



GARY R. HERBERT  
Governor  
GREG BELL  
Lieutenant Governor

**State of Utah**  
DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

**Division of Oil, Gas and Mining**  
JOHN R. BAZA  
Division Director

**Technical Analysis and Findings**  
**Utah Coal Regulatory Program**

January 12, 2016

**PID:** C0250005  
**TaskID:** 4942  
**Mine Name:** COAL HOLLOW  
**Title:** NORTH PRIVATE LEASE

**General Contents**

**Identification of Interest**

*Analysis:*

The minimum requirements of R645-301-112 were met.

The Division performed a cross check with the Applicant/Violator System. No errors in the ownership and control information were identified.

Appendix 1-10, Ownership and Control, of the MRP is current. No updates are required at this time.

ssteab

**Violation Information**

*Analysis:*

The minimum requirements for R645-301-113 were met.

An AVS evaluation was generated on 6/3/15. No suspensions, revocations or unabated violations were reported. An AVS evaluation was also provided with the application listing no suspensions, revocations or unabated violations of SMCRA dated 7/7/15.

An AVS evaluation was generated on 10/26/15. No suspensions, revocations or unabated violations were reported.

An updated listing of violations within the last 3 years was also provided.

ssteab

**Filing Fee**

*Analysis:*

Not Applicable.

ssteab

## Public Notice and Comment

### Analysis:

The minimum requirements of R645-300-120 were met.

The application was determined administratively complete on July 15, 2015. A proposed public notice was provided with the application which contained all of the required information for publication.

The mine operator was notified to publicize for four consecutive weeks. A 30 day comment period will follow the last date of publication.

The mine operator submitted the affidavit of publication to the Division on September 9, 2015. The Operator publicized in the Southern Utah News on July 23, 30, August 6 and 13, 2015. The comment period ended on September 12, 2015. No comments were received by the Division.

ssteab

## Permit Application Format and Contents

### Analysis:

The minimum requirements of R645-301-120 were met.

The application to add the North Private Lease contained current information and was filed in a format required by the Division.

ssteab

## Completeness

### Analysis:

The minimum requirements of R645-301-150 were met.

The application for a permit to conduct coal mining and reclamation operations was determined administratively complete on July 15, 2015 and included the minimum information required under R645-301.

ssteab

## Permit Application Format and Contents

### Analysis:

#### AREA 1:

The amendment does not meet the State of Utah R645 requirements of Clear and Concise. The culverts referenced in Appendix 5-12 and Appendix 5-13 do not match up.

#### AREA 2, 3:

The amendment does not meet the State of Utah R645 requirements of Clear and Concise. The amendment has provided well logs for a number of wells, but they do not match the wells stated within the application, including: A-6, PDH-6, PDH-7.

The amendment includes poorly organized drill logs/data sheets and duplicate drill logs. The amendment must organize the drill logs and provide only one copy of each.

### Deficiencies Details:

#### AREA 1:

The amendment does not meet the State of Utah R645 requirements of Clear and Concise. R645-301-121.200: The culverts referenced in Appendix 5-12 and Appendix 5-13 do not match up. The culvert number must be consistent through each appendix.

#### AREA 2, 3:

The amendment does not meet the State of Utah R645 requirements of Clear and Concise. R645-301-121.200: The amendment has provided well logs for a number of wells, but they do not match the wells stated within the amendment, including: A-6, PDH-6, PDH-7.

R645-301-121.200: The amendment includes poorly organized drill logs/data sheets and duplicate drill logs. The amendment must organize the drill logs and provide only one copy of each.

kstorrar

## Right of Entry

### Analysis:

#### Analysis:

The information provided meets the requirements of Right of Entry, R645-301-114 for AREA 1.

Area 1 and the re-aligned County road is on land and minerals owned by Heaton Brothers LLC. The Kane County Road 136 Grant of Easement is in Appendix 1-11. Right of Entry, for Area 1, is provided as Exhibit 6 in Appendix 1-2 of Volume 9 (Confidential Incoming folder 10192015). Exhibit 6 is the March 15, 2007 Heaton Brothers LLC Lease. Exhibit 1 of Exhibit 6 provides a legal description of the leased parcel.

Surface ownership parcels are shown on Dwg 1-3. Coal Ownership is outlined on Dwg 1-4. The road re-alignment is shown in Appendix 1-11.

Finding: The information provided meets the requirements of Right of Entry, R645-301-114 for AREA 1.

### Deficiencies Details:

pburton

## Legal Description

### Analysis:

#### Analysis:

The application provides the legal description of Area 1, but does not provide the legal description of Pit 1 which is the first increment for bonding. Therefore, this application does not meet the requirements of R645-301-820.113.

Chapter 1, Section 110 provides the legal description for Area 1 of the North Lease (51.897 acres), which is also depicted on Drawing 1-1 Project Area. (And also shown on Drawing 5-46 Disturbance Sequence, and Dwg. 5-48 Facilities and Structures Construction Sequence- Area 1, and on Topsoil Handling Plan, Dwg 2-4.) A facilities and construction sequence for Area 1 is found in Chapter 5 (p. 5-48).

With this application, the Permittee has chosen to bond for surface disturbance in Area 1 and for overburden and coal removal in Pit 1 only (incremental bonding within Area 1). The Pit 1 bond polygon is shown on Drawing 5-77 North Area Bond Polygons. The extent of Pit 1 in relation to the rest of Area 1 can be seen by viewing Drawing 5-57 North Area Overburden Removal Sequence.

For the purpose of incremental bonding, Exhibit A must show Area 1 and Pit 1 and the legal description of Area 1 and Pit 1 must be provided.

### Deficiencies Details:

R645-301-820.113, R645-301-112.800 and R645-301-142, With this application, the Permittee has chosen to bond for surface disturbance in Area 1 and for overburden and coal removal in Pit 1 only (incremental bonding within Area 1). The Pit 1 bond polygon is shown on Drawing 5-77 North Area Bond Polygons. The extent of Pit 1 in relation to the rest of Area 1 can be seen by viewing Drawing 5-57 North Area Overburden Removal Sequence. For the purpose of incremental bonding, Bond Exhibit A must show both Area 1 and Pit 1 and the legal description of both Area 1 and Pit 1 must be provided.

pburton

## Public Notice and Comment

### Analysis:

#### Analysis:

The application meets the requirements of R645-300-120, Public Participation, because an affidavit of the public notice is included in Appendix 1-5.

The application meets the requirements of R645-300-121.150, mining within 100 feet of a public road, because the draft public notice mentions the temporary relocation of the public road.

*Deficiencies Details:*

pburton

## Maps and Plans

*Analysis:*

With regard to post mining topography maps: the application meets the requirements of R645-301-140, Maps and Plans, because the reclamation topography maps Dwg 5-74 A-C and cross sections Dwg 5-75 are on the scale of 1:100 feet for the post mining topography Dwg 5-74. In addition, cross section station locations are shown on Dwgs 5-74 and contours are shown in 2 ft intervals. These maps should be printed at 24" X 36" to reproduce the scale and be legible (ANSI D size).

pburton

## Reporting of Technical Data

*Analysis:*

The amendment does not meet the State of Utah R645 requirements for Reporting of Technical Data. The amendment must report all well completion information for all existing and future wells within and adjacent to the North Private Lease and the production well in the south lease. This information must include:

1. Location, date drilled, and aquifer represented.
2. Ground elevation and elevation of the measuring point.
3. Drill bit and casing diameter.
4. Packer base depth and elevation.
5. Casing depth and total depth.
6. Total hydraulic head elevation.
7. Method of measuring formation pressure.
8. Gravel pack - yes or no.
9. Casing material.
10. Well development techniques.

*Deficiencies Details:*

R645-301-130. The amendment does not meet the State of Utah R645 requirements for Reporting of Technical Data. The amendment must report all well completion information for all existing and future wells within and adjacent to the North Private Lease and the production well in the south lease. This information must include:

1. Location, date drilled, and aquifer represented.
2. Ground elevation and elevation of the measuring point.
3. Drill bit and casing diameter.
4. Packer base depth and elevation.
5. Casing depth and total depth.
6. Total hydraulic head elevation.
7. Method of measuring formation pressure.
8. Gravel pack - yes or no.
9. Casing material.
10. Well development techniques.

kstorrar

## Maps and Plans

*Analysis:*

Area 1:  
The application does not meet the minimum requirements of R645-301-121.200 as the table of Contents for Chapter 5 contains errors.

The Permittee included a note to Chapter 5 stating there are three sets of pending edits included within the Chapter 5 application. The Permittee needs to verify that all edits of the three approved sets of pending edits were properly incorporated within the application before clean copies can be sent. Proof of errors of this manner is Appendix 5-13 being

utilized twice. Appendix 5-13 is currently labeled as the "Pit 10 to Pond 3", which was completed in November 2015 and incorporated within the MRP under Task 5012. The current North Private Lease application renames Appendix 5-13 as "Culvert Design for C1 North Private Lease." The Permittee must correct the Table of Contents update all appropriate appendices.

*Deficiencies Details:*

Area 1:

R645-301-121.200: The Permittee did not correct the Table of Contents updating all appropriate appendices to include those created within incorporated amendments. Specifically, there are two Appendix 5-13 with different names. All references of said appendices throughout the MRP must also be updated, e.g. Chapter 5 Section 511.100-511.300 pg. 5-1.

cparker

## Permit Application Format and Contents

*Analysis:*

The information submitted in the latest response dated 12/18/2015 has not been presented in a format approved by the Division and does not correspond to the deficiencies noted in the R645 coal rules. The applicant needs to address the deficiencies as they are formatted and referenced in accordance with the R645 coal rules.

*Deficiencies Details:*

The information in the application is not adequate to meet this section of the regulations. Prior to approval the following information is required in accordance with R 645-301-121.300;  
The information submitted in the latest response dated 12/18/2015 has not been presented in a format approved by the Division and does not correspond to the deficiencies noted in the R645 coal rules. The applicant needs to address the deficiencies as they are formatted and referenced in accordance with the R645 coal rules.

jhelfric

## Maps and Plans

*Analysis:*

The application does not meet the State of Utah R645 Coal Mining Rule requirements for General Contents: Maps and Plans as it pertains to Historic and Archaeological Resource information.

1. Maps clearly showing areas inventoried to identify extent of cultural resources down-gradient from the ASCA and ponds in Area 1 must be included.
2. Maps clearly showing the proposed locations of the ASCA and ponds in Area 1 in relation to cultural resources must be included

*Deficiencies Details:*

R645-301-200-140 to 142: The Permittee must address the following items to comply with mapping requirements identified under paragraphs 200-140 to 200-142 as pertains to Historic and Archaeological Resource information:

1. Maps clearly showing areas inventoried to identify extent of cultural resources down-gradient from the ASCA and ponds in Area 1 must be included in the additional cultural resource inventory report. Maps must include all information as described under R645-301-200-140-142.
2. Maps clearly showing the proposed locations of the ASCA and ponds in Area 1 in relation to cultural resources must be included in the additional inventory report. Maps must include all information as described under R645-301-200-140-142.

jmontcalm

## Environmental Resource Information

### Geologic Resource Information

*Analysis:*

The application meets the minimum requirements for Geologic Resource information as required by the R645-301-620 regulations.

Chapter 6 has been updated to describe the Geology of the North Private Lease Area. Appendix 6-2 provides an overburden assessment on 8 drill holes located throughout the North Private lease. Information from a 2012 drilling program in the North Private Lease is found in Appendix 7-16. Cross-section showing stratigraphic relationships and overburden thicknesses are found in Appendix 7-16. A geologic map of the North Private lease area is found as Figure 6 in Appendix 7-16.

Chemical information on acid and toxic forming potential are presented in Appendix 6-2 and information on the Smirl Coal Zone is in Appendix 6-1. The overburden suitability was judged on levels of pH, Boron, Selenium, Organic Carbon and Acid Base potential. There are specific zones within the overburden (specifically in the Tropic Shale) where the material would be considered unsuitable for use as growth medium or placed within the upper 4 feet of the backfill. However, the backfill would be selectively placed to avoid having the unacceptable materials within this root zone. Overburden materials and coal from the 8 drill holes in the North Private Lease were analyzed and described in Appendix 6-2 and Appendix 6-1 respectively. The Stratum immediately below the coal seam was also analyzed. Appendix 6-1 is labeled as confidential. There are no oil or gas wells within the proposed permit boundary.

dhaddock

## Maps Archeological Site Maps

### Analysis:

The application does not meet the State of Utah R645 Coal Mining Rule requirements for Maps, Plans and Cross Sections of Resource Information requirements.

The maps provided that detail the cultural resources and their locations within the North Private Lease are not sufficient. While maps addressing the currently approved permit area are provided, a map showing the area inventoried for cultural resources in the North Private Lease area is not provided.

