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DEPARTMENT OF NATURAL RESOURCES

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Technical Analysis and Findings

Utah Coal Regulatory Program

PID: C0250005
TaskID: 4786
Mine Name: COAL HOLLOW
Title: UNDERGROUND MINING

Summary

The narrative and drawings have been revised to show on a single map the use of three mining methods simultaneously: open pit mining, highwall mining and future underground mining (Dwg 5-10), as is consistent with Division staff observations (February 2015 Insp. Rpt #4101). Both topsoil and overburden removal will be completed within the permit area in 2015 (Dwg 5-2 and Dwg 5-16). The excess spoil pile has been reduced to half its original size (Dwg 5-3) with a temporary spoil pile on the east half of the original footprint.

Underground portals will be developed into fee coal from the 140 ft. highwall of Pit 10 (Dwg 5-3B). The average depth of overburden in the underground mining area is 240 ft. and the average coal seam thickness is 16 ft. An estimated 725,000 tons of coal will be recovered based on 45% recovery from the underground mine (Dwg 5-9). The location of the underground mine in relation to springs and wells is shown on Figure 2 of Appendix 7-15 Probable Hydrologic Consequences of Underground Coal Mining.

For the purpose of R645-501-513.700, a supplemental drawing was included with the cover letter to show the perimeter of a 500 ft radius circle around the underground portals. The Permittee understands that surface mining and reclamation activity cannot occur within this perimeter without the approval of both DOGM and MSHA (R645-301-523.220).

pburton

General Contents

Right of Entry

Analysis:

Underground mining will take place in fee coal located in T39 S, R 5 W Sec 20, S1/2 SW1/4, owned by C. Burton Pugh, Roger M. Pugh and Margaret Moyers (Exhibits 1, 3, and 4 in Appendix 1-2 Confidential Folder). Burton Pugh's lease dated 9/10/2014 grants "the right right to conduct mining activities using all available methods for the extraction, mining and removal of the coal" (Article 1, Sec. 1.01(ii)). Similar language is found in the lease agreements with Roger Pugh and Margaret Moyers. This information meets the requirements of the R645 coal Rules.

pburton

Permit Term

Analysis:

Disturbed acreage is listed by mining phase in Section 116 of the MRP. The reduction in acreage reported in Section 116 was revised with Task 4776, approved January 16, 2015. The reduction in acreage reflects the difference in disturbed area from the original mine plan to the existing mining plan as shown on Dwg 5-2. A total disturbed area of 342 acres is listed in Section 116 by phase as follows:

Phase 1 = 250 acres

Phase 2 = 54 acres

Phase 3 = 38 acres

All drawings submitted with this application correctly identify the the new shape of the disturbed area. However, Dwg 2-2, 3-7 and 5-38 indicate the disturbed area is 346 acres rather than 342 acres. Please make the appropriate corrections.

In accordance with R645-301-112.800, the Permittee suggests there is a potential to extend the underground operations northward into the adjacent federal LBA lands shown on Dwg 1-2. At that time, an amendment to the MRP may expand the permit area and alter the reclamation plans.

The permit term is not extended by this application beyond 6 years (2017) at which time Pit 11 will be reclaimed at the completion of mining within the permit area.

Deficiencies Details:

R645-301-121.200, All drawings submitted with this application correctly identify the the new shape of the disturbed area. However, Dwg 2-2, 3-7 and 5-38 indicate the disturbed area is 346 acres rather than 342 acres. Please make the appropriate corrections.

pburton

Permit Application Format and Contents

Analysis:

The application meets the minimum requirements of Clear and Concise R645-301-121. The Permittee has corrected errors found in the prior Task ID #4652 relating to multiple paragraphs being cut off at page breaks and pagination issues. Specifically, complete sentences/paragraphs are formed across the page breaks 7-4 to 7-5, 7-12 to 7-13, 7-23 to 7-24 and 7-25 to 7-26. Additionally, the incorrectly referenced rule R645-301-624.400 has been corrected to reference R645-301-624.340.

A clean copy was not submitted with Task #4786. The deficiency calling for the clean copy to reflect the redline strike-out edits on page 7-97 will need to be addressed when clean copies are submitted for Conditional Approval.

The application provided meets the minimum Clear and Concise requirements per R645-301-121.200 of the State's coal mining regulations.

kstorrar

Environmental Resource Information

Historic and Archeological Resource Information

Analysis:

Cultural Resource inventory's for the current permit area that encompasses the areas occupied by both the surface and underground mining activities were conducted in 2006 and included as appendix 4-1 of chapter 4 of the current MRP. The Cultural and Historic Use information in chapter 4 of the current MRP needs to include a statement relevant to underground mining to denote that mining activities are not just limited to the surface mining of the coal resource. It is suggested that paragraph 1, sentence 1 on page 4-5 of chapter 4 be revised to include the following or similar text.

Procedures for ground disturbing activity from surface and underground mining activities as described in sections 521 and 523 and shown on drawing 5-10 of the MRP will follow the Cultural Resources Data Recovery Plan for the Alton Coal LLC, Coal Hollow Project in Kane County.

Deficiencies Details:

The information in the application is not adequate to meet the requirements of this section of the regulations. Prior to approval the following information must be provided in accordance with R645-301-411.141 and .142;

The Cultural and Historic Use information in chapter 4 of the current MRP needs to include a statement relevant to underground mining to denote that mining activities are not just limited to the surface mining of the coal resource. It is suggested that paragraph 1, sentence 1 on page 4-5 of chapter 4 be revised to include the following or similar text.

