



**State of Utah**  
DEPARTMENT OF NATURAL RESOURCES  
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## Technical Analysis and Findings

### Utah Coal Regulatory Program

July 22, 2016

**PID:** C0250005  
**TaskID:** 5203  
**Mine Name:** COAL HOLLOW  
**Title:** PIT 10 BORROW AREA (N21164)

### General Contents

#### Right of Entry

##### Analysis:

The borrow area is within the existing permit boundary, in T 39 S, R 5 W, Section 30, on surface property owned by C. Burton Pugh. The right of entry information does not meet the requirements of R645-301-114, Right of Entry, because the initial 10 year lease term has expired. As surface mining in the South lease permit area is completed and the Underground Mine is idled, the Division presumes that the initial terms of the 2004 lease have been or will be renegotiated.

The existing lease signed September 10, 2004 by C. Burton Pugh had a ten year term and allowed for successive renewal (Sec. 2.03) to allow sufficient time to extract coal and to allow additional time as necessary for reclamation (Sec. 2.04). (Confidential File Incoming 06162006). Please provide documentation of the continuation of the C. Burton Pugh Lease beyond the initial 10 year term.

The borrow area is within the existing permit boundary, in T 39 S, R 5 W, Section 30. The borrow area adds 30.5 acres to the Phase 3 disturbed area (Chap 1, p. 19). The borrow area surface is owned by C. Burton Pugh (Chap 1, p. 7). Surface and Coal ownership are shown on Dwg 1-3 and 1-4, respectively. Coal ownership in the borrow area is further divided between C. Burton Pugh, Roger M. Pugh, and Mark and Margaret Moyers (Chap 1, p. 8). For specific percentages of coal ownership, refer to the 2004 lease agreement (Confidential File Incoming 06162006).

##### Deficiencies Details:

R645-301-114, The existing lease signed September 10, 2004 by C. Burton Pugh had a ten year term and allowed for successive renewal (Sec. 2.03) to allow sufficient time to extract coal and to allow additional time as necessary for reclamation (Sec. 2.04). (Confidential File Incoming 06162006). Please provide documentation of the continuation of the C. Burton Pugh Lease beyond the initial 10 year term.

pburton

### Legal Description

##### Analysis:

The Coal Hollow permit area ownership and acres is described and outlined in 112.500, Chapter 1 page 6 to 14 of the submitted Pit 10 Borrow Area application. Surface ownership is 721 acres Fee Lease and Coal (mineral) ownership is 521

acres Fee Lease and 200 acres Federal Lease. The intended area for the permit is shown on the maps. The maps are on pages 83-84, 187, 192-194, 201, 335-349, 375, 542, and 581-582. The maps indicate the area leased by Coal Hollow from various owners both Surface Ownership and Mineral Ownership. The maps meet the requirements of legal description.

bwiser

## Reporting of Technical Data

### Analysis:

R645-301-120, With this amendment, Appendix 2-3, the 2014 Soil Report of the Dames Lease, will be replaced by Appendix 2-3, Substitute Subsoil for the Pit 10 Borrow Area. The first Appendix 2-3 should be retained as it remains pertinent to the mining and reclamation plan. The second Appendix 2-3 should be renamed. In addition, the explanatory letter from Robert Long should be added to Appendix 2-3.

The appendix under review will be referred to herein as the Borrow Area Soils Appendix or BA Soils App.

### Deficiencies Details:

R645-301-120, With this amendment, Appendix 2-3, the 2014 Soil Report of the Dames Lease, would be replaced by Appendix 2-3, Substitute Subsoil for the Pit 10 Borrow Area. The first Appendix 2-3 must be retained as it remains pertinent to the mining and reclamation plan. The second Appendix 2-3 should be renamed. All references to the second Appendix 2.3 should be revised with the new appendix name. In addition, the explanatory letter from Robert Long should be added to the renamed Appendix.