### Deficiencies Details:

R645-301-411.141.1: The Permittee must provide maps for the North Private Lease area that "clearly show" the "boundaries ... and locations of any cultural and historical resources listed or eligible for listing in the National Register of Historic Places and known archaeological sites within the permit and adjacent areas." These are confidential in nature, but should be included in the appropriate Appendix. This includes, but is not limited to, a map showing the area inventoried during efforts to identify cultural resources within the North Private Lease area, a map showing identified sites in relation to the proposed lease area boundaries, etc.

jmontcalm

## Maps Surface and Subsurface Ownershiip

### Analysis:

#### Area 1:

The application meets the minimum requirements of R645-301-521.130 through -521.132 which requires landowners, right of entry, and public interest maps as updated within the application for the North Lease in Drawing 1-3 for surface ownership and Drawing 1-4 for subsurface ownership drawings. Chapter 5 Section 521.130 details the above drawings as the surface and subsurface ownership maps with the permit boundaries of the mine and individual landowners.

cparker

## Vegetation Resource Information

### Analysis:

Vegetation information for the North Lease is included in Volume 12, supplemental report, Vegetation and Wildlife Habitat of the North Private Lease Area. This report focuses on the environmental resource requirements of the regulations. Supplemental Report, Volume 10 of the MRP includes wetland and ordinary high water mark identifications and alluvial valley floor field investigations of North Private Lease area.

The general plant community types within the study area are shown on Vegetation Map 1. The majority of the area was originally comprised of rangelands that have been since converted to pasture lands by the private landowners. According to the information in this volume, the pasture lands were most often dominated by grass species such as: intermediate wheatgrass (*Elymus hispidus*), western wheatgrass (*E.smithii*), thickspike wheatgrass (*E.lanceolatus*), smooth brome

(*Bromus inermis*) and crested wheatgrass (*Agropyron cristatum*). Additionally, there was one relatively small area that supported native, mostly undisturbed vegetation (undeveloped rangelands). This area consisted of pinyon-juniper, sagebrush with minor influence of a mountain brush community (including transitional zones between these types). These types comprised nearly 25 acres of the survey area. Examples of plant species common in these communities included: pinyon-pine (*Pinus edulis*), Utah juniper (*Juniperus osteosperma*), Gambel's oak (*Quercus gambelii*), Moki-apple (*Peraphyllum ramosissimum*), Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*), black sagebrush (*A. nova*), alder-leaf mountain-mahogany (*Cercocarpus montanus*), corymb buckwheat (*Eriogonum corymbosum*) and snowberry (*Symphoricarpos oreophilus*). There is one perennial and two ephemeral drainages that contained the following common plants: beaded sedge (*Carex utriculata*), bluegrass (*Poa pratensis*), woolly-sedge (*Carex pellita*), Douglas' sedge (*C. douglasii*), small-wing sedge (*C. microptera*), maritime arrowgrass (*Triglochin maritima*), common threesquare (*Scirpus pungens*), longstyle rush (*Juncus longistylis*), Missouri iris (*Iris missouriensis*), willows (*Salix boothii* and *S. exigua*), wiregrass (*Juncus arcticus*), Wood's rose (*Rosa woodsii*) and Russian olive (*Elaeagnus angustifolia*).

In addition, there are also upland plant communities within the referenced drainage channels. These communities were primarily dominated by Wyoming big sagebrush and black sagebrush.

Vegetation sampling includes total living cover, cover by species, and composition for all sample sites are shown Tables 1 through 42. Total annual biomass production estimates for all sample sites are shown on Table 43. Woody species density values for the pasture lands that have been proposed for disturbance by mining activities are shown on Table 44. All vegetation sample site locations are shown on Vegetation Map 2; color photographs of the sample sites are provided in Figures 1 through 21.

The application includes a list of Federally listed threatened, endangered and candidate plant species for Kane County, Utah (Table 45). Each species listed includes supportive documentation stating why there would be no impacts to these plants from the proposed mining operations.

Additional information may be required pending receipt of comments from DWR and FWS.

jhelfric

## Prime Farmland

### Analysis:

Volume 11 Section One describes the soil temperature as mesic and the precipitation pattern (soil moisture) as ustic. An ustic soil moisture regime indicates moisture is limited but is present at when conditions are suitable for plant growth. (Soil Survey Staff. 2010. Keys to Soil Taxonomy.) Table 4 outlines a requirement for a developed irrigation system on all prime farmlands, but this requirement only applies to xeric or ustic soil moisture regimes. Area 1 is not within the NRCS prime farmland designation shown on Map 8, Vol. 11. Area 1 soils are similar map units, but they are not irrigated.

The NRCS operational conservation planning maps show prime farmland soils in Area 2 and Area 3 (Map 8, Vol 11). The applicant has completed a soil survey of Area 2 and 3 in compliance with R645-302-314. Drawing 2.3 portrays the results of the soil survey provided in Vol 11. Drawing 2-3 distinguishes between Prime Farmland and Farmlands of Statewide importance. The chief distinction is that the latter is gullied land. During a site visit on November 23, 2015, the gullied land was noted to be within the area reached by irrigation wheel lines. Also during the Prime Farmland meeting on 11/23/2015, ACD personnel indicated that Farmlands of Statewide Importance would be handled as Prime Farmland. Therefore the reason for this distinction is unknown.

Productivity information for the North Lease is found in Chapter 4 Section 412.120 and in Appendix 4-8 and Table 43 in Vol. 12.

The Revised Prime Farmland Map 9 must be acceptable to the Natural Resource Conservation Service. The map is currently under review by the NRCS. Area 1 is not within the NRCS prime farmland designation.

In Section 232.600 of the MRP, Dwg 2-3 is compared with Dwg 10 in Vol 11 for information on soil salvage depth. The Permittee has clarified that these two maps are of the same scale (1 in = 500 ft) when Map 10 is printed as 11 x 17 inches and when Dwg 2-3 is printed as 24 X 36 inches. Dwg 2-3 shows the boundary of Area 1.

### Findings:

Area 1: There is no prime farmland in Area 1 as shown on Map 8 Volume 11.

Area 2 and Area 3 prime farmland is under joint review by the NRCS and the Division. No determination on Area 2 and

## Fish and Wildlife Resource Information

### Analysis:

According to the information in the application including high-value wildlife habitat data from the Division of Wildlife Resources geographic information system GIS database, habitat of four species have been mapped by DWR within and adjacent to the North Private Lease. These habitats include:

Black bear, *Ursus americanus*, habitat has been mapped in the general area, Wildlife Map 1. This habitat within and adjacent to the study area has been listed as year-long and classified as having substantial value by DWR. Additionally, year long and crucial ratings have been mapped about 2 miles to the east and northeast of the study area;

Mule deer, *Odocoileus hemionus*, habitat has also been mapped in the area by DWR. The habitat has been classified as crucial summer range and was located within and adjacent areas, Wildlife Map 2;

Rocky Mountain elk, *Cervus Canadensis*, habitat was located in the area. Summer habitat has been mapped throughout the entire area as well as assigned a value as substantial and important calving habitat (Wildlife Map 3) and;

Sage-grouse, *Centrocercus urophasianus*, habitat has been mapped in the study area. DWR has mapped much of the area to be occupied nesting and brood-rearing habitat, Wildlife Map 4. Additional data from DWR's Heritage Conservation database suggest there have been 15 occurrences of sage grouse in the proposed North lease area.

### Threatened, Endangered & Sensitive Species

Tables 45 and 3-35 of federally listed threatened, endangered and candidate species for Kane County, Utah are included in volume 12 and chapter three of the application. The tables also include the status of the species, along with site-specific notes about the areas proposed for disturbance and the probabilities of their occurrences in the study area. Additionally, GIS data and shape files from the state Utah Conservation Data Center database were accessed for potential habitats of sensitive species. At the time this report was written, the only sensitive species mapped on that database was the greater sage grouse.

The Threatened and Endangered plant and Animal species list found in Table 45, Volume 12, has been updated to include the Yellow billed cuckoo. This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System and other federally listed species likely occur in Utah Counties. This list includes both current and historic records. The list was accessed online June 15, 2015. Its last update was dated January 12, 2012. Commitments have been made for additional studies and field surveys, when applicable, on that table.

Species occurrences for the North lease area are also provided by DWR, they include:

Sage-grouse, 15 records, the information in table 45 suggests that impacts to this species should be addressed.

Meager Camissonia, *Camissonia exilis*, 1 record, the information in vegetation and wildlife report suggests that the gypsiferous strata in which the plant occurs is not found in the proposed areas to be surfaced mined.

Northern Leopard Frog, 2 records, the information in table suggests that Although impacts to the local populations may be possible due to mining activities relatively close to the habitat, they area thought to be relatively minor.

These two non-threatened and endangered species Meager Camissonia G1(critically imperiled and the Northern Leopard Frog G5(demonstrably secure) were also included in the list. Biologists from DOGM (Joe Helfrich), DWR (Bill James) and FWS (Lary Crist, Betsy Herrmann and Jay Martini) collaborated on December 2nd, 2015 and determined that no additional conservation measures or mitigation would be required for these species beyond what DOGM and or The Army Corps of Engineers may require for mitigation and reclamation. Additional information regarding the range and current status of the frog has been provided by DWR (Bill James DWR to Joe Helfrich DOGM Status of the Northern Leopard Frog). DOGM (Joe Helfrich) met with ACD (Pat Collins, Mt.Nebo Scientific) on December 7, 2015. Talking points included , updates to Wildlife map # 4 and discussions with DWR and FWS regarding the Northern Leopard Frog and Meager Camissonia. Based on the information presented at the local sage grouse working group meeting in Panguitch on December 8th, the occupied and brood rearing sage grouse habitat in the Panguitch SGMA will be revised to include year-round or general use. ACD will need to update Wildlife map # 4 and the text on page 33 of volume 12 in the North Lease application by February 1st, 2016 for areas 1, 2 and 3. ACD will need to provide a commitment to conduct a Northern Leopard Frog survey in areas 2 and 3 prior to conducting mining and or mine related activities in those areas. DWR, DOGM and FWS concur with ACD's findings that the Meager Camissonia would not be found in the soils identified in the North lease area.

Critical habitat maps for the Yellow billed cuckoo, Meager Camisonia and the Northern Leopard Frog have been included as attachments to Volume 12, Table 45. Chapter 3, Table 3-35 has been updated to reflect the text on pages 34 and 36.

*Deficiencies Details:*

The information in the North Lease application is not adequate to meet the requirements of this section of the regulations. Prior to approval the following information is required in accordance with R 645-301-322; ACD will need to provide a commitment to update Wildlife map # 4 and the text on page 33 of volume 12 as part of the North Lease application by February 1st, 2016 for areas 1, 2 and 3. ACD will need to provide a commitment to conduct a Northern Leopard Frog survey in areas 2 and 3 prior to conducting mining and or mine related activities in those areas.

jhefric

## Land Use Resource Information

*Analysis:*

The current land uses for the proposed North Lease area are grazing and wildlife. The native plant communities of the study area were most likely comprised of sagebrush/grass, pinyon-juniper and small mountain brush areas. They have been replaced by developed rangelands, mostly pasture lands. Consultations have been conducted with all surface landowners of the permit area to provide comments in the plan and attain their expectations for the desired postmining land use. According to the landowners, grazing and wildlife habitat would be the desired postmining land use, with emphasis on grazing by domestic livestock in most of the pasture land areas (these areas are shown on Vegetation Map, Drawing 3-1 of the MRP and on Vegetation Map 1 in Volume 12 (Supplemental Report: Vegetation & Wildlife Habitat of the North Private Lease Area). An exception to this plan is that one area in the current mine site that is currently now pasture land will be reseeded appropriately to provide additional habitat for sage sage-grouse, a sensitive species in the area.

A surface ownership map for the current Coal Hollow Mine area as well as the North Private Lease has been provided in the MRP (Drawing 1-3). Management plans for each property owner include the following information:

**Richard Dame Property:** The portion of land in the permit area owned by Mr. Richard Dame currently provides forage for domestic livestock and some wildlife species. This land is comprised mostly of unirrigated pasture land but also supports some native stands of pinyon- juniper and sagebrush communities (see Vegetation Map 3-1). Mr. Dame has expressed the desire to return his property to pasture land that focuses on domestic livestock, but also included wants some plant species for wildlife habitat to be seeded. In doing so, the revegetation seed mix is composed primarily of native and introduced grasses and forbs, with no woody species to be planted (for the seed mixture refer to Chapter 3, Table 3-38). The livestock currently sustained on Mr. Dames property are mostly cattle, with some horses. The animals are kept in the pastures from April through November of each year. A management plan to support this same postmining land use has been designed so that the property will adequately support the animals desired by the landowner and will not be over-grazed. The management plan suggests that 1.125 animalsmonthacre could reasonably be sustained on the property. This figure was derived from the Average Animal Weight Method (Pratt and Rasmussen) and is based on raising 1 cow weighing 1,000 lbs and her calf on pastures that have an annual biomass productivity of 1,800 lbs acre. It conservatively estimates that one-half of the production will be consumed (take half, leave half rational). Therefore, the total number of animals allowed on the property in the postmining land use management plan can be calculated by multiplying the estimated number of animals month acre by the number of pasture land acres available by the number of months the animals are maintained on a given pasture.