Procedures for ground disturbing activity from surface and underground mining mining activities as described in sections 521 and 523 and shown on drawing 5-10 of the MRP will follow the Cultural Resources Data Recovery Plan for the Alton Coal LLC, Coal Hollow Project in Kane County.

jheltric

Fish and Wildlife Resource Information

Analysis:

Chapter 3, Page 3-43 section 332 of the application states that Both the highwall mining and underground mining are designed such that subsidence is not expected to occur or have a negative impact on renewable resource lands. The Division agrees in general with that assumption. However it can only be verified by comparing the appropriate baseline data for (elevation, vegetation, Sage grouse occupancy, hydrology) to post development or first mining data. There is baseline vegetation and wildlife information for the area above the proposed panels to be mined. The vegetation communities include Pinyon-Juniper, Oakbrush, Dry Meadow, Pasture, and sagebrush-grass as shown on drawing 3-5. Quantitative data for these communities is included in the table section of chapter 3. This is also brood rearing habitat for the greater sage grouse as shown on drawing 3-5. Bird use surveys are included appendices 3-1 through 3-5. It is recommended that the applicant monitor the vegetation and bird use above the four panels.

Deficiencies Details:

The information in the application is not adequate to meet the requirements of this section of the regulations. Prior to approval the following information must be provided in accordance with R645-301-333;

The current monitoring plan (most recent sage grouse monitoring report) for vegetation and bird use needs to be revised to include the proposed underground mining development area. Chapter 3, Page 3-43 section 332 of the application needs to include a commitment to monitor the vegetation and sage grouse occupancy in accordance with the approved monitoring plan and mitigate any impacts to the grouse or their habitat for each of the four panel areas. The plan should also include a commitment to collect base line noise levels near the portal area.

jheltric

Land Use Resource Information

Analysis:

On January 20th the Division received a response to task 4772 which doesn't exist in the Division's CTS database. This analysis will include a review of the information submitted in accordance with the Biology, Land Use, Cultural Resource and Air Quality regulations for the Coal Regulatory Program.

The Land Use information in chapter 4 of the current MRP needs to include a statement relevant to underground mining to denote that mining activities are not just limited to the surface mining of the coal resource. It is suggested that paragraph 2, sentence 2 on page 4-1 of chapter 4 be revised to include the following or similar text. Surface and underground mining activities as described in sections 521 and 523 and shown on drawing 5-10 of the MRP will be conducted on and beneath lands that are lands mainly used for grazing and native wildlife habitat.

Deficiencies Details:

The information in the application is not adequate to meet the requirements of this section of the regulations. Prior to approval the applicant must provide the following information in accordance with the requirements of R645-301-400 through 411.130 and 412.100 through 414.300.

The Land Use information in chapter 4 of the current MRP needs to include a statement relevant to underground mining to denote that mining activities are not just limited to the surface mining of the coal resource. It is suggested that paragraph 2, sentence 2 on page 4-1 of chapter 4 be revised to include the following or similar text. Surface and underground mining activities as described in sections 521 and 523 and shown on drawing 5-10 of the MRP will be conducted on and beneath lands that are lands mainly used for grazing and native wildlife habitat.

jhelfric

Geologic Resource Information

Analysis:

The application meets the Geologic requirements of Environmental Description per R645-301-622.200, Geologic Information per R645-301-624.110 and R645-301-624.210, and Hydrologic and Geologic information per R645-301-722 and R645-301-725.100. Figure 3 cross-section in Appendix 7-15 gives a complete layout of the underground geology in relation to the proposed underground mining by showing: (from surface to depth) fine and coarse grained valley alluvium, Tropic Shale, Smirl coal seam, Dakota formation; the location of the Sink Valley fault; and the alluvial valley groundwater level to the east of the Sink Valley Fault. The cross-section is projected to an adequate depth to show the depth and location of the coal seam along the A-A' cross-section (Figure 2) through the proposed underground mining area.

The application meets the minimum Geologic Environmental Description and Information requirements per R645-301-622.200, R645-301-624.110, R645-301-624.210, and the Hydrologic and Geologic requirements per R645-301-722, R645-301-725.100.

kstorrar

Probable Hydrologic Consequences Determination

Analysis:

Appendix 7-15 within the application meets the minimum Probable Hydrologic Consequence requirements per R645-301-728.350 by determining the impacts of underground mining on water quality and quantity resources. The proposed plan will cease the eastward progression surface pit mining in Pit 10 at which point it will transition to underground mining. This new plan reduces mining impacts on the surface and groundwater hydrologic resources within the permit boundary by lowering the total surface area and volume of alluvial sediment disturbance within the permit area. The prior mining plan called for surface open-pits to extend east of the north-south trending Tropic Shale ridge (along the Sink Valley fault) into Pits 13, 14, and 15. Figure 7-15B within the currently approved MRP illustrates a substantial aquifer held within Coarse Grained Alluvium is bounded on the west by this Tropic Shale ridge. Had open-pit mining progressed into this aquifer significant dewatering of the aquifer would have occurred. Now, by ceasing surface disturbance to the west of the Tropic Shale ridge the operations will no longer mine into the large coarse grained aquifer east of the fault. This large unconfined aquifer will now be isolated from Pit 10 by the low permeability Tropic Shale ridge to the west and the Tropic Shale overburden between the Smirl coal seam and the coarse grained alluvium. There are multiple cost and logistical benefits by going underground in Pit 10 with regard to this large coarse-grained alluvial aquifer. Volume 8 Chapter 7 Appendix 7-10 outlines a contingency plan to construct a costly and complex low permeable barrier up-gradient of open Pit 15 to stem groundwater discharge into the open pit. With regard to R645-301-728.400 Appendix 7-10 is removed within Permittee's application because the Tropic Shale ridge will provide an adequate barrier to isolate surface Pit 10 from the alluvial aquifer to the east. As mentioned this aquifer is bounded on the bottom by the Tropic Shale as well. The room and pillar mining plan currently does not anticipate subsidence allowing the Tropic Shale to act as a competent aquitard between the mined coal and the coarse grained aquifer.