pburton

## Environmental Resource Information

### Historic and Archeological Resource Information

#### Analysis:

The Utah Division of Oil, Gas and Mining (DOG M) Coal Regulatory Program has received notification Alton Coal Development identified the potential need to use an extended portion of their permit area for borrow material (DOG M Task ID 5203 Pit 10 Borrow Area). Implementation of this proposal would impact site 42KA2043, which was recommended Eligible for the National Register of Historic Places (NRHP) in a 2005 re-inventory report produced in association with environmental compliance efforts for the Coal Hollow Mine Project. At this time, DOGM has re-assessed the eligibility of the site and the proposed effects to the site associated with project implementation. The Utah SHPO concurred with this determination in correspondence dated July 11, 2016. Therefore, proposed use of the Pit 10 area for the Coal Hollow Mine South Private Lease Area will have a determination of No Historic Properties Affected with regard to site 42KA2043.

A second site, 42KA1313, is addressed in the proposed historic properties treatment report, and recommended treatment measures include barricading and monitoring to avoid site disturbance as it is located on lands under the jurisdiction of the Bureau of Land Management and outside of the approved permit area. It is the opinion of DOGM these avoidance measures are appropriate and must be in place to ensure no unanticipated Adverse Effects to site 42KA1313; SHPO concurred with DOGM in correspondence dated July 11, 2016.

jmontcalm

### Fish and Wildlife Resource Information

#### Analysis:

The amendment meets the State of Utah R645 requirements for fish and wildlife protection.

The amendment does not change any wildlife or vegetation resource information, operation impacts to vegetation, fish, or wildlife, or reclamation operations that are previously approved in the MRP. The one area that required evaluation is the mitigation plan for greater sage-grouse. Because this amendment includes an additional disturbance of 30.5 acres within the existing Coal Hollow Permit area (south lease), mitigation requirements were evaluated.

On June 16, 2016 the Division approved Appendix 3-8 Mitigation Plan which further described Greater sage-grouse

mitigation efforts by Alton Coal Development (ACD). The following is a brief analysis of current status of the compensatory mitigation requirements set forth in the MRP and the Permit.

According to Map 5-2 submitted with this amendment, total disturbed acres within the Coal Hollow area (South lease) is 372.5 acres (including completion of pit 10). If using the 4:1 ratio of compensatory mitigation, required mitigation would be 1,490 acres. However, ACD has committed to compensatory mitigation for this area (south lease or Coal Hollow Area) at 1,700 acres. Page 3-36 of the MRP and Appendix 3-8 detail how ACD has completed approximately 2,044 acres of compensatory mitigation at the time of this analysis. (428 acres for the 2011 PJ/Oak removal and reseedling in the Corridor, 72 acres of PJ removal and sagebrush thinning and seeding in the conservation area, 146 acres in 2012 of lop and scatter treatment on property east of the project, 355 acres of lop and scatter of PJ west of the property on BLM, and 1043 acres funded and contracted through Utah's Wildlife Restoration Improvement Program.) All support documentation is on file with the Division. Since only 1,700 acres of compensatory mitigation was required for the disturbance associated with the Coal Hollow project area (South Lease), 344 acres of the 2,044 have been transferred to be used as mitigation for disturbance at the Private North Lease and were not applied in the calculations for this review.

Furthermore, at a 4:1 ratio of mitigation to disturbance, if 372.5 acres is disturbed, ACD is committed to complete 1,490 acres of compensatory mitigation. As shown in the preceding paragraph, ACD has met this requirement by completing the required 1,700 acres of compensatory mitigation. Therefore, the addition of 30.5 acres of disturbance from Pit 10 to the existing 342 acres of disturbance does not require any additional compensatory mitigation for Greater sage-grouse.

Ireinhart

## Soils Resource Information

### Analysis:

#### Analysis:

Borrow Area (BA) soils will be used to reclaim Pit 10. The area to be disturbed is to the East and to the SW of Pond 3 in Section 30. As shown on Figure 1 (Dwg 2-1) the BA surrounds the excess Spoil pile area. The BA soils are described in an appendix. Drawing 2-1 is referred to as Figure 1 in the appendix, but is not labeled as such. It shows the location of borrow area soils for reclamation of Pit 10. These soils are mostly in Map Unit 5: Calendar Family, M Family, Frififty Family Complex with 8 - 25% slopes. A small area of Map Unit 3 soils will also be utilized.