**Burton Pugh Property:** The land in the permit area owned by Mr. Pugh also provides forage for domestic livestock and wildlife habitat. This land is comprised of unirrigated pasture land, meadows, sagebrushgrass, pinyon juniper, and oak brush communities (see Vegetation Map 3-1). The livestock currently sustained on Mr. Pugs pasture land property are mostly cattle, but sometimes horses are also kept on the property. The animals are supported in the pastures from April through November of the year. A management plan to support a similar postmining land use has been designed so that the property will not be over-grazed, yet support the animals desired by the landowner. Following mining and reclamation activities, Mr. Pugh has expressed the desire for his land to be returned to its current or better condition for livestock and wildlife habitat. In accomplishing this, the pasture lands will be revegetated to focus on domestic livestock, but the seed mixtures will also include some plant species used by the resident wildlife species. Because it has been postulated that encroachment of juniper trees into the valley in recent years has had a negative effect on the local sage -grouse populations, the revegetation plan for these areas will also focus on other plant species, or species that could have a positive effect on the birds as well as

provide good forage for domestic livestock. The revegetation seed mixes for the Pugh property are shown in Chapter 3 and including: the sage brush grass (Table 3-137), meadows (Table 3-1840), pasture lands (Table 3-1938), oakbrush (Table 3-2141), and pinyonjuniper communities (Table 3-2339).

The management plan for Mr. Pugh suggests that 1.125 animals month acre could reasonably be sustained on the property. This figure was also derived from the Average Animal Weight Method (Pratt and Rasmussen 2001) and is based on raising 1 cow weighing 1,000 lbs and her calf on pastures that have an annual biomass productivity of 1,800 lbs acre.

There is, however, one area within Mr. Pugh's property that currently supports pasture land, but once it is reclaimed, it will be seeded to a mixture that would be conducive to sage grouse enhancement. This field can easily be located on Drawing 3-1 because it is the only pasture land located west of the county road. This land will be seeded with the sage brush grass mixture (Chapter 3, Table 3-37).

A copy of the grazing management plans signed by the landowners along with their comments are provided in Appendix 4-3 and 4-4 of chapter 4 of the MRP.

#### *Deficiencies Details:*

jhelfric

## **Soils Resource Information**

### *Analysis:*

#### **Analysis:**

The information provided meets the requirements of R645-301-220, Soil Environmental Description.

The soil survey of the North Lease is found in Volume 11. The survey was completed by Robert Long Associates in 2014. Soil data point locations are identified on Soil Map 1. Prime farmland correspondence with the NRCS is found in Appendix A. Soil profile descriptions are in Appendix B. Soil Laboratory Analysis are found in Appendix C and are summarized in Tables C-1a, b, & c. The list of parameters analyzed is shown in Table 3 and included density and total metals (SW 846 method) for some samples. Soil samples were analyzed by Intermountain Laboratory-Sheridan, WY. Soil profile photographs are in Appendix D. Piezometers were installed at several aquic soil profile locations (Table 2) and the seasonal groundwater fluctuation is described in the NPL geo-hydrology report.

Area 1 is in the SW quarter of the North Lease on hilly land with 0-18% slopes. Area 1 soils are mapped predominantly in the Sideshow family: map units A2 and A3 (silty clays and clay soils represented by soil data locations 12AS013, 12AS014, 12AS017, and 12AS032). The second largest map unit is Teromote soil map unit A1 (clay loam) represented by data location 12AS016. The third and smallest unit is Boxcanyon family soil, map unit F (clay loam represented by soil data location 13AS07). These clay soils have limiting characteristics that must be recognized in reclamation plans.

The plan for soil salvage is provided in Table 14 of Volume 11. In several locations the A horizon is less than six inches and the plan calls for salvaging the A & B horizon together. Clay concentrations in the surface soils is about 32 - 67%, with correspondingly high saturation percentages. These non-carbonate clay soils are overall not sodic, the main cation is calcium in the form of gypsum. The exception is at sample location 12AS032, where the Sideshow soil is a smectite clay soil with shrink-swell characteristics noted by the presence of slickensides. At this location the SAR values range between 7.56 - 10.3 from 25 inches to 56 inches. This is considered only fair quality on the Division's suitability table. (Sample location 12AS032 was evaluated for density and total metals, as well.)

The soil survey describes the vegetation in Area 1 map units as black sagebrush, wheatgrasses, and galleta grass, with Wyoming big sagebrush dominating on Teromote soil (10 - 35% of the area). Pinyon and juniper have recently been removed from Area 1 soils. Productivity information for the North Lease is found in Chapter 4 Section 412.120 and in Appendix 4-8 and Table 43 in Vol. 12. Productivity information in Table 43 is for sample locations shown on Vegetation Map 2 (vol 12). One sample location, V-19, falls within Area 1. At this site the productivity was estimated to fall between 500 lbs/acre - 1,100 lbs/acre. This measurement is in agreement with the data generated by the NRCS for the upland clay loam ecosite. (Vic Parslow. 2015. NRCS Provisional Data for the Kane County Survey. Richfield, Utah.)

The prime farmland status of these soils is presented in Table 11, Volume 11. Map units A1, A2, and A3 are farmlands of statewide importance. Map Unit F is a prime farmland soil when irrigated. Within Area 1, south of the County road, the land is not irrigated.

Drawing 2.3 portrays the results of the soil survey provided in Vol 11. Drawing 2-3 distinguishes between Prime Farmland and Farmlands of Statewide importance. The chief distinction is that the latter is gullied land. During a site visit on November 23, 2015, the gullied land was noted to be within the area reached by irrigation wheel lines. Also during the Prime Farmland meeting on 11/23/2015, ACD personnel indicated that Farmlands of Statewide Importance would be handled as Prime Farmland. This approach is restated in Chapter 2.

The Revised Prime Farmland Map 9 must be acceptable to the Natural Resource Conservation Service. The map is currently under review by the NRCS. Area 1 is not within the NRCS prime farmland designation.

In Section 232.600 of the MRP, Dwg 2-3 is compared with Dwg 10 in Vol 11 for information on soil salvage depth. The Permittee has clarified that these two maps are of the same scale (1 in = 500 ft) when Map 10 is printed as 11 x 17 inches and when Dwg 2-3 is printed as 24 X 36 inches.

See Environmental Resource Prime Farmland section for further review.

pburton

## Hydro Baseline Cumulative Impact Area

### Analysis:

The amendment does not meet the State of Utah R645 requirements for Baseline Information. The following deficiencies must be addressed prior to final approval.

The application does not meet the minimum hydrologic and geologic baseline cumulative impact area requirements for the alluvial aquifer within the permit area. Additional information is needed regarding the vertical and horizontal alluvial aquifer characteristics.

The methodology of determining the aquifers hydrogeologic characteristics and the supporting discussion has a number of short comings. The alluvial aquifer has only one study well, Y-103, and the results from this well are unreliable on a number of levels. 1) The study was conducted by a company (UII) in the 1980s. These out-dated results cannot be used to update the CHIA. 2) It is not possible to quantify the vertical and horizontal characteristics of an alluvial aquifer by performing a slug test at one well site. Slug test results only provide a rough estimate of an aquifer's hydraulic conductivity (K) within the immediate vicinity of the well. 3) Well Y-103 is screened from 17.9 bgl to 77.8 bgl (below ground level) across the water table resting around 30 bgl. This makes interpretation of slug testing results difficult to accurately interpret. 4) The application does not provide a discussion on the development of well Y-103 and a well completion report or if a well efficiency test was performed. In a paper by Butler and Healey (GROUNDWATER, 1998), well development can significantly influence slug-test K resulting in an artificially low value for the aquifer.

A robust study is needed to determine the aquifer's hydrogeologic regime. This study must include:

#### I. Aquifer Hydraulic Characteristics

Hydrogeologic characterization of the permit area requires a detailed narrative, maps, and supporting calculations of the mining method, extent of disturbance, depth of the pit, duration of the mining, and potential impacts to surrounding water resources and water rights. The amendment must: 1) determine the hydraulic characteristics of the alluvial aquifer that will be affected by mining; 2) estimate the areal extent of static water level declines in the affected aquifer; 3) evaluate potential impacts to water resources due to mining, and 4) estimate groundwater conditions and aquifer characteristics likely to exist after reclamation. The following deficiencies must be addressed prior to final approval:

##### a. Hydrogeologic Characteristics

The amendment must include a narrative summary of hydrogeologic characteristics including the following:

- (1) Number of aquifers and their intercommunication;
- (2) Aquifer characteristics and variability;
- (3) Direction of flow and significance of recharge and discharge areas to the sites;
- (4) Significance of hydrologic boundary conditions;
- (5) Potentiometric surface(s);
- (6) Water quality; and
- (8) Adjacent and regional potentiometric surface(s)

##### b. Aquifer Tests

Aquifer tests must be used to determine transmissivities, hydraulic conductivities, storage coefficients, hydrologic boundaries, leakage, aquifer homogeneity, and isotropy. For example, a multi-well pump test evaluation, as described by Theis (1935), Cooper and Jacob (1946), Boulton (1954), or a test as summarized by Lohman (1979). A data log for each aquifer test must be included in the application to identify both a chronological order of events and decisions that were made during testing. The location and number of aquifer tests should be sufficient to characterize the different hydrogeologic environments present within the potentially affected area. At a minimum, at least one aquifer test should be performed for

each potentially affected hydrogeologic environment identified during the preliminary geologic investigation. Within the data log mentioned in the above paragraph, the following information must be submitted for each aquifer or pumping test:

- (1) All data obtained from the aquifer tests and measurements necessary to evaluate the testing results; and
- (2) Methods of analyses:
  - (a) List the methods of analyses and equations used;
  - (b) List the assumptions upon which the equations are based;
  - (c) List how assumptions were met by the physical conditions; and
  - (d) Present sample calculation.
- (3) Graphs which show:
  - (a) All drawdown and/or recovery data;
  - (b) Curve or line fits;
  - (c) Match points,  $u$ ,  $W(u)$ ;
  - (d) Boundary and casing storage effects;
  - (e) Pump breakdown;
  - (f) Discharge adjustments; and
  - (g) to.
- (4) Correction factors and their associated supportive data and the method used for data adjustment
- (5) Results of analyses:
  - (a) Hydraulic conductivity;
  - (b) Transmissivity; and
  - (c) Storage coefficient or (apparent) specific yield.

## II. Potentiometric Surface

### a. Affected Alluvial Aquifer

Potentiometric surfaces should be extended into all units which are in good hydraulic communication with the aquifer. The potentiometric surface map must also show well locations, groundwater recharge and discharge areas, and other hydrogeologic features.

In order to better determine the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas a Gain/Loss study will need to be done on Kanab Creek as it passes through the permit area. This study must include a map identifying gaining and losing sections of Kanab Creek during base flow conditions. All wells and surface water monitoring points used to support conclusions must be shown on the map.

The total volume of surface and groundwater outflow from the permit area must be calculated at the location of the monitoring well matrix just south of the permit area (See Groundwater Monitoring Plan for a complete description on the well matrix). The surface flow will be combined with the volume of groundwater discharged through the monitoring well matrix (cross-sectional area of alluvial aquifer perpendicular to flow, hydraulic conductivity, hydraulic gradient, transmissivity, etc.) to determine the total volume water outflow from the permit area. The methodology, calculations, a geologic cross-section(s), and stream cross-section must be given to support how each parameter variable is determined and ultimately used to determine the final outflow variable.

The amendment has expanded upon the statement on p. 15, Appendix 7-16, It is common for Kanab Creek to have little or no discharge south of the tract during much of the year. The amendment now refers to the surface water monitoring site SW-2 to support this claim. However, since quarterly monitoring began in 2005, a no flow measurement has occurred only once of the 38 monitoring periods, or < 3% of the time. It is a false and misleading statement to say it is common for Kanab to experience no flow conditions. If the amendment cannot further justify this statement with a detailed statistical analysis it must be removed from the narrative.

### *Deficiencies Details:*

R645-301-725: The amendment does not meet the State of Utah R645 requirements for Baseline Information. The application does not meet the minimum hydrologic and geologic baseline cumulative impact area requirements for the alluvial aquifer within the permit area. Additional information is needed regarding the vertical and horizontal alluvial aquifer characteristics.

#### I. Aquifer Hydraulic Characteristics

Hydrogeologic characterization of the permit area requires a detailed narrative, maps, and supporting calculations of the mining method, extent of disturbance, depth of the pit, duration of the mining, and potential impacts to surrounding water resources and water rights. The amendment must: 1) determine the hydraulic characteristics of the alluvial aquifer that will be affected by mining; 2) estimate the areal extent of static water level declines in the affected aquifer; 3) evaluate potential

impacts to water resources due to mining, and 4) estimate groundwater conditions and aquifer characteristics likely to exist after reclamation.

#### a. Hydrogeologic Characteristics

The amendment must include a narrative summary of hydrogeologic characteristics including the following:

- (1) Number of aquifers and their intercommunication;
- (2) Aquifer characteristics and variability;
- (3) Direction of flow and significance of recharge and discharge areas to the sites;
- (4) Significance of hydrologic boundary conditions;
- (5) Potentiometric surface(s);
- (6) Water quality; and
- (8) Adjacent and regional potentiometric surface(s)

#### b. Aquifer Tests

Aquifer tests must be used to determine transmissivities, hydraulic conductivities, storage coefficients, hydrologic boundaries, leakage, aquifer homogeneity, and isotropy. For example, a multi-well pump test evaluation, as described by Theis (1935), Cooper and Jacob (1946), Boulton (1954), or a test as summarized by Lohman (1979). A data log for each aquifer test must be included in the application to identify both a chronological order of events and decisions that were made during testing. The location and number of aquifer tests should be sufficient to characterize the different hydrogeologic environments present within the potentially affected area. At a minimum, at least one aquifer test should be performed for each potentially affected hydrogeologic environment identified during the preliminary geologic investigation.

