&G Engineering Inc. has been included in Appendix 5-28. The report addresses the restoration of the topography within the vicinity of the Old Loadout Area to the pre-mining original contours. To achieve this, the prominent highwall cut beneath the south portals will be completely covered using the excess fill material from the Expansion Area.

The installation of a drainage layer behind the fill material will capture water that is continually seeping from the highwall face. The drainage layer will be 2 feet thick and consist of clean well-graded gravel and have at least 3 feet of cover to protect against frost and inhibit the infiltration of surface water. Slotted collection pipes will be placed within the drainage layer to capture the seepage and carry it away from the embankment fill. The planned drainage system has been designed to carry at least 50 gallons per minute even though the observed seepage rates for the highwall face have not exceeded 5 gallons per minute in the last year. Since the drainage layer must conform to a specific set of criteria, the construction and installation must be closely monitored by the contractor and supervising engineer. The geotechnical report from RB&G has been stamped and signed by Bradford E. Price, a Registered Professional Engineer in the State of Utah.

jeatchel

Backfill and Grading General

Analysis:

The application does not meet the State of Utah R645 requirements for General Backfilling and Grading.

The application does not satisfy the requirements of R645-301-553 and R645-301-121.200 because the application does not clarify the source of reclamation earthwork volumes cited within the narrative. The previous deficiency from August 2019 (Task# 5968) requested clarification for excess backfill volumes of 20,410 yd³ cited within Appendix 5-22, and the Permittee responded by referencing Table 5-20-10 in Appendix 5-20. However, there is neither any Appendix 5-20 included in this submittal nor any Table 5-20-10. Appendix 5-20 in the MRP on file with the Division consists of the reclamation bond calculations and there does not exist a Table 5-20-10 anywhere within its contents.

The narrative within the cover letter mentions that the 20,410 yd³ is a volume that was generated by comparing the anticipated reclamation surface to the present-day surface within Carlson software, and the final destination of the excess yards would be disposed of according to federal and state regulations. The narrative within the permit fails to elaborate on where specifically the excess yards originated from, nor the location of eventual disposal.

Deficiencies Details:

The application does not meet the State of Utah R645 requirements for General Backfilling and Grading. The following deficiency must be addressed prior to final approval:

R645-301-553 and R645-301-121.200: The Permittee must provide a cut/fill table that explains the earthwork volumes for all reclamation surfaces within the permit. Table 5-20-10 that is continually cited within the narrative is not found anywhere in this submittal. Additionally, the Permittee must elaborate on where the excess 20,410 yd³ will be disposed of.

jeatchel

Backfill and Grading on Steep Slopes

Analysis:

The application meets the State of Utah R645 requirements for Backfilling and Grading on Steep Slopes.

The application satisfies the requirements of R645-301-553.110 thru -553.140, -553.520, -542.200 and -541.400 because a detailed geotechnical report from RB&G Engineering Inc. has been included in Appendix 5-28. The report addresses the restoration of the topography within the vicinity of the Old Loadout Area to the pre-mining original contours. To achieve this, the prominent highwall cut beneath the south portals will be completely covered using the excess fill material from the Expansion Area.

The installation of a drainage layer behind the fill material will capture water that is continually seeping from the highwall face. The drainage layer will be 2 feet thick and consist of clean well-graded gravel and have at least 3 feet of cover to protect against frost and inhibit the infiltration of surface water. Slotted collection pipes will be placed within the drainage layer to capture the seepage and carry it away from the embankment fill. The planned drainage system has been designed to carry at least 50 gallons per minute even though the observed seepage rates for the highwall face have not exceeded 5 gallons per minute in the last year. Since the drainage layer must conform to a specific set of criteria, the construction and installation must be closely monitored by the contractor and supervising engineer. The geotechnical report from RB&G has been stamped and signed by Bradford E. Price, a Registered Professional Engineer in the State of Utah.

jeatchel

Mine Openings

Analysis:

The amendment does not meet the State of Utah requirements for Mine Openings.