Only one soil pit is shown within the 30.5 acre borrow area. One soil sampling location and pedon description does not adequately represent the thirty acres of Mmap Unit 5. Please provide additional sampling of this map unit and modify Figure 1 to be of a scale 1" = 100 ft. All map units or inclusions within Map Unit 5 must be shown on the map of the Borrow Area. ( i.e. Map Units 3, 4, 9, and 5 which are described in Table 2-3.5). Table 2-3-5 of the BA appendix describes the weighted average salvage depth by soil map units in the Borrow Area. Four map units are shown in the table, however, there is only one map unit shown on Figure 1. The survey must map the distribution of the map units within the borrow area, supported by sampling data.

A typical pedon description is found for Map Unit 5 in MRP Chapter 2, page 2-11. These are soils derived from Tropic Shale. They are shallow in depth (parent material is at 10 - 32 inches. These soils are clayey in texture (44 - 47% clay), with high saturation percentages and high CaCO<sub>3</sub> percentage.

### Deficiencies Details:

R645-301-222, One soil sampling location and pedon description does not adequately represent the thirty acres of map Unit 5. Please provide additional sampling of this map unit and modify Figure 1 to be of a scale 1" = 100 ft. All map units or inclusions within Map Unit 5 must be shown on the map of the Borrow Area. ( i.e. Map Units 3, 4, 9, and 5 which are described in Table 2-3.5). The survey must map the distribution of the map units within the borrow area, supported by sampling data.

pburton

## Probable Hydrologic Consequences Determination

### Analysis:

The amendment meets the State of Utah R645 requirements for Probable Hydrologic Consequences.

Excavation of the Pit 10 borrow area will have little to no impact on the quality and/or quantity of groundwater or surface

water resources. The amendment provides well data showing the groundwater resources within the proposed area of excavation are at a lower elevation than the reclaimed land surface. This is supported by the fact that there are no springs or seeps within the borrow area. Surface waters will be protected by routing runoff from within the disturbed area through Sediment Pond 3 before exiting the permit area. The sediment pond will not be removed sooner than two years after the last augmented seeding to allow time for vegetation to be established, stabilizing the area.

kstorar

## Maps Permit Area Boundary

### Analysis:

The amendment meets the State of Utah R645 requirements for the Permit area and Boundary maps.

The amendment meets the requirements of R645-301-521.140 as Drawing 5-2 and 5-3 were updated to include the new disturbance boundary on the western side of the temporary excess spoil pile. Drawings 5-17, 5-18, 5-19, 5-26, 5-37, and 5-37A were updated within the amendment to detail the new disturbance boundary to include the borrow areas required to backfill Pit 10 and meet the requirements. An additional 1.3 Million CY will be recovered from the areas outlined as borrow on Drawings 5-19, 5-37 and 5-37A. The previously disturbed areas will be sufficient to backfill all the pits excluding Pit 10. The sequence of disturbance is shown per year on Drawing 5-2.

cparker

## Operation Plan

### Mining Operations and Facilities

#### Analysis:

The amendment meets all the State of Utah R645 requirements for Mining Operations and Facilities.

The amendment meets the requirements of R645-301-510, 521 as the Permittee amended all relevant MRP Chapters increasing the disturbance area from 342 acres to 372.5 acres required for final reclamation of the South Private Lease.