Within the data log mentioned in the above paragraph, the following information must be submitted for each aquifer or pumping test:

- (1) All data obtained from the aquifer tests and measurements necessary to evaluate the testing results; and
- (2) Methods of analyses:
  - (a) List the methods of analyses and equations used;
  - (b) List the assumptions upon which the equations are based;
  - (c) List how assumptions were met by the physical conditions; and
  - (d) Present sample calculation.
- (3) Graphs which show:
  - (a) All drawdown and/or recovery data;
  - (b) Curve or line fits;
  - (c) Match points,  $u$ ,  $W(u)$ ;
  - (d) Boundary and casing storage effects;
  - (e) Pump breakdown;
  - (f) Discharge adjustments; and
  - (g) to.
- (4) Correction factors and their associated supportive data and the method used for data adjustment
- (5) Results of analyses:
  - (a) Hydraulic conductivity;
  - (b) Transmissivity; and
  - (c) Storage coefficient or (apparent) specific yield.

#### II. Potentiometric Surface

##### a. Affected Alluvial Aquifer

Potentiometric surfaces should be extended into all units which are in good hydraulic communication with the aquifer. The potentiometric surface map must also show well locations, groundwater recharge and discharge areas, and other hydrogeologic features.

R645-301-725; R645-301-731.710; R645-301-728: In order to better determine the probable hydrologic consequences of the operation upon the quality and quantity of surface and ground water in the permit and adjacent areas a Gain/Loss study will need to be done on Kanab Creek as it passes through the permit area. This study must include a map identifying gaining and losing sections of Kanab Creek during base flow conditions. All wells and surface water monitoring points used to support conclusions must be shown on the map.

R645-301-725, R645-301-728: The total volume of surface and groundwater outflow from the permit area will be calculated at the location of the monitoring well matrix just south of the permit area (See Groundwater Monitoring Plan for a complete description on the well matrix). The surface flow will be combined with the volume of groundwater discharged through the monitoring well matrix (cross-sectional area of alluvial aquifer perpendicular to flow, hydraulic conductivity, hydraulic gradient, transmissivity, etc.) to determine the total volume water outflow from the permit area. The methodology, calculations, a geologic cross-section(s), and stream cross-section must be given to support how each parameter variable is determined and ultimately used to determine the final outflow variable.

R645-301-725: The amendment must provide a statistical analysis to support the conclusion that it is common for Kanab Creek to have, "no discharge south of the tract during much of the year". If no statistical analysis with supporting graphs are provided the statement must be removed.

kstorrar

## Hydro Modeling

### Analysis:

The application must provide a groundwater model of the unconfined alluvial aquifer within and adjacent to the permit area. The alluvial aquifer will be modeled in three phases: 1) Pre-mining, 2) Active mining, 3) Post-mining reclamation. Baseline data must be used to model the pre-mining groundwater conditions of recharge and discharge zones as well as no-flow boundaries. The pre-mining phase of the alluvial aquifer model will be calibrated to the pre-mining physical configuration of the aquifer. The active mining phase will model all associated active mining (pit advancement, highwall mining, etc.) within the alluvial aquifer. The model will predict groundwater drawdown in the surrounding undisturbed alluvial aquifer as pits advance below the water table. The model will show the lateral extent of the radius of influence associated with the maximum expected hydraulic gradient. The active mining model will also estimate the volume of water pumped from the alluvium during each six month interval. A post-reclamation groundwater model will be done on the backfilled pits and the surrounding undisturbed alluvial aquifer's response to these mined through areas as the third phase of modeling. The post-reclamation model will calculate the groundwater recharge rate of the backfilled sediments and the surrounding undisturbed alluvial aquifer. The model will provide an estimate of the time it will take the alluvial aquifer to reach a pre-mining recharge and discharge equilibrium rate and discuss any potential affect this may have on the flow in Kanab creek in the mean time.

For each of the three modeling phases, the application will provide professionally certified plan view maps and cross-sections, a supporting narrative with calculations, and any appropriate and relevant data that was used in order to fully convey the accuracy and precision of the model. Each phase and interval of the groundwater model must show a West-East A-A cross-section that includes but is not limited to the parameters: equipotential lines; flow lines; the water table; no-flow boundaries; the radius of influence/cone of depression associated with the maximum hydraulic gradient in the active mining areas; and the location and flow response of Kanab Creek to the groundwater radius of influence.

### I. Open-Pit Drawdown Modeling

- 1) The drawdown model must be used to predict mine related impacts to the hydrologic system. The modeling results must be used to assess probable hydrologic consequences and cumulative hydrologic impacts.
- 2) A detailed and complete description of the model must be submitted and include:
  - (a) The approach to the problem and the chosen model (ex. finite difference);
  - (b) A written description of all equations;
  - (c) A list of simplifying assumptions, sinks, sources and boundary conditions;
  - (d) The solution techniques for the equations (e.g., strongly implicit procedure (SIP), line successive over-relaxation (LSOR) and alternating direction implicit procedure (ADI));
  - (e) The grid nodes superimposed on a base map of the same scale as the premining potentiometric map;
  - (f) The selection of time steps;
  - (g) A table of the input data; and
  - (h) A sensitivity analysis.
- 3) The maps should be updated with new data every 2 years, at a minimum, unless water level response has changed significantly over the past year, in which case a new map should be submitted.

### Deficiencies Details:

R645-301-726; R645-301-731.800:

### I. Open-Pit Drawdown Modeling

- 1) The drawdown model must be used to predict mine related impacts to the hydrologic system. The modeling results must be used to assess probable hydrologic consequences and cumulative hydrologic impacts.
- 2) A detailed and complete description of the model must be submitted and include:
  - (a) The approach to the problem and the chosen model (ex. finite difference);
  - (b) A written description of all equations;
  - (c) A list of simplifying assumptions, sinks, sources and boundary conditions;
  - (d) The solution techniques for the equations (e.g., strongly implicit procedure (SIP), line successive over-relaxation (LSOR) and alternating direction implicit procedure (ADI));
  - (e) The grid nodes superimposed on a base map of the same scale as the premining potentiometric map;
  - (f) The selection of time steps;
  - (g) A table of the input data; and

(h) A sensitivity analysis.

3) The maps should be updated with new data every 2 years, at a minimum, unless water level response has changed significantly over the past year, in which case a new map should be submitted.

kstorrar

## Probable Hydrologic Consequences Determination

*Analysis:*

### AREA 1:

The amendment meets the State of Utah R645 requirements for Probable Hydrologic Consequences in Area 1.

The amendment provides a narrative of the surface and groundwater resources within Area 1 of the North Private Lease. It is determined active mining and reclamation operations within Area 1 have been designed to prevent material damage to the hydrologic balance outside the permitted Area 1.

### AREA 2, 3:

The amendment does not meet the State of Utah R645 requirements for Probable Hydrologic Consequences.

The application does not meet the minimum requirements of considering all the Probable Hydrologic Consequences associated with open-pit mining adjacent to Kanab Creek. Open-pit mining in the alluvial aquifer adjacent to irrigated fields and Kanab Creek will likely disrupt the hydrologic balance and cause material damage to these water resources.

Open-pit mining below an unconfined aquifer's water table and subsequent drawdown of the aquifer during mining operations will cause groundwater held in the surrounding undisturbed alluvium to flow towards and ultimately into the mine workings along a hydraulic gradient. In order for the mine to operate in the bottom of the open-pits, the mine water in-flow will be continually dewatered using pumps and other water conveyance systems. In the North Lease, the open-pits will dig deeper into the alluvium as the mining advances north which will increase the vertical hydraulic gradient and the lateral radius of influence on the surrounding alluvial aquifer. It is important to know how far this radius of influence or cone of depression will extend out from the open-pits. If the cone of depression extends to the edge or beyond Kanab Creek this will likely cause draw down in creek itself because the creek is in a gaining-losing equilibrium with the unconfined water table. The application does not provide a narrative and calculations associated with the cone of depression that will form in the alluvium around the open-pits.

The application must provide calculations and a supporting analysis of the cone of depression associated with each open-pit and highwall auger hole within the North Private lease. This analysis must be supported with cross-sectional and plan view maps, tables, and graphs. The analysis must provide a discussion on the response of flow in Kanab if the cone of depression is expected to extend to and/or beyond the creek. This analysis must also provide a discussion on any stratigraphic units encountered in drill holes that may have a stronger influence on the aquifer's response to drawdown. A discussion must be provided on any interruption of flow along the length of Kanab Creek that may result in material damage to the water resources within and adjacent to the permit area.

The areal extent, magnitude, and duration of static water level declines expected in the affected aquifer should be predicted. This should include a description of the drawdown model results, the extent of the five-foot drawdown contour and measures verification of the drawdown predictions.

The final predicted postmining groundwater flow should be compared to the premining groundwater flow and discussed with respect to the potential for impacts to the local and regional groundwater system. The comparison and discussion should include a description of the anticipated post-reclamation groundwater system. The discussions and maps used in this description should be supported by data and referenced material and should include:

- (1) Final aquifer hydraulic properties (e.g., hydraulic conductivity, storativity, saturated thickness, etc.) including those of backfilled overburden;
- (2) Anticipated post-reclamation potentiometric surface and estimated time to resaturate; and
- (3) Post-reclamation effects on adjacent aquifers, wells, springs, and surface waters.

*Deficiencies Details:*

### AREA 2, 3:

The amendment does not meet the State of Utah R645 Requirements on making a Probable Hydrologic Consequences Determination for mining in Area's 2 and 3 of the North Private Lease.

R645-301-728: The application must provide calculations and a supporting analysis of the cone of depression associated with each open-pit and highwall auger hole within the North Private lease. This analysis must be supported with cross-sectional and plan view maps, tables, and graphs. The analysis must provide a discussion on the response of flow in

Kanab if the cone of depression is expected to extend to and/or beyond the creek. This analysis must also provide a discussion on any stratigraphic units encountered in drill holes that may have a stronger influence on the aquifer's response to drawdown. A discussion must be provided on any interruption of flow along the length of Kanab Creek that may result in material damage to the water resources within and adjacent to the permit area.

R645-301-728: The areal extent, magnitude, and duration of static water level declines expected in the affected aquifer should be predicted. This should include a description of the drawdown model results, the extent of the five-foot drawdown contour and measures verification of the drawdown predictions.

The final predicted postmining groundwater flow should be compared to the premining groundwater flow and discussed with respect to the potential for impacts to the local and regional groundwater system. The comparison and discussion should include a description of the anticipated post-reclamation groundwater system. The discussions and maps used in this description should be supported by data and referenced material and should include:

- (1) Final aquifer hydraulic properties (e.g., hydraulic conductivity, storativity, saturated thickness, etc.) including those of backfilled overburden;
- (2) Anticipated post-reclamation potentiometric surface and estimated time to resaturate; and
- (3) Post-reclamation effects on adjacent aquifers, wells, springs, and surface waters.

kstorrar

## Hydro GroundWater Monitoring Plan

### Analysis:

The amendment does not meet the State of Utah R645 requirements for Ground-water Monitoring.

The current groundwater monitoring plan will not adequately monitor the alluvial aquifer within and adjacent to the permit area. The groundwater monitoring plan does not have enough wells to accurately characterize the aquifer to the north and south and within the permit area. The majority of wells in groundwater monitoring plan lack monitoring the aquifer at varying screened interval depths and a significant amount of monitoring wells will be destroyed during active mining. In order to provide long term monitoring data, the wells will need to be installed in locations that will be undisturbed by all mining activities. More wells are needed in order to be able to provide a clear picture of groundwater movement and how it may be affected by mining activities.

The permit area contains a valley-fill alluvial aquifer formed by quaternary erosional and depositional processes of Kanab Creek. In general, groundwater flows through this large alluvial aquifer that covers the majority of the permit area along a north to south hydraulic gradient. A large volume of flow enters the permit boundary on the north end through a wide and deep deposit of alluvial sediments resting on top of the Tropic Shale and the Smirl Coal seam. As groundwater migrates southward, the alluvial aquifer constricts in 1) width between Tropic shale outcrops to the east and west of the alluvial deposits and in 2) thickness as the updip of Dakota sandstone rises to the surface and eventually outcrops. Groundwater then exits the southern permit boundary primarily contained in a narrow and shallow gravel alluvial deposit resting on top of the Dakota sandstone.

Additional groundwater monitoring wells must be installed in the alluvial aquifer within and adjacent to the North Private lease and positioned so as not to be destroyed by mining activities. The intent of these wells is to monitor any impact that active mining may have on the quantity and quality of groundwater and surface water in Kanab Creek within and adjacent to the permit area. The alluvial aquifer groundwater must be monitored at multiple vertical depths and multiple areal locations in three zones: 1) just north of the permit area, 2) on both the east and west sides of Kanab Creek in-between the creek and the active mine workings, and 3) just south of the permit area. The methodology of selecting the specific well locations and identifying the screened interval lengths and depths based on relevant well log data must be outlined. The alluvial aquifer must be measured at multiple vertical depths and the wells must be tightly grouped, such as the C- and S-well groups found in the southern permit area. The monitoring wells must be screened across gravel lenses with the highest permeability.