Appendix 7-15 within the application meets the minimum Probable Hydrologic Consequence requirements per R645-301-728.350 and R645-301-728.400 by determining the impacts of underground mining on water quality and quantity resources.

The application meets the minimum hydrologic requirements to outline Ground-water and Surface-water availability per R645-301-728.334. This was brought as a deficiency in the prior Task #4652 because the prior mining plan called for all open-pits to be backfilled within 60 to 120 days after coal extraction. With the addition of underground mining in the current application Pit 10 will be left open for longer than 60 to 120 days to maintain access to the underground portals. Currently, Pit 10 has been open for >120 days and the Permittee has gained working knowledge of groundwater discharge into the pit and estimates it at a rate of ~2 gpm. Therefore, the Permittee does not anticipate an appreciable impact to up-gradient water resources. The low alluvial groundwater discharge rate seen in Pit 10 is likely due to the fact that Pit 10 rests to the west of the Tropic Shale ridge. This ridge effectively isolates the alluvial aquifer to the east of the ridge. The westerly

aquifer is probably much smaller than the aquifer to the east because the alluvial sediments are thinner than to the east of the Tropic Ridge (Figure 3 cross-section in geology) and the western aquifer has a significantly smaller recharge area than the eastern aquifer.

The permit application meets the minimum hydrologic requirements to outline Ground-water and Surface-water availability per R645-301-728.334.

kstorrar

Maps Subsurface Water Resources

Analysis:

The Permittee has updated the permit boundary in multiple maps to meet the minimum Mapping requirement R645-301-722. The permit boundary shown in Engineering maps 5-25 and 5-26 and Hydrology maps 7-4 and 7-5 was out of date and did not include the Dame Lease. These maps have been updated to include the Dame Lease and now adequately map the current permit boundary.

The Permittee has updated the permit boundary in multiple maps to meet the minimum Mapping requirement R645-301-722.

kstorrar

Operation Plan

Mining Operations and Facilities

Analysis:

The Permittee updated the current MRP sections 521 and 523 with the addition of underground mining operations.. Such additions include items like detailing the new underground miner required for underground mining operations. Drawings 5-3 through 44 which detail the mine facilities, coal recovery, overburden handling and reclamation have been updated to reflect the addition of underground mining as well.

Deficiencies Details:

Per the Division Order, DO-15A, and various state regulations R645-301-121.100, R645-301-521.140, R645-301-521.162, R645-301-533, & R645-301-830.410 the Permittee should describe a single operation and reclamation scenario.

1. Text in section 521.141 describes two options of reclamation. The permittee will only describe one mining operation and the relevant reclamation scenario. Pursuant to section 521.141 the Permittee will edit text and drawings to remove all references to scenarios that include the federal lease, often called the "Preferred plan". Relevant sections that need to be edited in MRP include but are not limited to sections:
 - 521.141 - the third, fourth, and fifth paragraph
 - Current Drawing 5-37, and 5-37A will replace 5-35 and 5-36 respectively. The text will address the rehandling of much of the fill above original contour to fill in the final pits (R645-301-533.100)
 - 521.143 will be updated to reflect the excess spoil pile without the federal coal reserves to meet R645-301-553.100 in Pits 9, 10, and all Highwall Trenches.
 - Subsections within this section detailing the various features of the excess spoil pile will need to be updated to reflect the remaining volume after all pits and trenches have been returned to approximate original contours.
 - 523, page 5-26 - the last three paragraphs need to be edited to remove any accounting of the federal lease. All pits will be restored to approximate original contour upon cessation of underground mining according to R645-301-553.100. The variance was granted due to the additional excess spoil associated with the LBA.
 - 528.200 - the paragraph spanning pages 5-44 to 5-45 needs to be edited to remove any accounting of the federal lease. The highwall and all pits will be restored to approximate original contour upon cessation of underground mining according to R645-301-553.100.
 - 528.200 - the table on page 5-46 needs to be edited to reflect the current leased coal and overburden removal and all calculations based on the federal coal lease need to be removed. The paragraph following the table must also be edited to reflect the changes in the table.

The Permittee currently does not have approval to mine the Federal coal reference in the "preferred scenario" and the detail information describing such a scenario is not included within the MRP which is outlined in the regulations under R645-301-520,-522,-523,-524,-528,-530,-534,535, and -540.

In the event the Permittee receives approval of the LBA of the federal coal, the Permittee may submit an amendment to change the MRP and file an adequate bond Per R645-301-820 with the Division to reflect the reclamation under that scenario.

2. Text in section 528.200 lists Pits 28-23 in the first paragraph on page 5-44 of the amendment application, omitting currently mined pits.

- The Permittee will edit the text to reflect actual site pits developed and detailed in the drawings which includes pits 28-20 in first paragraph on page 5-44 of the application.

cparker

Air Pollution Control Plan

Analysis:

According to the information provided in the application the applicant has consulted with and submitted a list of equipment and increase in pollutants for the underground mining operations to The Division of Air Quality. The Division has not received the revised AQ plan to date.