The amendment meets the requirements of R645-301-523, -526, and 528 by including a description of the mining operation, method of coal mining, engineering techniques, anticipated annual and total production of coal by tonnage, and major equipment to be used for all aspects of those operations proposed to be conducted during the life within Chapter 5. The relevant MRP sections within Chapter 5 were updated to detail that all of the excess spoil pile will be utilized during the reclamation of the pits and an additional 1.3 million CY of additional borrow will need to be utilized. The additional borrow area will increase the disturbed area by 30.5 acres, for a new total of disturbance of 372.5 acres for the South Private Coal Hollow Lease.

cparker

### Topsoil and Subsoil

#### Analysis:

##### Analysis:

The Borrow Area (BA) topsoil and subsoil will be salvaged from 30.73 and 39.26 acres respectively. Some borrow area subsoil will come from the seeded bench above Pit 10. Table 2-3.3 and Table 2.3-4 describe acreage and map units of the topsoil and subsoil borrow area. The map depiction is rather poor however. The volume of the topsoil and subsoil recovery should be outlined on a map of the scale 1: = 100 ft. A note on Table 2-3.5 states that nine acres of subsoil are buried beneath the excess spoil pile. The volume of the subsoil recovery may require adjustment, since the subsoil beneath the excess spoil pile was lost by over-excavation (NOV 21183).

Salvaged topsoil and subsoil will be stockpiled in existing topsoil/subsoil storage areas (BA appendix, p. 4). However, Drawing 2-2 shows two new stockpiles: Subsoil pile #4 will hold 145,000 CY which is adequate for the 135,000 CY of subsoil possible. And, Topsoil pile #6 will hold 30,000 CY of topsoil which is adequate for the 29,205 CY expected. Subsoil pile #4 appears to be on Phase 1 bond release area (BRP1-6). Chapter 2 must clearly state the planned locations and volumes to be removed from borrow areas, previously reclaimed areas and operational areas.

Map Unit 3 on the south side of Lower Robinson Creek in the vicinity of DD4 has previously disturbed, reclaimed topsoil and subsoil that will be stripped and also stockpiled for reclamation. BA topsoil could be removed to a depth of 10 inches

and subsoil could be removed to a depth of 69 inches in Map Units 3 & 4 & 9. The locations of these units are not shown on the survey map. In Map Unit 5, topsoil will be removed to a depth of 7 inches and subsoil will be removed to a depth of 21 inches.

Volumes of soil to be recovered and stockpiled are listed in Table 2-3-5. Approximately 104,826 CY of topsoil and 135,810 CY of subsoil will be recovered. The subsoil

#### *Deficiencies Details:*

R645-301-231.100, The Borrow Area (BA) topsoil and subsoil will be salvaged from 30.73 and 39.26 acres respectively. The area of the topsoil and subsoil recovery should be outlined on a map of the scale 1: = 100 ft. A note on Table 2-3.5 states that nine acres of subsoil are buried beneath the excess spoil pile. Therefore, the volume of the subsoil recovery may require adjustment, if the subsoil to be recovered was in the area of over-excavation (NOV 21183).

R645-301-121.200, Salvaged topsoil and subsoil will be stockpiled in existing topsoil/subsoil storage areas (BA appendix, p. 4). However, Drawing 2-2 shows two new stockpiles: Subsoil pile #4 will hold 145,000 CY which is adequate for the 135,000 CY of subsoil possible. And, Topsoil pile #6 will hold 30,000 CY of topsoil which is adequate for the 29,205 CY expected. Subsoil pile #4 appears to be on Phase 1 bond release area (BRP1-6). Chapter 2 must clearly state the planned locations and volumes to be removed from borrow areas, previously reclaimed areas and operational areas.

pburton

## **Road Systems Classification**

#### *Analysis:*

The amendment meets the State of Utah R645 requirements for Road Systems and Other Transportation Facilities.

The amendment meets the minimum requirements of R645-301-527.100 by classify each road as primary or ancillary. The amendment included text changes to Chapter 5 section 521.170 updated to include the three primary haul roads associated with the South Private lease. Drawing 5-221 was added to show the plan and profile cross section of the haul road associated with the underground mining. The road will be reclaimed at final reclamation of the South private lease concurrent with the backfilling of Pit 10. Narrative was added to this section also detailing temporary single track ancillary roads, such as the access road to Pond 3, through bond release areas. The roads will not remain post-mining but will be built on top of subsoil.