The specific locations for these monitoring wells are:

- 1) Groundwater monitoring wells must be installed within the alluvial aquifer directly north of the permit area on the west bank of Kanab Creek. The well will be no more than 100 yards from Kanab Creek and no more than 100 yards north of the permit area.
- 2) Groundwater monitoring wells must be installed on the east and west banks of Kanab Creek. These wells will be installed between active mining and the creek. There will be at a minimum three groundwater monitoring locations that will be roughly equally spaced along the length of the creek through the permit area.
- 3) Groundwater monitoring wells must be installed downstream of the permit area no more than 140 yds downstream of the county road where it crosses Kanab Creek. The monitoring wells will be placed in the gravel alluvium (D50 > 1 cm) at point where the quantity of surface flow in Kanab Creek is readily and accurately measured. A minimum of four wells will be installed in the bottom of the Kanab Creek channel floodplain in a 2 x 2 gridded matrix. The matrix will be positioned to have both the two well arrays running along cross-sections that are perpendicular to flow in Kanab Creek. Both two well arrays

will be spaced no more than 15 yards apart. The wells will be fully screened from the water-table to the bottom of the alluvial sediments resting on the bedrock. The two wells along the perpendicular array will be equally spaced along the cross-section in the bottom of Kanab Creek's floodplain channel.

This third location of water monitoring just south of the permit area is a critical location to establish long-term monitoring of groundwater and surface flows in the incised channel of Kanab Creek. Groundwater passing southward through the alluvial aquifer can be the most accurately quantified at this location because it is forced into the narrow bedrock outcrop or bottleneck of the Dakota sandstone near the southern permit boundary. As groundwater enters this transition zone it up-wells and discharges into Kanab Creek leaving a relatively low volume of groundwater held within the shallow gravel alluvial deposits. At this location both the groundwater discharge and surface runoff from the permit area can be readily and accurately monitored to detect any changes in the hydraulic balance caused by mining.

The prevailing potentiometric gradient must be monitored between the open-pits and Kanab Creek from pre-mining through Final Bond Release. This can only be achieved by having a minimum of two wells that fall along a perpendicular cross-section between the open pits and Kanab Creek. The Division worked in consultation with the mine to develop the current plan, which is to install an additional water monitoring well between Y-103 and Kanab Creek.

The post-mining monitoring network must include the undisturbed monitoring wells and a minimum of one backfill monitoring well.

#### *Deficiencies Details:*

R645-301-724.310, R645-301-731: Additional groundwater monitoring wells must be installed in the alluvial aquifer within and adjacent to the North Private lease and positioned so as not to be destroyed by mining activities. The intent of these wells is to monitor any impact that active mining may have on the quantity and quality of groundwater and surface water in Kanab Creek within and adjacent to the permit area. The alluvial aquifer groundwater must be monitored at multiple vertical depths and multiple areal locations in three zones: 1) just north of the permit area, 2) on both the east and west sides of Kanab Creek in-between the creek and the active mine workings, and 3) just south of the permit area. The methodology of selecting the specific well locations and identifying the screened interval lengths and depths based on relevant well log data must be outlined. The alluvial aquifer must be measured at multiple vertical depths and the wells must be tightly grouped, such as the C- and S-well groups found in the southern permit area. The monitoring wells must be screened across gravel lenses with the highest permeability. The specific locations for these monitoring wells are:

- 1) A groundwater monitoring well must be installed within the alluvial aquifer directly north of the permit area on the west bank of Kanab Creek. The well will be no more than 100 yards from Kanab Creek and no more than 100 yards north of the permit area.
- 2) Groundwater monitoring wells must be installed on the east and west banks of Kanab Creek. These wells will be installed between active mining and the creek. There will be at a minimum three groundwater monitoring locations that will be roughly equally spaced along the length of the creek through the permit area.
- 3) Groundwater monitoring wells must be installed downstream of the permit area no more than 140 yds downstream of the county road where it crosses Kanab Creek. The monitoring wells will be placed in the gravel alluvium (D50 > 1 cm) at point where the quantity of surface flow in Kanab Creek is readily and accurately measured. A minimum of four wells will be installed in the bottom of the Kanab Creek channel floodplain in a 2 x 2 gridded matrix. The matrix will be positioned to have both the two well arrays running along cross-sections that are perpendicular to flow in Kanab Creek. Both two well arrays will be spaced no more than 15 yards apart. The wells will be fully screened from the water-table to the bottom of the alluvial sediments resting on the bedrock. The two wells along the perpendicular array will be equally spaced along the cross-section in the bottom of Kanab Creek's floodplain channel.

R645-301-725.100; R645-301-731.211: The prevailing potentiometric gradient must be monitored between the open-pits and Kanab Creek from pre-mining through Final Bond Release.

R645-301-731.210: The post-mining monitoring network must include the undisturbed monitoring wells and a minimum of one backfill monitoring well through Final Bond Release.

kstorar

## **Climatological Resource Information**

### *Analysis:*

The amendment meets the State of Utah R645 requirements for Climatological Information. Monthly wind direction and velocity data are provided in updated windrose plots. Temperature and daily and average precipitation data collected at the weather station are also provided.

kstorar

## Historic and Archeological Resource Information

### Analysis:

The application does not meet the State of Utah R645 Coal Mining Rule requirements for Historic and Archaeological Resource information.

1. Upon review of submitted plans for pond and drainage placement in Area One, it has been noted the proposed drainage channels pass through the site boundaries of 42KA3097 as identified in 1986 and potentially through site 42KA6080. Prior to approval of drainage outflow/permitting of ponds, further assessment of the adjacent areas through which drainage channels may pass must be conducted. This measure seeks to ensure no inadvertent adverse impacts occur to eligible cultural resource sites managed by and situated on lands under the jurisdiction of the BLM.

### Deficiencies Details:

R645-301-411.140: The Permittee must describe efforts undertaken to identify archaeological and cultural resources down-gradient from hydrological outflow points on adjacent areas outside the permit boundaries including:

1. An additional inventory must be conducted for the purposes of identifying and assessing cultural resources in areas adjacent to and down-gradient from the ASCA location associated with Area 1 and adjacent to and down-gradient from any pond facilities in Area 1, if previously conducted inventories indicate the presence of cultural resources in the area.
2. A supplemental report must be drafted addressing inventory and assessment measures taken to ascertain extent of cultural resources located down-gradient from the ASCA location associated with Area 1 and down-gradient from any pond facilities in Area 1, if previously conducted inventories indicate the presence of cultural resources in the area.

R645-301-411-141: The Permittee must address the following items to comply with mapping requirements identified under paragraphs 411.140 to 411-141.3:

1. Maps clearly showing areas inventoried to identify extent of cultural resources down-gradient from the ASCA and ponds in Area 1 must be included in the additional cultural resource inventory report. Maps must include all information as described under R645-301-200-140-142.
2. Maps clearly showing the proposed locations of the ASCA and ponds in Area 1 in relation to cultural resources must be included in the additional inventory report. Maps must include all information as described under R645-301-200-140-142.

jmontcalm

## General

### Analysis:

The application does not meet the State of Utah R645 Coal Mining Rule requirements for General Contents: Current Information as it pertains to Historic and Archaeological Resource information.

1. Contact information for Agency personnel discussed in the 2010 discovery plan for archaeological resources does not reflect the current staffing. This must be updated to include the DOGM contact.

The application does not meet the State of Utah R645 Coal Mining Rule requirements for General Contents: Maps and Plans as it pertains to Historic and Archaeological Resource information.

1. Maps clearly showing areas inventoried to identify extent of cultural resources down-gradient from the ASCA and ponds in Area 1 must be included.
2. Maps clearly showing the proposed locations of the ASCA and ponds in Area 1 in relation to cultural resources must be included.

### Deficiencies Details:

R645-301-121.100: Contact information for Agency personnel discussed in the 2010 discovery plan for archaeological resources does not reflect the current staffing. This must be updated to include the DOGM contact.

R645-301-200-140 to 142: The Permittee must address the following items to comply with mapping requirements identified

under paragraphs 200-140 to 200-142:

1. Maps clearly showing areas inventoried to identify extent of cultural resources down-gradient from the ASCA and ponds in Area 1 must be included in the additional cultural resource inventory report. Maps must include all information as described under R645-301-200-140-142.
2. Maps clearly showing the proposed locations of the ASCA and ponds in Area 1 in relation to cultural resources must be included in the additional inventory report. Maps must include all information as described under R645-301-200-140-142.

jmontcalm

## Maps Subsurface Water Resources

### Analysis:

The amendment does not meet the State of Utah R645 requirements for Cross Sections and Maps. The generalized cross-section in Appendix 16, Figure 7 does not adequately and clearly portray the geologic and hydrologic environment of the permit area. The cross-sections unnecessarily extend beyond the permit boundary and must be cropped to enlarge and more clearly show the area of interest. Cross-sections extending through the affected area must identify:

- (1) Potentiometric surface(s) and equipotential lines;
- (2) Lithologies;
- (3) The coal seam;
- (4) Geologic features such as faults, paleochannels, gravel deposits, etc.;
- (5) Extent of mining, open-pit and highwall;
- (6) Aquifers and aquitards;
- (7) Areas of aquifer communication;
- (8) Hydrologic boundaries;
- (9) Recharge and discharge areas; and
- (10) Wells used for hydrogeologic interpretations;
- (11) Crop and enlarge cross-sections to the width of permit boundary. It is difficult to view geologic and hydrologic attributes on the generalized cross-sections because they are too small.

### Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Cross Sections and Maps. The following deficiencies must be addressed prior to final approval. R645-301-512.110; R645-301-512.140; R645-301-724.300; R645-301-728.340; R645-301-121.200: Cross-sections extending through the affected area must identify:

- (1) Potentiometric surface(s) and equipotential lines;
- (2) Lithologies;
- (3) The coal seam;
- (4) Geologic features such as faults, paleochannels, gravel deposits, etc.;
- (5) Extent of mining, open-pit and highwall;
- (6) Aquifers and aquitards;
- (7) Areas of aquifer communication;
- (8) Hydrologic boundaries;
- (9) Recharge and discharge areas; and
- (10) Wells used for hydrogeologic interpretations;
- (11) Crop and enlarge cross-sections to be the width of permit boundary.

kstorrar

## General

### Analysis:

Area 1:  
The application meets the minimum requirements of R645-301-521 relevant to updating the permit footprints and information stated in Chapter 5, Section 521 and Section 523 to include the extent of the mining operations footprint within the existing Coal Hollow Permit area as well as the proposed North Private Lease Area 1. The pit crest of the North Private Lease pits is currently only shown on Drawing 5-77.

In general south lease drawing details are in Drawings 5-1 through 5-44 and appendices 5-1 through 5-10, and 5-13. The

North Private Lease Area 1 drawing details are in Drawings 5-45 through 5-78 and appendices 5-11, 5-12, and presumably 5-14. The maximum extent of surface disturbance should be shown on Drawing 5-57 for the proposed North Private Lease. See Mining Operations: Affected Area Boundary deficiency for more details. The Division is reviewing the application to only include mining operations within the extents of Area 1, as shown on Drawing 5-46. Assumptions are being made that all required associated Federal and State agencies permits have been acquired for North Private Lease Area 1 as the Permittee did not include copies of all the other applicable permits required within this application, e.g. Air quality permit, UPDES permits, USACE 404 NWP 14. In the event any of the necessary associated permits require any alterations to the current mining operation detailed within the application, the Permittee must resubmit an update mining and reclamation plan to the Division for approval.

cparker

## Permit Area

### Analysis:

#### Area 1:

The application meets the minimum requirements of R645-301-521.140 by detailing the permit area and sub areas as outlined within Chapter 5 Section 523 and Drawing 5-46. The Permit area being considered by the Division at this time is the boundary of Area 1.

Similar to the South Coal Hollow lease the North Private Lease will be bonded incrementally and is divided into three areas. The current application does not have all the other applicable and required Federal and State agency approvals for the Area 2 and Area 3. Mining operations and reclamation activities within Area 2 and Area 3 are liable to change to achieve all the other applicable State and Federal regulations and were not reviewed for approval by the Division at this time. The Division is reviewing the permit area within the extent of only Area 1, therefore, mining operations and reclamation activities are strictly prohibited outside Area 1 permit area.

cparker

## Maps Affected Area Boundary Maps

### Analysis:

#### Area 1:

The minimum requirements of R645-301-521 are met in regards to including relevant maps detailing the affected area in regards to environmental impacts in Area 1 extent in Drawing 5-77. Drawing 5-45 details the North Private Lease permit area with the premining topography at four foot contour intervals. Drawing 5-74 and 5-77 were updated in the December 18, 2015 resubmission to show enough detail of topography and hydrology for the Division to be able to identify what areas will be affected by mining operations. Drawings 5-74A through 5-74C were added to show the specific post mining topography for each sub areas.