The amendment does not satisfy the requirements of R645-301-529 because there are no designs for the final closure of the north and south portals. According to narrative on page 5-41, a final sealing plan must be approved by the BLM prior to permanent closure. The application proceeds to offer a description of the formal portal closure methods on page 5-47 and Appendix 5-22, although there are no maps or plans to support that narrative. Presently all of the portals within the permit area have been sealed with a temporary block wall. The Permittee need not wait until final reclamation is imminent to provide the Division with design drawings of permanent portal closure described in the reclamation plan.

Deficiencies Details:

The amendment does not meet the State of Utah requirements for Mine Openings. The following deficiency must be addressed prior to final approval:

R645-301-529: The Permittee must provide design drawings to accompany the narrative provided on page 5-47 and Appendix 5-22 that describes permanent closure of all portals within the permit area.

jeatchel

Topsoil and Subsoil

Analysis:

The application does not meet the State of Utah R645 Soils: Reclamation Plan.

The total disturbed area reported in the GENWAL DISTURBED ACREAGE table is 34.39 acres (Chap 1, p. 1-10). The mine site disturbed area is the sum of the FS Special Use permit and the Dellenback Fee acreage or 13.616 acres. An additional 0.16 acres will be disturbed for the mine water discharge at the mouth of Crandall Creek. Additional acreage is itemized for the four topsoil stockpiles and the rescue drill holes, SITLA rescue road and the Burma evaporation basin. An asterik states that the 7.53 acres included in the FS Special Use Permit "Includes all areas within the "permitted" disturbed area. Not all acreage is presently disturbed. See Figure 8C. Figure 8C could not be found.

The proposed pipeline would add 0.16 acres of disturbed area according to the Genwal Disturbed Acreage Table on page 1-10 of Chapter 1. Reclamation of the pipeline disturbed area is not described in this amendment. (The Division assumes that topsoil would be removed and immediately replaced in this location.)

The acreage of each reclamation area is provided in Section 2.42 Soil Redistribution. The table on page 2-10 divides the 15.01 acres of disturbed area (13.6 acre surface facility + 1.4 topsoil stockpile areas) into reclamation areas which are shown on Figure 1 of Appendix 5-22 Crandall Canyon Mine Site Reclamation Plan. The table further divides the reclamation areas into sub-units which are referenced in Appendix 5-22. However, Figure 1 does not illustrate the location of these referenced sub-units. i.e. The location of the North Slope of the Expansion Area, the Nose-cut Area, the Old Substation area, the SW corner of the mine yard, the upper coal pile area are not identified on Figure 1. Showing these locations on Figure 1 is important because their acreage is specified as is the depth of redistributed topsoil for each.

Table 1 also states reclamation areas and their sub-units that will not be topsoiled. These areas should also be shown on Figure 1. In short, all areas called out on the table in Section 2.42 and discussed in Appendix 5-22 must be illustrated on Figure 1.

Secondly, the Forest Service Road dimensions shown on Figure 1 do not match those described in Appendix 5-22 Section 2 (p. 12). This leaves an area to the East of the Shop Area without a reclamation plan. Please re-draw the boundary of the Forest Road on Figure 1 to match that described in Section 2 of Appendix 5-22.

In total, 6.41 acres will be topsoiled and 12,827 CY of topsoil will be re-distributed. This will effectively utilize all four stockpiles shown on Dwg 2-3. There will be 8.6 acres that do not receive topsoil, including the 1.4 acres of topsoil stockpile areas.

Redistribution volumes at the mine facilities area are reported in Section 2.42, page 2-10. Specifically, a 12 inch replacement depth at the original surface facilities area (portal, shop, old substation, old loadout) and at the Coal pile area, SW corner of mine yard, Nose cut area, upper coal pile area and loadout pond area. A sixteen inch replacement depth is stated for the North slope area, S. Slope Bench area, and the South Portals. Areas not topsoiled are also called out on this table.