The MRP states in on page 5-25 of Chapter 5 states how an ancillary road will be built on bond release areas. Upon further discussion with the Permittee it is the mutual understanding that this narrative of ancillary roads built on bond release areas is specific to pond access roads. The access roads are required to maintain the ponds, which are required until year four of seeding. The roads will be designed as single lane access approximately 14 feet wide and will be maintained in such a way that all surface flow along the roads will report to ditches and consequently ponds in no erosive velocities. There will be a total of three such roads upon final bond release of all the reclaimed pit areas. The pond access road meet the requirements of R645-301-527.220 through 527.230.

cparker

## **Road System Plans and Drawings**

#### *Analysis:*

The amendment meets the State of Utah R645 requirements for Transportation Plans and Drawings.

The amendment meets the minimum requirements of R645-301-534.100 by submitting plans and drawing for each road to be maintained within the permit area. Drawing 5-221 was added to show the plan and profile cross section of the haul road associated with the underground mining. The road will be reclaimed at final reclamation of the South private lease concurrent with the backfilling of Pit 10.

cparker

## **Spoil Waste Excess Spoil**

#### *Analysis:*

The amendment meets the State of Utah R645 requirements for excess spoil.

The amendment meets the requirements of R645-301-512.210, R645-301-514.100, R645-301-521.143, R645-301-528, and R645-301-535.100 as the amendment included relevant MRP Volume 3 Chapter 5 section updates detailing the removal of the spoil pile at final reclamation of the South Private Coal Hollow Lease. The amendment details how following the completion of surface mining in the highwall trench, backfill operations from the long-term excess spoil structure to the open pit has been ongoing to bring both the spoil structure and highwall trench areas to AOC. It is anticipated that backfill of the highwall trench will be completed by the end of July, 2016. A small portion (apx. 250k C.Y.) of the long-term excess spoil structure may remain at the Coal Hollow Mine until final backfill of Pit 9-C. Following the completion of underground mining, backfill of Pit 10 will be backfilled completely by utilizing borrow from the areas delineated in Drawings 5-19 and 5-37. Final backfill will require approximately 1.3 Million C.Y. of borrow material, but will still achieve AOC.

cparker

## Hydrologic Diversion General

### Analysis:

The amendment meets the State of Utah R645 requirements for Diversions.

The amendment outlines realigning Diversion Ditch 4 in order to excavate the Borrow 2 area. The realignment will fill in the gully shown on DWG. 5-25 and bring this disturbance to the edge of the permit boundary. The amendment provides a plan for preventing sediment from leaving the permit area, including silt fences and straw bales at the base of the disturbance.

The realignment of Ditch 4 will be a multipart process. The original ditch will need to be fully functional at all times until the realigned section can be brought online. The amendment provides a three part plan of how they plan to realign the ditch while keeping it operational as well.

Borrow 2 area must be sloped to drain to Sediment Pond 3. The amendment includes a narrative detailing that this area of the watershed will drain to the impoundment.

kstorar

## Hydrologic Impoundments

### Analysis:

The amendment meets the State of Utah R645 requirements for Sedimentation Ponds.

The addition of the borrow area will increase both the disturbed and undisturbed area runoff reporting to Pond 3. Appendix 5-2 provides updated calculations, tables, and maps outlining this increase in the drainage area. The calculations show Sediment Pond 3 will be adequately sized to contain or treat runoff from watershed 3 before it exits the permit area.

kstorar

## Maps Affected Area

### Analysis:

The amendment meets the State of Utah R645-301-521.100 requirements for Affected Area Maps.

The requirements of R645-301-542 are met within the amendment as Drawings 5-17 through 5-19 were updated.

cparker

## Reclamation Plan

### Approximate Original Contour Restoration

#### Analysis:

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

The amendment meets the R645-301-553.700 and R645-301-553.800 requirements as Section 553.100 conflicting information was removed within this amendment. The Permittee has a swell factor of 10% which means thick and thin

overburden regulations do not apply, as correctly stated in Chapter 5 Section 553.100. The Permittee had originally incorrectly addresses thin overburden regulations in Chapter 5 Section 553.700 apply. The same paragraph then stated that R645-301-553.700 and R645-301-553.800 do not apply. The Permittee amended the narrative to clearly state the R645-301-553.700 and R645-301-553.800 do not apply.