Drawing 5-46 details the different sub areas where mining operations will take place, i.e. Area 1 through Area 3. In an effort to expedite the review of the North Private Lease, the Division at this time is only considering the review of the permit area being limited to the Area 1, as detailed on Drawing 5-46. All activates displayed on drawings and narratives throughout the current MRP application that are relevant to Area 2 and Area 3 were not reviewed by the Division at this time and are not approved for mining operations. The information was left within the MRP to allow for a complete demonstration of the intent to mine the North Private Lease area. Area 2 and Area 3 drawings and narrative are still pending approval by other applicable agencies determinations that will affect mining and reclamation operations.

To address the December 18, 2015 deficiency number 8 the Permittee will always address Alton Coal Mine road with both the name and county road number K3100. The original deficiency was written due to the confusion between the historic Alton Coal Mine, for which the county road K3100 leads to and is named after, with the current Coal Hollow Mine owed by Alton Coal Development. The Permittee has reaffirmed that indeed the legal name of the road is Alton Coal Mine Road, therefore, will keep the name on the drawings but will add the county road number to help clarify that it is the historic mine road.

cparker

## Maps Existing Structures and Facilities

### Analysis:

#### Area 1:

The application meets the minimum requirements of R645-301-521.120 by clearly showing that there are no buildings within a 1000 ft of the existing and proposed permit areas. Drawings 1-5 and 1-6 along with text within Chapter 5 Section 521.121 of the MRP were updated to include the proposed North Lease within the current application.

cparker

## Maps Existing Surface Configuration

### Analysis:

#### Area 1:

The application meets the minimum certification requirements of R645-301-512.150 by having a Professional Geologist, Eric Peterson, stamp the relevant geologic maps.

To address deficiency #21 of the December 18, 2015 submission and to meet R645-301-121.200 requirements the Chapter 6 drawings 6-12, 6-13, and 6-14 were added to the MRP to detail the geology drawings consistent with the current Coal Hollow MRP.

The original submission contained a deficiency as the application did not meet the minimum requirements of R645-301-121.200 by following the establish MRP outline of the current Coal Hollow lease geologic maps contained within Chapter 6, e.g drawing 6-1 through 6-5. The North Private Lease geologic drawings were contained within Chapter 7 Appendix 7-16 sub Figures 6 through 7 and simple referenced as Appendix 7-16 within Chapter 6. Appendix 7-16 remains a detailed PHC that contains extensive information beyond the geologic drawings. The appropriate information was moved to new Chapter 6 drawings discussed above.

Drawings 5-54 through 5-56 show incomplete information. The far western boundary of the area does not have information present on any of the said drawings. The drawings will be amended to show complete information within the Permit Area.

### Deficiencies Details:

R645-301-512.120, -528: Drawings 5-54 through 5-56 will be amended to show complete information within the Permit Area.

cparker

## Maps Mine Working

### Analysis:

#### Area 1:

The original application did not meet the minimum requirement of R645-301-512.110, -512.130, and R645-301-521.140 which require certified maps that clearly show all mine plans. Drawings 5-53, 5-55, and 5-77 all detailed the North Lease mining sequence operations footprints thought the proposed North Private Lease area for various sequences of mining and reclamation. The narrative was missing details describing the differences and there was no information presented on the drawings clarifying the difference in pit crests represented.

The updated drawings meet the minimum requirements of R645-301-512.110, -512.130, and R645-301-521.140 as the Permittee amended Drawing 5-53 and 5-77 to show the correctly calculated pit floors and pit crests that remain within the permit boundary. Notes have been added to Drawings 5-53, 5-57, and 5-77 describing the different footprints that are depicted on each of the specific drawings. Drawing 5-53 shows the coal removal sequence and the pit boundaries depicted represent the maximum extent of coal extracted within each pit. Drawing 5-57 shows the overburden removal sequence for each pit. The pit boundaries depicted on this drawing detail the pit crests or maximum surface disturbance associated with each pit. Drawing 5-77 shows the bond polygons and each pit polygons details the approximate crest of the backfill slope during reclamation to achieve the post-mining topography.

cparker

## Maps Permit Area Boundary

### Analysis:

#### Area 1:

The application does not meet the minimum requirements of R645-301-521.140 as Drawing 5-45 details the new permit boundary, lease boundary, and adjacent areas to the current mine plan in a clear and concise fashion. The permit boundary being considered by the Division at this time is limited to Area 1. Narrative in Chapter 5 Section 521.132 details that the

proposed permit areas are shown on all applicable drawings within the MRP.

The Permittee failed to address the previous deficiency (#25) within the December 18, 2015 resubmission. The Permittee added area Areas 1-3 shading on the majority of the Chapter 5 drawings along with a note stating that Area 1 is the only area currently under review. The note was added to every drawing in the North Private Lease application. The drawings still erroneously show the entire Permit Area, when only Area 1 is the current application of permit area. The area 1 boundary meets the legal definition for the Permit Area, where Areas 2 and 3 are only adjacent areas at the time of this review. The drawings and narrative need to show the difference.

The Permittee addressed the clarification on the drawing in two sentences added to the Chapter 5 narrative Section 521.140 and 521.150, but did not update relevant sections within the narrative describing the currently proposed scenario of bonding incrementally for Pit 1 alone and how the operations of the development of Pit are all the disturbances currently being acquired within Area. A narrative detailing how operations will continue and how operations will be limited to disturbances was never stated.

*Deficiencies Details:*

**Area 1:**

R645-301-521.140: The Permittee will amend the Permit area to match the Area 1 boundary and the rename the footprint of Area 2 and Area 3 as future application areas and be grayed out or some other call out that clearly details that the current application does not include said areas.

R645-301-521: The Permittee failed to update the narrative of 521 and 523 describing the mining operations to match the updated drawings pertinent to the single mining of Pit 1 and Area 1.

cparker

## Maps Surface and Subsurface Manmade Features

*Analysis:*

**Area 1:**

The application meets the minimum requirement of R645-301-521.122 as Chapter 5 Section 521.122 details existing surface and subsurface facilities within, passing through, or over the permit area limited to Area 1.

The application meets the minimum requirements of R645-301-521.123 by detailing the two public roads operated by Kane County roads (K3900 and K3100) that are within or in 100 feet of the permit areas as shown on Drawing 5-47 for the North Private Lease.

cparker

## Operation Plan

### Mining Operations and Facilities

*Analysis:*

**Area 1:**

The application meets the minimum requirements of R645-301-512.120 having certification of all surface facilities and operations as described in Section 521 and 523 of the MRP application.

To meet the minimum requirements of R645-301-140 and address deficiency #28 the Permittee added correct acreages to Areas 1, 2, and 3 instead of the yearly increments. The listed maximum disturbances now in the narrative of Section 521.140 detail a total of 224.8 acres over 6.5 years. Area 1 operations will disturb a total of 51.9 acres. This section of the MRP does include reference to the fact that only Area 1 is currently under review. The narrative needs to be explicit detailing the operations specific to Area 1, as they are the only approved MRP text. Text and drawings specific to Areas 2 and 3 need to be called out as not approved MRP text, e.g. grayed text. A note added to the footer of every page detailing that gray text is not approved by the Division at this time would allow for clear presentation of what information has been approved and what has not.

To meet the minimum requirements of R645-301-522 and address deficiency #28 narrative in Section 523 page 5-35 was updated to reference Chapter 2 section 231.100 and drawing 2-4 for topsoil handling methods, quantities, and plans.

The application meets the minimum requirements of R645-301-523 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. Equipment utilized at the North Private Lease will be similar to the equipment utilized at the current Coal Hollow Mine, including excavators, a highwall miner, and end-dumping mining haul trucks. Equipment specific to the North Private Lease is that addition of over-the-road coal trucks that will be utilized to haul the raw coal to the Coal Hollow crushing facility within the Coal Hollow mine. The North Private Lease is expected to produce 785 thousand tons of coal within the first year. Clarity is required due to the information presented on Drawing 5-57 that shows Year 1 coal removal outside the Area 1 being considered as the permit boundary. As detailed within Operations, Excess Spoil discussion, the extent of disturbance within Area outlined on Drawing 5-48 require all 51.9 acres of top and sub soil to be salvaged prior to any coal removal operations. See Operations, Excess Spoil, for more details. The pit development within the North Private Lease will follow in a manner similar to the Coal Hollow Mine southern property, as detailed on Drawings 5-11 and 5-12.

Narrative within Chapter 5 section 523 details the initial phase of mining to include pits 1 through 10. The Division is only reviewing coal recovery of Pits 1 through 5, Area 1 alone.

The original application did not meet the minimum R645-524 regulations. The Permittee added text stating that "The overburden of the North Private Lease is not expected to be blasted", but in the event the Permittee must follow the approved blasting plan according to R645-524 regulations. This text and all other references to blasting not being expected will be removed from the MRP as they are misleading, R645-301-121.200. According to R645-301-121.200 and -301-121.100 current information must be utilized and the Coal Hollow Mine blasted overburden on 3/14, 6/14, 10/14, 12/8/14, 2/2/15, 2/9/15, 3/5/15 and the last coal blasting happened on 3/20/15. The historical frequency of blasting at the current Coal Hollow Mine is enough current information to show that blasting will be implemented on the overburden and coal within the North Private Lease and the narrative in the MRP should be corrected to reflect as much.

The minimum requirement of R645-301-121.100, R645-301-121.200, R645-301-524 are met with the addition of text to address deficiency #28 by clearly stating that all blasting will be contracted out. The blasting consultant will be in charge of all explosive transportation and inventory.

To meet the minimum requirements of R645-301-528.100 and address deficiency #28 the Permittee added text to Section 521.16 stating that coal loading will occur within the pits on the North Private Lease area. The mine will not use any designated coal loading or stockpile area. The Permittee must clarify a specific expected timeframe of individual stockpiles within pits to demonstrate the temporary nature of the piles and remove the need for engineering certifications and map callouts.

#### *Deficiencies Details:*

##### **Area 1:**

R645-301-521.140: Text was added to the MRP Chapter 5 Section 521.140 detailing the total disturbance for the North Lease is expected to reach a 92.8 acres within the first year, this information must be updated to reflect mining operations within Area 1 as well as include a discussion of the area disturbed for mining of just North Private Lease Pit 1.

R645-301-521.140: MRP is missing discussion how Pit 1 with Area 1 will be bonded and how the bond will be increased incremental throughout Area 1.

cparker

## **Mining Operations and Facilities**

#### *Analysis:*

kstorrar

## **Existing Structures**

#### *Analysis:*

##### **Area 1:**

The application meets the minimum requirements of R645-301-526.110-.116 by providing updated information to include the discussion of the existing buildings associated with the Coal hollow permit. Drawing 5-45 details the public road location associated with the North Private Lease and Figure 12 within Appendix 7-16 details the existing agricultural ponds and pipelines that exist prior to mining operations. Narrative within Chapter 5 section 526 details mining operations taking place

within 100 feet of a public road and specific measure taken to protect the public by installing a boundary fence with appropriate signage. See more specifics on review of relocation in analysis of "Operations, Relocation or Use of Public Roads."

The application meets the minimum requirements of R645-301-526.200 by detailing no known existing utilities within the permit area.

The application does not meet the minimum requirements of R645-301-526.400 by not updating the reference appendices 4-2 and 4-5. The MRP text was edited to state that correlation with the Division of Air Quality found that due to the close proximity between permit areas the proposed activities of the North Private Lease will utilize the air pollution control facilities currently constituted at the Coal Hollow Mine. There is no discussion if more monitoring stations will be added and where. The listed reference appendices should include copies of the updated permit or signed agreement as to what was agreed upon for the North Private Lease.

To meet the minimum requirements of R645-301-526.400 and deficiency #30 the permittee amended the narrative within Chapter 5 section 526 to reference the updated air approval order, AN14047005-15, with a link to the permit.

cparker

## Protection Public Places

### Analysis:

The application does not meet the State of Utah R645 Coal Mining Rule requirements for Protection of Public Parks and Historic Places.

Presented in Appendix 4-7 is the draft Archaeological Monitoring & Historical Properties Treatment Plan for the Alton Coal Northern Project Lease Area, Kane County, Utah. As proposed mining activities in the North Lease area have been determined to adversely affect cultural resource sites Eligible for the National Register of Historic Places, appropriate treatment and mitigation measures will be required for sites 42KA3077, 42KA3097, and 42KA6088 (R645-301-411.144). This step is usually taken after a determination of Eligibility and Effect has been made by the Division, and concurrence with said determination is received from SHPO.

In this case, the proposed treatment and mitigation plan was drafted prior to Division coordination with SHPO regarding Eligibility and Effects to cultural resource sites. It does not represent a plan approved by the Division (through consultation with SHPO) to protect historic resources within the North Lease Expansion area. Appropriate treatment and mitigation measures will be decided by the Division in consultation with SHPO. Additional information will be required by the Division (as discussed in R645-301-411.143). The requirements for this additional work must be developed through Division/SHPO consultation and review of the draft Archaeological Monitoring & Historical Properties Treatment Plan for the Alton Coal Northern Project Lease Area, Kane County, Utah presented in Appendix 4-7.

The draft Archaeological Monitoring & Historical Properties Treatment Plan for the Alton Coal Northern Project Lease Area, Kane County, Utah presented in Appendix 4-7 will be utilized by the Division for this purpose. Division comments and edits to said treatment plan will be provided to the archaeological contractor and must be addressed. Once the draft treatment plan meets the Division's standards and expectations, it will be submitted to SHPO for review.