The final reclamation contours are shown on Plate 5-17. Cross sections are shown on cross-sections 5-17 A through D. Plate 5-17 would be enhanced by showing the areas of topsoil redistribution on a map.

Appendix 22 Section 4 describes the placement of fill in the Portal Area, which will occur simultaneously with removal of fill from the South Slope Expansion area, Section 6. Revegetation practices including fertilizer, hydroseeding and hydromulching are described in Section 17.

Topsoil replacement on the North slope of the Expansion Area is described in Section 11. Section 16 describes revegetation of the North Slope of the Expansion Area. Topsoil application to recontoured fill areas (Portal area, shop area and loadout area) is described in Section 12.

In general, backfill will be scarified with a track hoe before topsoil is applied. Topsoil will be sampled for nutrients before redistribution of the stockpile. Samples will also be analyzed from the adjacent undisturbed area. Fertilizer amendments will be added based upon the nutrient analysis. The topsoil areas will hydroseeded and hydromulched. Further, nursery stock will be planted on the North Slope in the second year after seeding (Sec. 16).

Appendix 22 Sections 5, 6 & 7 describe the reclamation of the South Slope Expansion area. Section 6 describes removal of fill in 10 foot lifts to allow access to the re-exposed slope for raking the soil to relieve compaction. Section 7 describes a nutrient testing plan for soils stored in situ (App. 5-22, p. 19). If fertilizer is required it will be raked in. Microbial inoculum will be applied. A wood fiber mulch and tackifier will be sprayed onto the soil surface at a rate of 3,500 lbs/acre (p. 20). These commitments for nutrient analysis and application of fertilizer, microbes and hydromulch with tackifier should re-vitalize the buried soils.

The re-exposed stream channel banks will be sampled for nutrients and will be treated with mulch and tackifier similarly to the South Expansion slopes (Section 15).

Topsoil storage areas will be treated as described in Section 18, including fertilizer (after sampling and analysis), hydro seed, hydromulch, and nursery stock planted in year two.

Deficiencies Details:

The application does not meet the State of Utah R645 requirements for Soil Reclamation Plan. The following deficiency must be addressed prior to final approval:

R645-301-240, (1) All topsoil and non-topsoiled areas called out on the table in Chapter 2, Section 2.42 must be illustrated on Figure 1 of Appendix 5-22. (2) The boundary of the Forest Road on Figure 1 should match that described in Section 2 of Appendix 5-22, because there is no topsoil and no revegetation of the Forest Road. (3) The amendment must describe reclamation of the disturbed pipeline soils.

R645-301-121.200 and R645-301-122, Provide Figure 8C which is referenced in a footnote to the Genwal Disturbed Acreage table on page 1-10 of chapter 1 or if this reference is no longer valid, delete the reference. This deficiency is repeated from Task 5968.

pburton

Hydrological Information Reclamation Plan

Analysis:

The application does not meet the State of Utah R645 requirements for Hydrology Information Reclamation Plan.

The currently approved reclamation plan has two phases to the reclamation work where earthwork, Crandall Creek reestablishment and seeding take place in phase one and the sediment pond is removed in phase two after approval from the Division. The Permittee is now proposing to remove the sediment pond as reclamation work in the canyon takes place instead of the currently approved plan of keeping it in place until vegetation is established on the reclaimed slopes up canyon. The Permittee has not provided any analysis to justify why the sediment pond can be removed prior to the establishment of new vegetation in the disturbed area.

The Permittee was sent an example of the analysis and soil loss modeling performed for the Cottonwood/Wilberg MRP through email on September 24, 2019 and yet no additional analysis/modeling was provided by the Permittee to the Division to support the earlier removal of the pond. Until this information is provided and proves that the pond is not necessary to stay in place until 2 years prior to the last augmented seeding, the Division cannot approve the reclamation plan as it currently is proposed.