Deficiencies Details:

The information in the application is not adequate to meet the requirements of this section of the regulations. Prior to approval the following information must be provided in accordance with R645-301-411.420;

The application needs to include a revised Approval Order and air pollution control plan (Chapter 4, Appendix 4-5) from the Division of Air Quality that includes the equipment required for the underground operation.

jhelfric

Coal Recovery

Analysis:

Within this amendment the Permittee updated the coal recovery methods to include underground mining. The extraction quantities in this section were also update to reflect the change in coal recovery.

Deficiencies Details:

The application is deficient in this section according to R645-301-121.200 plans need to be clear and concise. Per the Division Order, DO-15A, and various state regulations R645-301-121.100, R645-301-521.140, R645-301-521.162, R645-301-533, & R645-301-830.410 the Permittee should describe a single operation and reclamation scenario.

1. Section 522, page 5-22 - third paragraph text needs to be removed as it only mentions an open pit and is repeated twice in the section., The paragraph clarifies that drawing 5-9 summarizes the coal extraction for the permit area for all mining methods.

- The Permittee will review the text in this section for clarity and remove extraneous or redundant paragraphs.

2. Text in section 522 describes two options of reclamation. The permittee will only describe one mining operation and the relevant reclamation scenario. Pursuant to this scenario the Permittee will edit the text and drawings to remove all references to scenarios that include the federal lease, often called the "Preferred plan". Relevant sections that need to be edited in the MRP include but are not limited to sections:

- The first paragraph on page 5-23 needs to be removed as it is relevant only to the LBA.

cparker

Subsidence Control Plan Subsidence

Analysis:

The Permittee added section 521.142 to the MRP detailing how Drawing 5-10 illustrates the extent of the current underground mining operations. The text also details how all underground coal mining at the site will be first mining only and will prevent subsidence by following engineered recommendations outlined in Appendix 5-9.

The Permittee also added section 525 detailing how walkovers of each of the four developed panels will be completed within

60 days of the completion of mining in those areas. Any cracks will be documented and sent to the Division. The application meets the minimum requirements of R645-301-521.142, -525.

Deficiencies Details:

The application does not meet the minimum requirements of R645-301-521.142, -525. The Permittee is missing a method to establish a baseline survey over the extent of the proposed underground mining. As per precedent set at Lila Canyon and Emery Deep, prior to first mining of underground operations a baseline survey study was generated. The burden of proof rests on the Permittee to be able to establish that no subsidence has occurred. A baseline survey study may consist of either an high definition aerial or survey to establish markers.

cparker

Subsidence Control Plan Notification

Analysis:

Deficiencies Details:

Once the underground mining plan is approved the subsidence control plan requires notification per R645-301-525.700: At least 6 months prior to mining, or within that period if approved by the Division, the underground mine operator shall mail a notification to all owners and occupants of surface property and structures above the underground workings. The notification shall include, at a minimum, identification of specific areas in which mining will take place, dates that specific areas will be undermined, and the location or locations where the operator's subsidence control plan may be examined.

cparker

Topsoil and Subsoil

Analysis:

There have been no changes to the narrative of the topsoil/subsoil handling plans with this amendment. Dwg 2-2 shows topsoil handling by year and the location of the topsoil storage stockpiles. Dwg 5-2 illustrates the last remaining area to be disturbed in 2015. This is a grassy meadow along ditch 1 on the eastern disturbed area boundary. Dwg 5-16 illustrates the location of overburden recovery in 2015. These areas correspond to Pit 20 and HWT 3 locations as shown on Dwg 5-10.

Dwg 2-2 was revised to show the recently approved disturbed area boundary change. Dwg 2-2 shows that topsoil pile #5 was consumed in reclamation work completed in 2014. Topsoil pile #4 lies within the 500 ft radius of the underground portals and will be consumed in 2015 reclamation as shown on Dwg 5-38, as will the estimated 207,000 cu yds of subsoil pile #2 and the entire excess spoils pile shown on Dwg 5-3.

The disturbed area around Pit #10 (laid back alluvial slopes) will require stabilization under the mining plan in accordance with R645-301-534.150 and R645-301-244.100. The mining plan describes stabilization of stockpiles and reclaimed areas in MRP Sections 231.400 and Section 244.100, but must be amended to include the practices to be used to stabilize cut and fill slopes around pit 10.

Deficiencies Details:

R645-301-534.150 and R645-301-244.100, The disturbed area around Pit #10 (laid back alluvial slopes) will require stabilization. The mining plan must be amended to describe the practices to be used to stabilize cut and fill slopes around pit 10.

pburton

Road System Plans and Drawings

Analysis:

The Permittee updated the text in section 521.170 to include the eight primary roads, which includes the addition of the one

underground haul road from the portals. No changes were made to section 521.123 addressing the reestablishing of roads K3900 and K3993 within this MRP amendment.

Deficiencies Details:

Per Division order DO-15A, requiring the Permittee to submit a clear description of mining operations and reclamation activities, and R645-301-830.410, sections 521.123, 527.200, 521.170 & -830.140 & 534.100-200 need to be updated to show a single reclamation design reestablishing road K3900.

1. The Permittee will select one of the two alignments currently outlined in the MRP that matches current mining reclamation activities.

- DO-15A, R645-301-830.140, competing alternatives create a conflict between site conditions and the MRP. Various alternatives lead to difficulty and discrepancies in determining an accurate bond amount.

- The Permittee will remove the drawings and text associated with the alternative alignment from the MRP. i.e. sections 521.170 and 527.200

2. The text in sections 521.170 and 527.100-200 describing the two primary mine haul roads was left unchanged in the amendment submittal, however the two said haul roads alignment was changed in the new drawing 5-22.