The draft Archaeological Monitoring & Historical Properties Treatment Plan for the Alton Coal Northern Project Lease Area, Kane County, Utah, will be reviewed by the Division and will serve as the basis for developing a treatment and mitigation plan to address Adverse Effects to sites 42KA3067 and 42KA3097. Efforts described in the draft plan to avoid 42KA6088 seek to ensure no project related impacts occur to the site. The Division will review the draft, provide comments/edits, and consult with SHPO regarding said plan. The final treatment and mitigation plan will be developed through that consultation.

### Deficiencies Details:

R645-301-411.144: The Permittee must follow the process for the development, approval, and implementation of an appropriate treatment and mitigation plan to address Adverse Effects to sites 42KA3077 and 42AK3097, and to ensure No Adverse Effects to site 42KA6088.

jmontcalm

## Relocation or Use of Public Roads

### Analysis:

Area 1:

The application does not meet the minimum requirements of R645-301-521.133 due to information detailing measure to be used such as a general mining method that will be employed under or within 100 ft of public roads to protect interest of the public. Chapter 5 section 521.133.2 details how County Road 136 (k3900) and Alton Coal mine road (K3100) will be temporarily relocated outside the North Private Lease permit area. Temporary bypass roads will be constructed by Alton Coal as detailed in Drawings 5-61 through 5-63. Appendix 1-11 contains the Grant of Easement, Permit and Design by Kane County DOT. The appendix details how the County will hold the required bond amount for the reconstruction of the roads which are expected to be diverted around the mine for approximately 5 years. Chapter 5 Section 521.133.2 details how the public will be protect by each bypass road will constructed, inspected, and certified for public prior to closure of the exiting public road. The Permittee provides no information for the Division to be able to determine that Kane County road K3100 bypass is not a significant bypass or relocation that does not require the same level of grant easement, Permit and Design by Kane County DOT. The relocation of K3100 includes moving approximately 500 feet of roadway and moving the intersection of K3100/K3600 approximately 500 feet south of the current intersection. K3100 is missing from all legal descriptions of the lease signed with Kane County.

The application does not meet the minimum requirements of R645-103.224.422 as the North Private Lease area requires rerouting public road K3900 and K3100 as shown in Drawing 5-45. In accordance with R645-103.224.420 through -103.224.422 the Permittee provided proof of a weekly public notice from 7/30/2015 until 8/13/2015 in the Southern Utah New. An affidavit was submitted to the Division on 9/9/2015 detailing the above. Appendix 1-11 details the finding in writing that the interests of the affected public and landowners will be protected.

The Permittee incorrectly submitted a request for finding to the Division on December 15, 2015. The Division makes their findings in the official Findings Database, sent to the Permittee in response to any amendment. The Division's findings are based off information presented in the application. The findings determine if all the R645 required information is present and the application meets the minimum requirements of the R645 regulations. All the information submitted in the "Request for Finding-Relocation of Public Roads..." matches the information presented within Appendix 1-11 and is missing all reference to the 500 feet relocation of K3100 and intersection of K3100/K3600 in the legal description, Grant easement, Permit and Design approved by Kane County DOT. The cover letter incorrectly states that K3100 is included in the information. No such information could be found.

In addition, the letter from Louis Pratt dated December 15, 2015 from Kane County GIS/Transportation Department states, "Kane County Commission and myself have discussed this issue thoroughly and have concluded due to additional wide of this roadway, 32 plus feet and the fact that it is only approximately 1.6 miles of gravel road that Alton Coal will be able to operate up to the agreed 12 foot width construction type trucks with typical left side operation in order to relocate this coal ore to the existing processing facilities." The narrative in Chapter 5 Section 526.100 is missing this information that left hand traffic will be utilized for 1.6 miles of a public road. The narrative is missing extensive details required to describe how the public will be informed of the change in traffic pattern and protected.

Narrative is added to Chapter 5 Section 526.116.1 detailing how K3100 and K3900 will be relocated due to North Private Lease Mining operations. Text details that a fence will be installed between the public road the mining operations to protect the public interests.

#### *Deficiencies Details:*

Area 1:  
R645-301-521.133 & R645-103-.224.422, R645-301-526, R645-301-542.600: The Permittee failed to provide written proof of measures to be used to ensure that the interest of the public and landowners affected are protected with the realignment of K3100. (e.g. A letter communicating the ownership of the road, maintenance, bonding, and use of K3900 and K3100 by the public needs to be provided to the Division.) There is no written finding in regards to K3100 within not requiring the same level of proof Grant of Easement, Permit and Design by Kane County DOT, no proof of public notice, and no written statement from Kane County waving the requirement of such measures. The Permittee must also provide extensive information of how the public will be informed and protected with the utilization of left hand traffic, as detailed in the Kane County Letter, for 1.6 miles on a public road. The Findings are located within the Technical Analysis.

cparker

## **Air Pollution Control Plan**

### *Analysis:*

Analysis:  
Section 420 states that production rates at the North Lease are expected to exceed 1,000,000 tons of coal per year. However, Chapter 5, page 5-35 provides a more realistic North Lease production schedule of approximately 530,600 tons/year for all of the North Lease (3.4 million tons over 7 years). Production in Year 1 is projected at 485,714 tons from Pit

1 and half of Pit 2 in Area 1.

The application meets the requirements of R645-301-424, Surface Mining Operations, because a fugitive dust control plan is provided in Appendix 4-6 and because Section 244 describes soil stabilizing practices for disturbed and reclaimed areas. The application meets the requirements of R645-301-425, Surface Mining operations with production rates less than 1,000,000 tons per year, because Area 1 is included in the November 10, 2015 Air Quality Approval Order DAQE-AN140470005-15 issued for the North Private Lease area. This document defines the ambient air monitoring requirements in Section II.B.5.

In accordance with the requirements of R645-301-521.168, the air monitoring stations specified in the recently issued Air Quality Approval Order Section II.B.5 were reportedly shown on Dwg 5-47, but could not be found.

*Deficiencies Details:*

R645-301-521.168 AREA 1, In accordance with the requirements of R645-301-521.168, the air monitoring stations specified in the recently issued Air Quality Approval Order Section II.B.5 were reportedly shown on Dwg 5-47, but could not be found on this map.

pburton

## Coal Recovery

*Analysis:*

**Area 1:**

The application meets the minimum requirements of R645-301-522 due to a discussion of the measures to be used to maximize the use and conservation of the coal resources. The coal seam varies from 11 to 18.5 feet thick throughout the permit areas. Drawing 5-52 meets the minimum requirements of R645-301-522 by detailing the how the coal seam will be mined throughout the North Private Lease permit area by tonnage of surface and highwall mining. Drawing 5-53 details the tonnage of coal to be mined by the various mining methods annually. Drawing 5-54, 5-55 and 5-56 detail the strip isopach, coal thickness isopach, and the overburden thickness isopach at meet the minimum requirements as required by R645-301-522. Drawing 5-57 detail that Area 1 pit mining includes only to Pit 5. Chapter 5 Section 522 was updated to detail the operations of the North Private lease to include over the road trucks loaded by the backhole or font end loader and hauled via inpit roads and the primary haul road to the crusher facility.

cparker

## Subsidence Control Plan Renewable Resource

*Analysis:*

**Area 1:**

The minimum requirements of R645-301-525.130 are met in the application Section 525 details the proposed mining is first mining and conducted a geotechnical report, Appendix 59, to ensure mining methods will not create any subsidence.

cparker

## Subsidence Control Plan Subsidence

*Analysis:*

**Area 1:**

The minimum requirements of R645-301-525.400 are met in the application Section 525 details the proposed mining is first mining and conducted a geotechnical report, Appendix 59, to ensure mining methods will not create any subsidence.

cparker

## Subsidence Control Plan Performance STD

*Analysis:*

The Applicant has met the minimum regulatory requirements for this section of the regulations. Mining in the North Private Lease area will only be conducted by surface methods (Open pit and Highwall mining). No underground mining is planned.

As such, no subsidence is projected to occur and no subsidence monitoring plan is required.

dhaddock

## Subsidence Control Plan Performance STD

*Analysis:*

Area 1:

The minimum requirements of R645-301-525.400 are met in the application Section 525 detao;s the proposed mining is first mining and conducted a geotechnical report, Appendix 59, to ensure mining methods will not create any subsidence.

cparker

## Subsidence Control Plan Notification

*Analysis:*

THE MINIMUM REQUIREMENTS OF R645-301-525.700 are met in the application Section 525 detao;s the proposed mining is first mining and conducted a geotechnical report, Appendix 59, to ensure mining methods will not create any subsidence.

cparker

## Subsidence Control Plan Slides and Other Damage

*Analysis:*

Area 1:

The application meets the minimum requirements of R645-301-515.100 with procedures already described within the existing MRP detailing the emergency contact procedures in the event of a slide.

The application meets the minimum requirements of R645-301-516 by detailing that a natural barrier will be left undisturbed except as necessary for road, sedimentation control, temporary topsoil storage and similar features, beginning at the elevation of the coal seam and extending from the out slope for a distance of 50 ft.

cparker

## Fish and Wildlife Protection and Enhancement Plan

*Analysis:*

After several recent meetings with Alton Coal Development LLC the Division decided to permit surface mining activities in only 51.9 acres of the North Lease area (area 1) located in the SW corner of the proposed permit area if ACD adequately addresses the deficiencies noted in this document. The Division completed the reviews of Area1(51.9 acres) and the remaining areas 2 and 3 (173.1 acres) on December 7th and December 31. The information presented in the 12/18/2015 submittal is not sufficient (third time) to approve the proposed North Lease application.

Appendix 3-8 (The Greater Sage Grouse Management Plan North Private Lease) is referenced in the second submittal of the North Lease application. The monitoring section of the plan was deficient as determined by the Division's review of the plan on September 3rd, 2015. One of the deficiencies noted in the first round of review of the North lease application requested the permittee to meet with the Division to determine the specific criterion for implementing the monitoring components of the 2014 sage grouse management plan for the North lease area. After three rounds of review (9/3, 12/7 and 12/31/2015) the permittee has neither responded to this deficiency nor consulted with the Division and agencies responsible for fish and wildlife. The plan remains deficient in terms of including an adequate sage grouse monitoring plan using the best technology currently available to monitor impacts to the greater sage grouse from surface and underground mining activities (R645-301-333).

In order to meet the requirements for the scope and level of information required for the protection and enhancement plan required under this section of the regulations (R645-301-322.100) the Division has been in consultation with the Division of Wildlife Resources (DWR), Fish and Wildlife Srevice (USFWS), Dr. Nicki Frey (DWR Sage Grouse research professor Panguitch SGMA). The Kanab BLM field office (Harry Barber & Lisa Church) although not involved directly with the review of the North Lease application Harry and Lisa have been kept informed on the progress of consultation with the affiliated agencies. Comments from DWR and FWS have been scanned in and filed at the Division's Salt Lake City office.

## REQUIRED MITIGATION for the NORTH LEASE

The man caused disturbances from mining and mining related activities within the nesting and brood rearing and wintering (basically year-round) buffer will impact the entire north lease area. The total acreage of the proposed permit area is approximately 250 acres which translates into 1000 acres of compensatory mitigation given a ratio of 4 acres of mitigation for each acre of disturbance. It is appropriate to scale the requested habitat mitigation and population monitoring activities to the type and extent of foreseeable impacts associated with the mine application. This ensures fairness and increases the likelihood of attaining desired plan outcomes. The Utah Division of Wildlife Resources have indicated a willingness to cooperate with mine plan implementation, by such measures as carrying out habitat restoration funded by Alton Coal Development (ACD) and vetted through the Watershed Restoration Initiative. And, similarly, Southern Utah University personnel have indicated willingness to conduct appropriate population monitoring to help assess the sage-grouse responses to mine development, mitigation, and restoration activities, in a manner supported by ACD. Although this permit is not driven by the costs of restoration, it is only sensible to recognize that doing work of a certain scale and type will have certain costs. Constructive partnerships leverage available resources, and ACD will receive cost reductions and program efficiencies through these partnerships.

ACD will need to provide documentation of completion of 200 acres of mitigation of accessible brood rearing sage grouse habitat prior to approval of the portion of the North lease (SW Corner 51.9 acre parcel) referred to as area one currently under review. Documentation for the completion of mitigation for the remaining 700 acres of accessible sage grouse brood rearing habitat and 100 acres of riparian mitigation (subject to Army Corps requirements) for the proposed North Lease area will need to be completed prior to obtaining a permit to commence surface mining activities in that area. This collaborative determination is the result of review and comment and a series of meetings (10/22, 11/23, 12/2 and 12/3/2015) with DWR (Bill James, Ben Nadaloski, Avery Cook, Josh Pollock and Rhett Boswell), The Panguitch Local Sage Grouse Working Group (Dr. Nicki Frey), FWS (Lary Crist, Jay Martini and Betsy Herrmann).