AOC as defined by R645-301-553.100 through -553.150 is achieved when the final grade closely resembles the general surface configuration of the land prior to mining activities and provides a subsurface foundation for vegetative cover capable of stabilizing the surface from erosion. The Permittee addresses AOC grading in Chapter 5 general section of 553 to meet the R645 requirements.

cparker

## Backfill and Grading General

### Analysis:

The amendment meets the State of Utah R645 requirements for Backfill and Grading.

The amendment meets the general requirements of R645-301-553 by detailing a general backfill and grading plan that details how disturbed areas will be backfilled and graded to achieve the approximate original contour, eliminate all highwalls, spoil piles, and depressions, and achieve a postmining slope that does not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long term static safety factor of 1.3 and to prevent slides, minimize erosion and water pollution both on and off the site, and support the approved postmining land use. The amendment details how following the completion of surface mining in the highwall trench, backfill operations from the long-term excess spoil structure to the open pit has been ongoing to bring both the spoil structure and highwall trench areas to AOC. It is anticipated that backfill of the highwall trench will be completed by the end of July, 2016. A small portion (apx. 250k C.Y.) of the long-term excess spoil structure may remain at the Coal Hollow Mine until final backfill of Pit 9-C. Following the completion of underground mining, backfill of Pit 10 will be backfilled completely by utilizing borrow from the areas delineated in Drawings 5-19 and 5-37. Final backfill will require approximately 1.3 Million C.Y. of borrow material, but will still achieve AOC. All relevant Chapter 5 narratives were updated within the amendment to address the changes in backfilling and grading

cparker

## Topsoil and Subsoil

### Analysis:

#### Analysis:

There are three remaining locations to be reclaimed in the South Lease. They are Lower Robinson creek, Pit 9c and Pit 10. Item 2 of the cover letter dated June 7, 2016 refers to Chapter 8 Appendix 8-1 for volumes of topsoil and subsoil required for Pit 10.

#### Lower Robinson:

Appendix 8-1 does not give a subsoil volume for Lower Robinson. Appendix 8-1 calls out 6,213 CY of topsoil required for Lower Robinson. If this is applied at 0.6 feet as described in the rest of the permit area, then the Division back-calculates that the area is 6.418 acres.

#### Pit 9c:

Appendix 8-1 describes Pit 9c as 3.3 acres. The appendix states that 19,024 LCY of subsoil will be required for cover and 3,805 LCY of topsoil will be required.

#### Pit 10:

Appendix 8-1 describes Pit 10 as 20.7 acres. The appendix states that 119,335 LCY of subsoil and 23,867 LCY of topsoil will be required for reclamation.

Appendix 8-1 describes 23.6 acres in Borrow Area 1 and 7.3 acres in Borrow Area 2. (Total 30.9 acres) It is not clear to the Division how the Borrow Area is divided on the ground. These areas should be differentiated on a soil salvage map.

#### Reclamation plan:

To cover 24 acres (Pit 10 and 9c) with 3.4 feet of soil will require 131,648 CY of soil. There will be no subsoil placement in the 30.9 acre borrow area or the 32 acre excess spoil pile, because the final graded surface will be covered with topsoil and

seeded.

To cover 30 acres (Pit 10, Pit 9c and Lower Robinson) with 0.6 feet of topsoil, about 29,040 CY will be required. To cover the Excess spoil pile 32 acres an additional 31K CY will be required. To cover the 30.9 acre borrow area with 0.6 inches an additional 30K CY will be required. As topsoil pile #4 was recently depleted, all these areas may require borrow area topsoil for reclamation. An accounting of the remaining topsoil stored in stockpiles 1 & 2 and its dedicated use in reclamation is requested.

The subsoil stockpile #2 was recently surveyed and found to contain 87,397 CY. Subsoil stockpile #2 added to the potential BA subsoil volume of 135,810 CY will provide 223,207.