Deficiencies Details:

The application does not meet the State of Utah R645 requirements for Hydrology Information Reclamation Plan. The following deficiency must be addressed prior to final approval:

R645-301-763.100 The Permittee must provide justification through soil loss modeling or similar analysis that the proposed reclamation work and timing of the removal of the sediment pond will prevent additional suspended solids from leaving the permit area throughout the reclamation work and until the disturbed area has been stabilized and revegetated. This deficiency is carried over from Task 5968.

adaniels

Revegetation General Requirements

Analysis:

The amendment does not meet the State of Utah R645-301-353 requirements for General Revegetation.

Appendix 5-22 details the timing and sequence of the reclamation plan, including revegetation. On page 12 under item #2 of the reclamation plan outline, the Permittee states that the Forest Service Road will be reduced during final reclamation from a 27-ft. subgrade and 22-ft. running surface to a 20-ft. subgrade with a 14-ft. running surface, a 7-foot reduction in total footprint width of the roadway. This reduction will therefore leave a 7-foot wide ribbon (or two 3.5-foot wide ribbons on either side, or some other combination equaling 7 feet) of disturbance running the length of the road

which must be covered and revegetated. The amendment alludes that "[t]he reclaimed area will be topsoiled and revegetated as described below" but fails to adequately describe when and using what seed mix this disturbance will be properly revegetated.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-353 requirements for General Revegetation. The following deficiency must be addressed prior to final approval:

R645-301-353: The Permittee must provide a plan for the revegetation of the disturbed area left behind from the reduction in width of the Forest Service Road.

tmiller

Revegetation Timing

Analysis:

The amendment does not meet the State of Utah R645-301-354 requirements for Revegetation Timing.

Appendix 5-22 details the timing and sequence of the reclamation plan, including revegetation. Several of the areas within the reclamation are expressly stated to be revegetated in September or October, the optimal seeding time period for the area. However, the Reclamation Time Table provided in the Appendix 5-22 attachments shows the South Slope of the Expansion Area being revegetated during the latter part of June through August, a decidedly disadvantageous period for seeding. No justification for this timeframe is provided in the amendment.

Deficiencies Details:

The amendment does not meet the State of Utah R645-301-354 requirements for Revegetation Timing. The following deficiencies must be addressed prior to final approval:

R645-301-354: The Permittee must alter, or provide justification for, the timeline of revegetation of the South Slope of the Expansion Area.

tmiller

Stabilization of Surface Areas

Analysis:

The application does not meet the State of Utah R645 requirements for Soils: Stabilization.

The statement made on the first page of Appendix 5-22 Crandall Canyon Mine Site Reclamation Plan (Reclamation Plan) is not accurate, because it states, "The final step of reclamation, revegetation, for all the areas will not be done until the fall." However, Appendix 5-22 Reclamation time table shows that revegetation of the South slope expansion area will begin in June. Further, App. 5-22 Section 6 describes revegetation of the re-exposed South slope topsoil contemporaneously in 5-10 foot lifts. This is due to the fact that the revegetation will be done contemporaneously with the fill removal and requires worker access to the re-exposed steep slope, so that the soils can be fertilized, raked, hydroseeded, and hydromulched. Therefore, please remove or modify the global statement on page 3 regarding timing of revegetation.

The Reclamation Time Table is an attachment to Appendix 5-22. It illustrates the timeline for the major steps of the reclamation plan. The timeline shows revegetation of the re-exposed soils on the South slope of the Expansion Area to occur simultaneously with restoration. The timeline shows topsoil to be re-applied first to the North Slope of the Expansion Area and then the recontoured fill areas. The timeline shows the redistributed topsoil will not be seeded for a month or more after placement.