- The Permittee will submit new text in sections 521.170 page 5-20 the third bullet, 527.100-200 page 5-41 the third bullet, 534.100-200 page 5-60 the third bullet, and 542 page 5-69 the third bullet, and 742.423 page 7-90 the third bullet detailing the specifics of the new alignment of the two primary haul roads as described in the new drawing 5-22 and clarify if the profiles shown in drawing 5-23 are still relevant to the roads as depicted in drawing 5-22.

3. The new underground haul and portal access road meets the description of Primary road in R645-301-527.120-.122 but is not included in the first bullet in the listed section.

- The Permittee will update text throughout sections 521.170 and 527.100-200 to reflect the three primary haul roads.

- o R645-301-521.170 & -830.140 Accurate and detailed road information is required to calculate a bond amount.

cparker

Spoil Waste Excess Spoil

Analysis:

The specification of the compaction of the excess spoil pile as described in sections 514.100 and 528.310 were unchanged in this amendment. Drawings 5-35, 5-36, 5-37, and 5-37A show the various footprints and estimated volumes of the excess spoil pile depending on the two described scenarios

Deficiencies Details:

The application is deficient in this section according to R645-301-121.200 plans need to be clear and concise. Per the Division Order, DO-15A, and various state regulations R645-301-121.100, R645-301-521.140, R645-301-521.162, R645-301-533, & R645-301-830.410 the Permittee should describe a single operation and reclamation scenario.

1. In section 521.143 the Permittee added the use of the disposal sites of excess spoil generated by surface and underground operations. The excess spoil footprint references Drawing 5-35 and 5-36 which includes excess spoil from the federal coal mining operations. These operations are not currently discussed in adequate detail in the current version of the MRP to be justified and bonded.

- Drawings 5-35 and 5-36 will be updated to show the footprint of the excess spoil accumulated in currently approved mining operations (currently drawings 5-37 and 5-37A) within the permit area. The drawings should also include any additional underground development waste that may be stored at the site. (DO-15A)

- Text within sub section -528.310 of section 521.143 also needs to be updated to reflect the correct placement of the excess spoil over mined areas and non-mined areas, spoil height, and estimated excess fill (R645-301-830.140).

cparker

Hydrologic Ground Water Monitoring

Analysis:

The application meets the minimum hydrology Groundwater Monitoring plan requirements for the Underground Mining amendment per R645-301-731.211. The application recommends adding groundwater monitoring wells Y-100 and Y-101.

Well Y-101 is located directly over the 4th N panel and well Y-100 is adjacent to the permit area and up-gradient of underground mining. Both of these wells are screened in the alluvial aquifer and it will be important to monitor them during underground mining.

The application meets the minimum hydrology Groundwater Monitoring plan requirements for the Underground Mining amendment per R645-301-731.211.

kstorrar

Hydrologic Discharge Into an Underground Mine

Analysis:

The application does not meet the minimum Hydrologic-Balance Protection requirements per R645-301-731.111 by detailing a plan to handle surface-runoff and groundwater discharge to Pit 10 during temporary cessation. The application's current plan is to face up in the bottom of Pit 10 and underground mine private fee coal reserves to the northeast of the pit. The Permittee has applied for a federal coal lease with the BLM to mine reserves within and adjacent to the permit area. There is a strong potential for the mine to go into temporary cessation between the time the Permittee finishes mining the fee coal tract and begins mining the federal lease coal tract. In the event of temporary cessation surface-runoff and groundwater discharge to Pit 10 will need to be managed in order to prevent water ponding in the bottom of the pit. If water is allowed to pond in the bottom of Pit 10 it will be in contact with coal and other toxins for an extended period of time and transmit the toxins back to the surrounding aquifer.

The application does not meet the minimum Hydrologic-Balance Protection requirements per R645-301-731.111. A detailed plan to prevent ponding in the bottom of Pit 10 by proactively managing surface-runoff and groundwater discharge to the pit during temporary cessation is required.

Deficiencies Details:

The application does not meet the minimum Hydrologic-Balance Protection requirements per R645-301-731.111. A detailed plan to prevent ponding in the bottom of Pit 10 by proactively managing surface-runoff and groundwater discharge to the pit during temporary cessation is required.

kstorrar

Hydrologic Sediment Control Measures

Analysis:

The Underground Mining amendment does not meet the minimum general hydrologic performance requirements per R645-301-731.720. In the prior task #4652 the Permittee did not outline a contingency plan if a significant volume of groundwater is intercepted in the underground workings. In the current Task #4786, the application does not anticipate significant quantities of groundwater to be intercepted in the underground workings because the low hydraulic conductivity Tropic Shale is the interburden between the Smirl Coal seam and the alluvial aquifer at the surface. This interburden will likely hydrologically isolate the underground workings from the aquifer above. However, in the event there is an appreciable volume of in-mine water inflow the Permittee only vaguely describe a way to handle and quantify the flow. If the flow is high enough that it exceeds the water needed for in-mine workings, excess water will be pumped out of the mine and into Pond 3. On the paragraph spanning from page 15 to 16 in Chapter 7 of Appendix 7-15, the application is deficient per R645-301-731.720 in not providing certified cross-sections and maps of the proposed conveyance system. The Permittee's narrative "mine groundwater will be pumped to Pond 3" is a vague description of a plan to convey water from Pit 10 to Sediment Pond 3. It is necessary to develop an engineered plan so the Division can determine the bond amount for the structure per R645-301-830.110.