Borrow Area (BA) appendix table 2.3-5 indicates that 104,826 CY of topsoil and subsoil will be salvaged from the BA. An additional 29,000 may be recovered from areas where topsoil was previously salvaged to arrive at a total of 135,810 CY. (These areas are not mapped and it's not clear to the Division where these areas are.)

The plan and existing subsoil stockpile #2 could provide 191,000 CY of subsoil for Pits 10 & 9c and Lower Robinson Creek. the required total of 154,880 CY for reclamation of Pit 10 and 9c. In addition, the plan describes that 0.6 ft (8 inches) of salvaged topsoil will be re-applied to the 39 acre borrow area. That would require an additional 37,752 CY of topsoil.

During a site visit on July 19, I discussed the creation and use of substitute topsoil with Kirk Nichols. Such a plan would develop disturbed soils for use as topsoil substitute by seeding and protecting islands of unused area within the disturbed area boundary. This plan should be given some consideration for the final reclamation of the borrow area or pit 10.

#### Reclamation plan Borrow Area:

There will be no substitute topsoil needed for the borrow area (Chap 2, p. 2-24). This plan states that "Additional field evaluations, sampling and analysis will be needed prior to actual implementation of the reclamation plan for the Pit 10 Borrow Area." The Borrow Area (BA) reclamation plan is to place 0.6 feet (8 inches) of topsoil over suitable in place material. Suitability will be determined by sampling on a grid of 1 sample/2.5 acres for parameters described in the Division's Soil and Overburden Guidelines. Should unsuitable in parent material be discovered, it will be buried beneath four feet of suitable material. To cover the entire 39 acres with 4 feet of cover will require 215,354 CY of subsoil. (BA appendix p. 5). Selected overburden material may be used for final reclamation, if a demonstration is made that the material is equal to that existing on the surface and is the best available in the permit area. This demonstration must be made prior to disturbance of the 39 acres.

There exists a 40 foot cutslope along the permit boundary in the former location of the excess spoil pile, which was accounted for in the volume calculations. The volume of fill removed from this area was reported to be 72,000 CY (Drew Christiansen's presentation on 5/31/2016). On June 27, 2016, the working elevation of the excess spoil pile was surveyed at 6,834 feet (Inspection Report 5582, 7/19/2016).

#### Deficiencies Details:

##### R645-301-240, Reclamation plan Pit 10:

Item 2 of the cover letter dated June 7, 2016 refers to Chapter 8 Appendix 8-1 for volumes of topsoil and subsoil required for Pit 10. The bonding Appendix describes 23.6 acres in Borrow Area 1 and 7.3 acres in Borrow Area 2. (Total 30.9 acres) It is not clear to the Division how the Borrow Area is divided on the ground. These areas should be differentiated on a soil salvage map.

To cover 30 acres (Pit 10, Pit 9c and Lower Robinson) with 0.6 feet of topsoil, about 29,040 CY will be required. To cover the Excess spoil pile 32 acres an additional 31K CY will be required. To cover the 30.9 acre borrow area with 0.6 inches an additional 30K CY will be required. As topsoil pile #4 was recently depleted, all these areas may require borrow area topsoil for reclamation. An accounting of the remaining topsoil stored in stockpiles 1 & 2 and its dedicated use in reclamation is requested.

R645-301-233.100, The creation and use of substitute topsoil for use as topsoil substitute by seeding and protecting islands of unused area within the disturbed area boundary should also be given some consideration for the final reclamation of the borrow area or pit 10. Please describe and map areas of substitute topsoil development.