In the Division's experience reclamation projects routinely complete an area and hydroseed/mulch that area before moving on, regardless of season. (i.e. Des Bee Dove, Cottonwood, Deer Creek have all been seeded in July, August and September - March). Therefore, in accordance with R645-301-244.200, erosion control must be provided for all reclaimed areas as they are completed and measures must be taken to loosen the topsoiled surface before seeding.

The plan does not describe pocking for erosion control on the recontoured and fill slopes. Pocking is the recognized best technology currently available (BTCA).

Deficiencies Details:

The application does not meet the R645-301-244.200, Soil Stabilization requirements. The following deficiency must be addressed prior to final approval:

R645-301-244.200, (1) The Appendix 5-22 Reclamation Time Table shows the redistributed topsoil will not be seeded for a month or more after placement. Therefore, erosion control must be provided for all reclaimed areas as they are completed and measures must be taken to loosen the topsoiled surface before seeding. This deficiency is repeated from Task 5968. (2) The plan should describe pocking for erosion control on recontoured and fill slopes, because it is recognized as the best technology currently available.

R645-301-121.200, The statement made on the first page of Appendix 5-22 Crandall Canyon Mine Site Reclamation Plan (Reclamation Plan) is not accurate, because it states, "The final step of reclamation, revegetation, for all the areas will not be done until the fall." However, Appendix 5-22 Reclamation time table shows that revegetation of the South slope expansion area will begin in June. Therefore, please remove or modify the global statement in Appendix 5-22 Final Reclamation (page 3) regarding timing of revegetation.

pburton

Bonding Determination of Amount

Analysis:

The amendment does not meet the State of Utah R645 requirements for Determination of Bonding Amount.

The reclamation plan does not satisfy the requirements of R645-301-830 and R645-301-542.800 because the reclamation bond summary has not been brought up to date. This submittal has several reclamation items that are relatively new that have not been contemplated in the current reclamation bond. The narrative on page 12 of Appendix 5-30 as well as the cover letter claims that bonding cannot be accomplished because the proposed reclamation plan has not been approved yet, and the Permittee does not want to "piecemeal" the bonding calculations together. The Division is not asking the Permittee to piecemeal the reclamation bond. On the contrary, the Division is requesting that the Permittee complete all of the anticipated bonding calculations and submit them in the current revised reclamation plan. The Division will not request that the Permittee post reclamation bond until all of the items requiring reclamation have been accounted for, and all calculations are reasonable and accurate. If there are errors or confusion in the bond calculations they can be easily resolved prior to final approval.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Determination of Bonding Amount. The following deficiency must be addressed prior to final approval:

R645-301-830, R645-301-542.800: Permittee must provide an updated reclamation bond that addresses the costs associated with the following items outlined in the recently submitted reclamation plan:

- The construction of the backfilled drainage system in the Old Loadout area.
- The construction of the pedestrian footbridge spanning Crandall Creek to access the Miner's Memorial.
- The haulage and disposal of excess expansion area fill off-site.
- The cleanup and disposal of accumulated iron sludge within the mine water treatment pond.
- The construction and long term operation and maintenance of the proposed pipeline redirecting mine drainage from the north portals to Huntington Creek.
- The demolition and disposal of asphalt from FR 0248 as per stipulations contained within the USFS Special Use Permit.
- Enhanced earthwork techniques (topsoil pocking) to address sediment control in the latter stages of reclamation.
- The installation of sediment structures such as Excelsior logs, check dams, etc as stated on pages 18 and 19 of Appendix 5-22.
- The construction of new asphalt roads as well as repairs to the existing asphalt road as stated on pages 28 and 29 of Appendix 5-22.
- The use of soil amendments (PAM, inoculum, and fertilizers) on page 19 of Appendix 5-22.
- The use of additional labor to hand rake amendments into the topsoil in the latter stages of reclamation as stated

on pages 19 and 20 of Appendix 5-22.

These items were addressed in the previous bonding deficiency (Task#5968), but not adequately resolved.

jeatchel