The application has adequately updated the design of Sediment Pond 3 by designing a decant pipe to be installed to handle excess inflow from underground mine water discharge. In the unanticipated event of constant discharge to Pond 3, the decant pipe will hold the static level of the pond at a lower elevation than the secondary spillway. The difference in elevation will provide a large enough volume to allow the pond to contain and/or treat a 10-year 24-hour rainfall event. The Permittee has provided an updated design of Pond 3 with the location of the decant pipe in multiple cross-sections and has updated the narrative of the pond size and function. If significant in-mine flow is encountered the Permittee will investigate the likely sources and if flow exceeds 250 gpm a water monitoring point will be established at that point with data submitted to the Division quarterly.

On the paragraph spanning from page 15 to 16 in Chapter 7 of Appendix 7-15, the application is deficient per R645-301-731.720 in not providing certified cross-sections and maps of the proposed water conveyance system from Pit 10

to Sediment Pond 3. The Permittee's narrative "mine groundwater will be pumped to Pond 3" is a vague description of a plan to convey water from Pit 10 to Sediment Pond 3. It is necessary to develop an engineered plan so the Division can determine the bond amount for the structure per R645-301-830.110.

The paragraph spanning pages 16 to 17 in Chapter 7 Appendix 7-15 needs a detailed narrative of the supplemental containment and settlement pond(s) their location(s) and certified drawings and cross-sections per R645-301-743, R645-301-732.100, and R645-301-732.210 or the sentence should be removed.

The application is too vague in the paragraph spanning from page 16 to 17 in Chapter 7 Appendix 7-15. The application does not provide certified drawings or a descriptive narrative of the "supplemental containment and settlement pond(s)". It will be necessary to include certified drawings and a descriptive narrative of the impoundment(s) within the plan so the Division can determine the bond amount for the impoundments per R645-301-830.110.

The paragraph spanning pages 16 to 17 in Chapter 7 Appendix 7-15 needs a detailed narrative of the supplemental containment and settlement pond(s) their location(s) and certified drawings and cross-sections per R645-301-743, R645-301-732.100, and R645-301-732.210 or the sentence should be removed.

Deficiencies Details:

On the paragraph spanning from page 15 to 16 in Chapter 7 of Appendix 7-15, the application is deficient per R645-301-731.720 in not providing certified cross-sections and maps of the proposed water conveyance system from Pit 10 to Sediment Pond 3.

The paragraph spanning pages 16 to 17 in Chapter 7 Appendix 7-15 needs a detailed narrative of the supplemental containment and settlement pond(s) their location(s) and certified drawings and cross-sections per R645-301-743, R645-301-732.100, and R645-301-732.210 or the sentence should be removed.

kstorrar

Hydrologic Impoundments

Analysis:

The application meets the minimum requirements of reporting the correct number of Hydrologic Impoundments at the site per R645-301-733. This deficiency from the prior Task #4652 had the Permittee update the MRP to accurately reflect the number of Impoundments within the Permit area. In a couple instances the Permittee stated there being only four Impoundments at the site, while in actuality there are five. This Task #4786 has accurately updated the application to reflect the correct number of Impoundments at the site.

The application meets the minimum requirements of reporting the correct number of Hydrologic Impoundments at the site per R645-301-733.

kstorrar

Support Facilities and Utility Installations

Analysis:

New buildings and additional support facilities associated with the underground mining operations are shown on Drawing 5-3 and 5-3B which include generators, conveyors, an underground miner, and a fan.

Text was also added to section 521.170 adding the 48 inch wide 125 ft long conveyor system that will stack coal coming from the belt portal.

Section 526.220 was updated to reflect the addition of underground support equipment staged outside the portal area.

The application meets the minimum requirements of state code R645-301-521.170 and -526.220 in regards to describing the support facilities.

cparker

Maps Affected Area

Analysis:

The following Drawings were updated within this amendment:

- 5-2 : The disturbance sequence was updated to reflect current site mining conditions across the bonded area with disturbances not extending past 2015.
- 5-3: The drawing now reflects the current 342 disturbed acres as a single area instead of the previously phased areas. The new haul roads, excess spoil piles footprint, and underground mining facilities are now reflected on the drawing.
- 5-3B: A new drawing was added to the MRP to show the details relevant to the underground portal area. This level of detail is needed for determining an accurate bond amount.
- 5-9: The drawing was updated to show the new coal area to be mined underground, as well as updating what areas have been or plan to be mined by the various high strip ratios and highwall mining.
- 5-10: The drawing was updated to reflect the combination of open pit and highwall mining that was mined in 2014. The drawing also illustrates the true extent of the mined areas as well as adding the planned underground panels.
- 5-15: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in 2014.
- 5-16: The drawing was updated to reflect the updated footprint of disturbance and quantities of overburden removal relevant to each year.
- 5-17: The drawing was condensed from the previous three worst case scenarios to reflect the remaining above/below AOC remaining within the disturbed boundary.
- 5-22: The drawing was updated to reflect the current and planned mine primary roads.
- 5-25: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in 2014.
- 5-26: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in 2014.
- 5-30: Pond 3 details were updated to reflect the as-built foot print of the pond including the additional outfall spillway and decant pipe.
- 5-35: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in 2014. The topography used as the base map is the incorrect topography of the excess spoil pile as it includes the overburden from the federal coal lease. This drawing needs to be removed from the MRP.
- 5-36: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in 2014. The topography used as the base map is the incorrect topography of the excess spoil pile as it includes the overburden from the federal coal lease. This drawing needs to be removed from the MRP.
- 5-37: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in 2014. The base map on this drawing shows the proper excess spoil pile footprint without the federal coal lease.
- 5-37A: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in 2014. The base map on this drawing shows the proper excess spoil pile footprint without the federal coal lease.
- 5-38: This drawing must be updated not to include the federal coal lease.