R645-301-233.100, The Borrow Area (BA) reclamation plan is to place 0.6 feet (8 inches) of topsoil over suitable in place material. Suitability will be determined by sampling on a grid of 1 sample/2.5 acres for parameters described in the Division's Soil and Overburden Guidelines. Should unsuitable in parent material be discovered, it will be buried beneath four feet of suitable material. To cover the entire 39 acres with 4 feet of cover will require 215,354 CY of subsoil. (BA appendix p. 5). Selected overburden material may be used for final reclamation, if a demonstration is made that the

material is equal to that existing on the surface and is the best available in the permit area. This demonstration must be made prior to disturbance of the 39 acres. Preliminary sampling and analysis of the borrow area to sample and analyze the material to be exposed at the final reclamation surface must be conducted prior to approval. A plan for sampling and analysis and a agreement as to parameters to be analyzed must be discussed with the Division to ensure that adequate coverage and analysis is conducted.

pburton

## Contemporaneous Reclamation General

### Analysis:

The amendment meets the State of Utah R645 requirements for Contemporaneous Reclamation.

The requirements of R645-301-553 of backfill and grading are met within the amendment all relevant Chapter 5 narratives were updated within the amendment to address the changes in backfilling and grading.. The amendment details how following the completion of surface mining in the highwall trench, backfill operations from the long-term excess spoil structure to the open pit has been ongoing to bring both the spoil structure and highwall trench areas to AOC. It is anticipated that backfill of the highwall trench will be completed by the end of July, 2016. A small portion (apx. 250k C.Y.) of the long-term excess spoil structure may remain at the Coal Hollow Mine until final backfill of Pit 9-C. Following the completion of underground mining, backfill of Pit 10 will be backfilled completely by utilizing borrow from the areas delineated in Drawings 5-19 and 5-37. Final backfill will require approximately 1.3 Million C.Y. of borrow material, but will still achieve AOC.

cparker

## Maps Affected Area Boundary

### Analysis:

The amendment meets the State of Utah R645-301-521.100 requirements for Affected Area Maps.

The requirements of R645-301-542 are met within the amendment as Drawings 5-17 through 5-19 were updated.

cparker

## Maps Bonded Area

### Analysis:

The amendment meets the State of Utah R645 requirements for Bonded Area.

The requirements of R645-301-800 are meet within the amendment as the bonded area map was updated in Drawing 5-18 and 5-19.

cparker

## Maps Reclamation BackFilling and Grading

### Analysis:

The amendment meets the State of Utah R645 requirements for Reclamation Backfilling and Grading Maps.

The requirements of R645-301-542 are met within the amendment as Drawing 5-37 and 5-37A were update to show the borrow area grading.

cparker

## Maps Reclamation Facilities

### Analysis:

The amendment meets the State of Utah R645 requirements for Reclamation Facilities Maps

The requirements of R645-301-542 are met within the amendment as Drawing 5-37 and 5-37A were update to show the

### Maps Reclamation Final Surface Configuration

*Analysis:*

The amendment meets the State of Utah R645 requirements for Final Surface Configuration Maps.  
The requirements of R645-301-542 are met within the amendment as Drawing 5-37 and 5-37A were update to show estimated final surface configuration back to AOC.

### Bonding Determination of Amount

*Analysis:*

The amendment meets the State of Utah R645 requirements for Determination of Bond Amount.

The amendment meets the requirements of R645-301-830.140 as the Permittee submitted detailed bond information in regards to the amendment. The bond information is within 5% of the Division's estimate.

The North Private Lease facilities increased 1,352,717 CY since the initial review. The changes in volume were due to updated drill logs are the result of increased drilling within the North Private Lease.

The total reclamation cost for the Coal Hollow Mine includes:

- All support facilities at the South Private Lease
- Backfill/grading of Pit 10 and Pit 9-C
- North Private Lease Area 1 facilities
- Backfill/grading of Pits 1,2,3,4,5 and 6
- Soil salvage of North Private Lease Area 1

The total reclamation cost for the Coal Hollow Mine (sum of the direct and indirect costs) was escalated from 2015 to 2020 (5 years) using an escalation factor of 1.2 %. This escalated cost is rounded to the nearest \$ 1,000 to determine the amount of required bond which must be posted with the Division by the Permittee. The Permittee submitted updated reclamation costs using the 2015 R.S. Means Heavy Construction Cost Data catalog.

Total Reclamation Cost in 2020 dollars .....	\$12,579,000
Total Bond Currently Posted .....	\$12,750,000