The Permittee supplied updated Drawing 5-2 that shows the plan disturbance sequence for the life of the mine.

Deficiencies Details:

Per Division order DO-15A, requiring the Permittee to submit a clear description of mining operations and reclamation activities, and R645-301-830.410:

1. The followings edits need to be made to the listed drawings:

- 5-35: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in 2014. The topography used as the base map is the incorrect topography of the excess spoil pile as it includes the overburden from the federal coal lease. This drawing needs to be removed from the MRP.
- 5-36: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in

2014. The topography used as the base map is the incorrect topography of the excess spoil pile as it includes the overburden from the federal coal lease. This drawing needs to be removed from the MRP.

- 5-37: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in 2014. The base map on this drawing shows the proper excess spoil pile footprint without the federal coal lease. This drawing will replace drawing 5-35.

- 5-37A: The drawing was updated to reflect the incidental boundary change that expanded the permit boundary in 2014. The base map on this drawing shows the proper excess spoil pile footprint without the federal coal lease. This drawing will replace drawing 5-36.

- 5-38: This drawing must be updated not to include the federal coal lease.

2. Section 521.162 references a drawing 5-2A removed in this amendment and discusses alternative scenarios, which DO-15A requested be removed for clarity purposes.

- The Permittee will remove the text discussing alternative methods and removed Drawing 5-2A
- R645-301-121.200 plans need to be clear and concise.

3. Section 521.165 references drawings 5-18 and 5-19 which were removed in this amendment.

- The Permittee will edit the sections text to reference only appropriate drawings
- R645-301-121.200 plans need to be clear and concise.

4. Chapter 5 Table of Contents List of Drawings shows drawing 5-17 be removed, however the text in section 521.143, sub paragraph 512.210 references drawing 5-17 as well as a new drawing 5-17 being submitted with the application.

- The Table of Contents will be updated to reflect the 5-17 drawing.
- R645-301-121.200 plans need to be clear and concise.

5. The Permittee supplied an update to Drawing 5-3 that shows the main facilities area that matches the layout as seen at the site since February 2015. Drawings 5-4, 5-5 and 5-8B/C show a different plan view location of various facilities such as Hot Start Plug posts, conveyor alignment, raw coal storage location, shop, water tanks, etc.

- The Permittee will submit updated drawings 5-4, 5-5, and 5-8B/C that match the current site layout.
 - o DO-15A requires the MRP be updated for clarity purposes to match the site conditions.

cparker

Maps Facilities

Analysis:

Drawings 5-6 through 5-8A, while they do not match site conditions, after correspondence with the Permittee at a meeting on January 13, 2015, are still in the intended plan for the site.

cparker

Maps Mine Workings

Analysis:

The Permittee supplied updated Drawing 5-10 that show the planned mining sequence panels for the life of the mine.

cparker

Maps Monitoring and Sampling Locations

Analysis:

There was no change in the monitoring and sampling locations within this amendment.

cparker

Reclamation Plan

Approximate Original Contour Restoration

Analysis:

The original application stated that due to the swell factor excess spoil would be generated and the Permittee requested and was granted a variance from the approximate original contour requirement in various sections including: 512.260, 553.200, and 553.120 in the area of the excess spoil pile.

Deficiencies Details:

With the removal of the Federal coal scenario the Division requests that the Permittee demonstrate that they are meeting R645-301-553.110 and R645-301553.800 with the excess spoil pile of 1.8 million cubic yards.

cparker

Backfill and Grading General

Analysis:

The Permittee removed several pages from the original MRP within the grading section. The new grading section details that 3.05 million tons of coal will be recovered from the site. Approximately 16.1 million bank cubic yards of overburden will be removed in three sequences.

The first stage included Pits 1 through 9 that have a low strip ratio of approximately 4:3. The spoil removed from the first three pits was placed in an excess spoil area. Pits 1 through 8 will be contemporaneously backfilled as mining progresses. Pit 9 will not be backfilled at this stage and has been left open for placement of the highwall miner to recover coal in panels 1 through 3 show on drawing 5-10.

The second stage began at the southern boundary with Pit 28 and proceeding north to Pit 22. Pit 10 was developed after coal recovery in Pit 9 was completed and the original highwall miner head was lost in Pit 9 panel 3.

The third stage of mining includes development of Pit 21 along with highwall panels in Pit 21 and Pit 10. Pit 10 will remain open and be developed as the portal entry point for underground operations. Surface mining will continue with Highwall Trench 1 (HWT-1) and continue south to HWT-3. Overburden from HWT-1 will remain in Pit 9 with material from HWT-2 and 3 filling the previously mined portions of the highwall trench.

Deficiencies Details:

Per the Division Order, DO-15A, and various state regulations R645-301-121.100, R645-301-521.140, R645-301-521.162, R645-301-533, & R645-301-830.410 the Permittee should describe a single operation and reclamation scenario.

1. Text in section 553 describes two options of reclamation. The permittee will only describe one mining operation and the relevant reclamation scenario. Pursuant to this scenario the Permittee will edit the text and drawings to remove all references to scenarios that include the federal lease, often called the "Preferred plan". Relevant sections that need to be edited in MRP include but are not limited to sections:
 - All of section 553 text needs to be reviewed to remove any references to the federal coal lease.
2. Text on page 5-79 needs to include Pit 20 and various highwall trenches detailed on Drawing 5-10, according to DO-15A.

cparker

Mine Openings

Analysis:

The Permittee updated section 513.500 detailing that each portal will be capped per requirements R645-301-513 by back the backfilling of Pit 10. The portals will then be covered by 100+ feet of overburden.

Further details in section 515.311 and 515.321 detail how the portals will be effectively secured during temporary cessation. In the event of temporary cessation for a period of 30 days or more the Permittee will notify the Division with a statement of the exact number of acres affected in the permit area, the extent and kind of reclamation of those areas to be accomplished, and continuation of backfilling, regarding revegetation, environmental monitoring and water treatment activities to be continued.

cparker

Topsoil and Subsoil

Analysis:

There have been no changes to the narrative of the topsoil/subsoil reclamation plans with this amendment.

Section 232.500 describes review of the subsoil sampling program after one year of mining. This sampling plan should now be revised to include the remaining reclamation areas and the reclamation of the underground mining.

MRP Section 244.200 describes mulching practices to be completed after seeding. Recent reclamation events have convinced the reclamation contractor, the operator and the Division that the sequence of mulching should precede seeding. This section should be updated accordingly.

Dwg 5-38 shows the reclamation sequence. This drawing states that 96 acres were reclaimed in the years 2012 - 2014. Dwg 5-38 shows the location of 80 additional acres to be reclaimed in 2015, including the temporary excess spoil pile area, the subsoil pile #2, topsoil pile #4 and Pits 6, 20 - 24. Dwg 3-7 shows the reclamation treatments and seed mix for Phase 1 - 3 bonded areas.

Deficiencies Details:

R645-301-231.300, The topsoil and subsoil sampling plan described in MRP Section 232.500 and must be revised to include the remaining reclamation areas and the reclamation of the underground mining.

R-645-301- 244.200, Mulching follow topsoil placement, and be accomplished before seeding. This section should be updated accordingly.

pburton

Cessation of Operations

Analysis:

Section 515.311 was added to the MRP in this amendment stating that during temporary cessation of the underground operations, surface access openings will be effectively secured.

Section 515.321 was added to the MRP to address how notice to the Division will proceed in the event that temporary cessation extends beyond 30 days. A statement will be sent to the Division detailing the exact number of acres affected by temporary cessation, the extent and kind of reclamation of those areas, identification of the backfilling/regarding/revegetation and environmental monitoring and water treatment activities will continue during the temporary cessation.

Deficiencies Details:

R645-301-515.310-.311 Temporary abandonment will not relieve a person of his or her obligation to comply with provisions of the approved permit. This section needs more clarification as how effective support and maintenance of the access to underground openings.

- The Permittee will address specific stormwater concerns, such as pumping, to keep Pit 10 free of water during temporary cessation. Designs to control stormwater must be engineered and stamped by a UT certified PE.

cparker

Maps Affected Area Boundary

Analysis:

The Permittee supplied updated Drawing 5-2 that shows the plan disturbance sequence for the life of the mine.

Deficiencies Details:

Per the Division Order, DO-15A, and various state regulations R645-301-121.100, R645-301-521.140, R645-301-521.162, R645-301-533, & R645-301-830.410 the Permittee should describe a single operation and reclamation scenario.

1. All drawings that reference the LBA must be corrected or removed.

2. Page 5-68 of section 542 the first paragraph after the bullets erroneously states that Pit 10 will be left open for access to the Highwall Trench and underground, however, the grading shown in Drawing 5-3B clearly shows that Pit 10 will be graded for only underground access.

- The Permittee will correct the text to accurately describe access to Pit 10 and the Highwall Trench.

R645-301-553.100 requires all disturbed areas to be backfilled.

cparker

Maps Bonded Area

Analysis:

The Permittee supplied updated Drawing 5-3 that shows the plan disturbance sequence for the life of the mine and bonded area of 342 acres.

cparker

Maps Reclamation BackFilling and Grading

Analysis:

The Permittee changed text within section 542-narrative, drawings and plans to state that while generally mined areas will be backfilled and graded within approximately 180 days following coal removal, or 1,500 feet of the active coal removal face, an exception is the backfilling of the Highwall Trench south of Pit 10. The text now states that Pit 10 will be left open for access to the Highwall Trench and underground mine. Justification for the previous statement can be found in section 528 (Overburden) and the steps can be viewed on Drawing 5-17.

cparker

Bonding and Insurance General

Analysis:

Deficiencies Details:

No information provided in submittal. The Permittee must submit changes to Chapter 8 Bonding that include the additional insurance and bonding information required per R645-301-800.

cparker

Bonding Form of Bond

Analysis:

Deficiencies Details:

No information provided in submittal. R645-301-860
The Permittee must submit changes to Chapter 8 Bonding that include the additional cost of reclamation for the underground.

cparker

Bonding Determination of Amount

Analysis:

Deficiencies Details:

No information provided in submittal. R645-301-830.140.
The Permittee must submit changes to Chapter 8 Bonding that include the additional cost of reclamation for the underground, including details of the portal face demolition, fan and generators to be removed upon reclamation so that the bond amount can be determined accurately:
-Generator watts, engine type, and weight in tons (RS Means 26 32 13-, 230505.10 3600)
-Fan watts, engine type, and weight in tons
-Port Face shotcrete details including reinforcement, fencing details, any rockfall/slope stabilization measures to be constructed.

cparker

Bonding Terms and Conditions Liability Insurance

Analysis:

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Deficiencies Details:

No information provided in submittal. R645-301-890.

cparker