## REQUIRED MITIGATION for CURRENT MINING OPERATIONS:

DOGMA in consultation with DWR, FWS and The Panguitch Local Sage Grouse Working Group (Dr. Nicki Frey) had suggested that:

Required mitigation for the Dames lease area should not be used for areas 1, 2 and 3 of the north lease. The area could have been used for alternative mitigation if it had been located outside of the Lekking, nesting and brood rearing buffer, not disturbed, impacted or highwall mined. This area was previously impacted by man caused disturbances when mining and mine related activities eliminated the lek and continued in the areas contiguous to and including the highwall area. The Division was provided with documentation from ACD verifying highwall mining in the 88.5 acre parcel during the partial inspection conducted by Priscilla Burton in November of 2015. However additional information provided by ACD indicated that mining did not occur in the Dames lease (revised MSHA map). The Division has determined that although the area is permitted it has not been mined and that ACD can apply the Dames lease mitigation acreage of 344 acres to .....ACD will not be allowed to conduct mining or mining related activities in the Dames lease. The following commitment is suggested; ACD will provide for 344 acres of wet meadow brood rearing habitat prior to conducting mining or mining related activities in the Dames lease.

There is a potential loss of sub-irrigation to the Dames lease. The current ground water monitoring data for that area indicates that the water level has dropped 7.5' to 12' (which will eliminate the sub-irrigation by the Spring of 2016 according to the Division's staff) that supported the wet meadow habitat and a critical food source for sage grouse chicks. That being the case the Division will address mitigation under the material damage section of the coal regulations. ACD is currently required to maintain the wet meadow habitat.

ACD has also received non-compliance violations for not completing mitigation within allotted time frames including the 355 acre BLM parcel. The DOGMA/BLM specifications for the 355 acre parcel have not been completed for the fourth time as verified by DOGMA and BLM personnel(12/01/2015). ACD will need to pursue other alternatives for the 355 acres of mitigation treatment and provide documentation that it has been completed as provided for in the abatement options for NOV21161. Written verification of completion of the 443 acre WRI project 3419 will also need to be provided prior to conducting mining or mining related activities in the North Lease.

## Monitoring

ACD will need to monitor impacts to wildlife and natural resources throughout the life of the mine and the 10 year reclamation liability period. The enhancement phase of the required protection and enhancement plan is implemented during the reclamation phase of mining operations.

Representative statistical sampling using GPS collars for the Alton sage grouse population is estimated at a minimum of 5 and a maximum of 10 collars. Hens should be collared as an essential component of recruitment monitoring. Although 5 collars are not statistically adequate to publish the data collected; that is the number (Using a simple estimation (12 attending males = ~ 15-24 hens or 25% of the hen population) preferred in light of variables associated with impacts to the sage grouse, (personal communication with DWR (Bill James, Avery Cook, Rhett Boswell), The Panguitch Local Sage

Grouse Working Group (Dr. Nicki Frey) and BLM (Lisa Church).

Alton Coal will need to include in Appendix 3-8 a long term 5 year sage grouse monitoring plan. The plan shall include a written contract that includes the following:

Funding and associated costs for the purchase of 3 global positioning system (GPS) tracking collars and the monitoring of 5; Associated costs will be defined in the terms of the contract that include at a minimum: supplying necessary operational funding to permit monthly data download from satellites, basic operational expenditures by qualified individuals involved in accessing, parsing, and ensuring minimal ground truthing and cleaning of locational data for the first 5 years of this mining permit operation.

A commitment to (1) analyze the data, (2) meet with Dr. Frey, DWR, DOGM, FWS quarterly and other members of the Panguitch Local Sage Grouse Working Group if needed and (3) provide a summary, analysis, findings and recommendations of the data from the 5 GPS collars.

With the habitat mitigation offered in the mine application, these population monitoring steps will take the mine through the first five years of operation in the North Private Lease area. Prior to the initiation of the second 5 year period, a new monitoring and assessment plan will be needed. ACD will need to provide a commitment to that effect. Although additional habitat restoration is not expected, continued monitoring of sage-grouse populations and habitat use will be required throughout the life of the mine and the 10 year reclamation liability period. Appendix 3-8 needs to include a monitoring plan for the 10 year reclamation liability period as well.

The application refers to the current (2015) sage grouse monitoring plan (Data collected in 2014 that was due in October of 2014, received by DOGM on January 23, 2015 that has not been approved. ACD will need to consult with the Division to determine the specific criterion for implementing the following components of the sage grouse management plan for the North lease area:

Employee Observations;  
Monthly Bird Surveys;  
GPS Collaring and Monitoring;  
Noise Detection and Sound Assessment;  
Habitat Mitigation;  
Vegetation Improvements and Monitoring and;  
Predator Control Activities.

*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 is required in accordance with R645-301-330;

**REQUIRED MITIGATION for the NORTH LEASE**

This deficiency applies to areas 1, 2, and 3

The man caused disturbances from mining and mining related activities within the nesting and brood rearing and wintering (basically year-round) buffer will impact the entire north lease area. The total acreage of the proposed permit area is approximately 250 acres which translates into 1000 acres of compensatory mitigation given a ratio of 4 acres of mitigation for each acre of disturbance. It is appropriate to scale the requested habitat mitigation and population monitoring activities to the type and extent of foreseeable impacts associated with the mine application. This ensures fairness and increases the likelihood of attaining desired plan outcomes. The Utah Division of Wildlife Resources have indicated a willingness to cooperate with mine plan implementation, by such measures as carrying out habitat restoration funded by Alton Coal Development (ACD) and vetted through the Watershed Restoration Initiative. And, similarly, Southern Utah University personnel have indicated willingness to conduct appropriate population monitoring to help assess the sage-grouse responses to mine development, mitigation, and restoration activities, in a manner supported by ACD. Although this permit is not driven by the costs of restoration, it is only sensible to recognize that doing work of a certain scale and type will have certain costs. Constructive partnerships leverage available resources, and ACD will receive cost reductions and program efficiencies through these partnerships.

ACD will need to provide documentation of completion of 200 acres of mitigation of accessible brood rearing sage grouse habitat prior to approval of the portion of the North lease (SW Corner 51.9 acre parcel) referred to as area one currently under review. Documentation for the completion of mitigation for the remaining 700 acres of accessible sage grouse brood rearing habitat and 100 acres of riparian mitigation (subject to Army Corps requirements) for the proposed North Lease area will need to be completed prior to obtaining a permit to commence surface mining activities in that area. This

collaborative determination is the result of review and comment and a series of meetings (10/22, 11/23, 12/2 and 12/3/2015) with DWR (Bill James, Ben Nadaloski, Avery Cook, Josh Pollock and Rhett Boswell), The Panguitch Local Sage Grouse Working Group (Dr. Nicki Frey), FWS (Lary Crist, Jay Martini and Betsy Herrmann).

#### REQUIRED MITIGATION for CURRENT MINING OPERATIONS:

DOGM in consultation with DWR, FWS and The Panguitch Local Sage Grouse Working Group (Dr. Nicki Frey) had suggested that:

Required mitigation for the Dames lease area should not be used for areas 1, 2 and 3 of the north lease. The area could have been used for alternative mitigation if it had been located outside of the Lekking, nesting and brood rearing buffer, not disturbed, impacted or highwall mined. This area was previously impacted by man caused disturbances when mining and mine related activities eliminated the lek and continued in the areas contiguous to and including the Dames lease area. The Division was provided with documentation from ACD verifying highwall mining in the 88.5 acre parcel during the partial inspection conducted by Priscilla Burton in November of 2015. However additional information provided by ACD indicated that mining did not occur in the Dames lease (revised MSHA map). The Division has determined that although the area is permitted it has not been mined and that ACD can apply the Dames lease mitigation acreage of 344 acres to .....ACD will not be allowed to conduct mining or mining related activities in the Dames lease. The following commitment is suggested; ACD will provide for 344 acres of wet meadow brood rearing habitat prior to conducting mining or mining related activities in the dames lease.

There is a potential loss of sub-irrigation to the Dames lease. The current ground water monitoring data for that area indicates that the water level has dropped 7.5' to 12' (which will eliminate the sub-irrigation by the Spring of 2016 according to the Division's staff) that supported the wet meadow habitat and a critical food source for sage grouse chicks. ACD is currently required to maintain the wet meadow habitat.

ACD has also received non-compliance violations for not completing mitigation within allotted time frames including the 355 acre BLM parcel. The DOGM/BLM specifications for the 355 acre parcel have not been completed for the fourth time as verified by DOGM and BLM personnel(12/01/2015). ACD will need to pursue other alternatives for the 355 acres of mitigation treatment and provide documentation that it has been completed as provided for in the abatement options for NOV21161. Written verification of completion of the 443 acre WRI project 3419 will also need to be provided prior to conducting mining or mining related activities in the North Lease.

Once mining has commenced the man caused disturbances from mining and mining related activities within the nesting and brood rearing and wintering (basically year-round) buffer will impact the entire North Lease area. Alton Coal Development will need to provide documentation of completion of 200 acres of mitigation of accessible brood rearing sage grouse habitat prior to approval of the portion of the North lease (SW Corner 51.9 acre parcel) currently under review.

This deficiency applies to areas 2 and 3.

Documentation for the completion of mitigation for the remaining 700 acres of accessible brood rearing sage grouse habitat and 100 acres of riparian (subject to Army Corps requirements) for the proposed North Lease area will need to be completed prior to obtaining a permit to commence surface mining activities in that area.

This deficiency applies to areas 1, 2 and 3

#### Monitoring

ACD will need to monitor impacts to wildlife and natural resources throughout the life of the mine and the 10 year reclamation liability period. The enhancement phase of the required protection and enhancement plan is implemented during the reclamation phase of mining operations.

Representative statistical sampling using GPS collars for the Alton sage grouse population is estimated at a minimum of 5 and a maximum of 10 collars. Hens should be collared as an essential component of recruitment monitoring. Although 5 collars are not statistically adequate to publish the data collected; that is the number (Using a simple estimation (12 attending males =~ 15-24 hens or 25% of the hen population) preferred in light of variables associated with impacts to the sage grouse, (personal communication with DWR (Bill James, Avery Cook, Rhett Boswell), The Panguitch Local Sage Grouse Working Group (Dr. Nicki Frey) and BLM (Lisa Church).

Alton Coal will need to include in Appendix 3-8 a long term 5 year sage grouse monitoring plan. The plan shall include a written contract that includes the following information:

Funding and associated costs for the purchase of 3 global positioning system (GPS) tracking collars and the monitoring of 5; Associated costs will be defined in the terms of the contract that include at a minimum: supplying necessary operational

funding to permit monthly data download from satellites, basic operational expenditures by qualified individuals involved in accessing, parsing, and ensuring minimal ground truthing and cleaning of locational data for the first 5 years of this mining permit operation.

A commitment to (1) analyze the data, (2) meet with Dr. Frey, DWR, DOGM, FWS quarterly and other members of the Panguitch Local Sage Grouse Working Group if needed and (3) provide a summary, analysis, findings and recommendations of the data from the 5 GPS collars.

With the habitat mitigation offered in the mine application, these population monitoring steps will take the mine through the first five years of operation in the North Private Lease area. Prior to the initiation of the second 5 year period, a new monitoring and assessment plan will be needed. ACD will need to provide a commitment to that effect. Although additional habitat restoration is not expected, continued monitoring of sage-grouse populations and habitat use will be required throughout the life of the mine and the 10 year reclamation liability period. Appendix 3-8 needs to include a monitoring plan for the 10 year reclamation liability period.

The application refers to the current (2015) sage grouse monitoring plan (Data collected in 2014 that was due in October of 2014, received by DOGM on January 23, 2015 that has not been approved. ACD will need to consult with the Division to determine the specific criterion for implementing the following components of the sage grouse management plan for the North lease area:

Employee Observations;  
Monthly Bird Surveys;  
GPS Collaring and Monitoring;  
Noise Detection and Sound Assessment;  
Habitat Mitigation;  
Vegetation Improvements and Monitoring and;  
Predator Control Activities.

Additional information may be required by DWR and or FWS.

jheltric

## Topsoil and Subsoil

### Analysis:

Analysis:  
The information does not meet the requirements of R645-301-230.

Pit development is shown on Drawing 5-53, Coal Removal Sequence. Overburden removal sequence is shown on Dwg 5-57. The plan under review is for Area 1, with Pit 1 being the first bonded increment of Area 1.

The volume of topsoil contained in the topsoil pile for Pit 1/Area 1 is specified on Dwg 5-48 as 60,000 CY. A subsoil stockpile is also shown holding 84,000 CY on Dwg 5-48, as well as a spoil stockpile holding 505,866 CY. (Drawing 5-51A illustrates the temporary excess spoil pile.) A notation on Dwg 5-76B indicates that all three stockpiles in Area 1 will be rehandled for reclamation of Area 1 within a year.

In Section 232.600 of the MRP, Dwg 2-3 is compared with Dwg 10 in Vol 11 for information on soil salvage depth. The Permittee has clarified that these two maps are of the same scale (1 in = 500 ft) when Map 10 is printed as 11 x 17 inches and when Dwg 2-3 is printed as 24 X 36 inches.

In several locations the A horizon is less than six inches and the plan calls for salvaging the A & B horizon together. Clay concentrations in the surface soils is about 32 - 67%, with correspondingly high saturation percentages. These non-carbonate clay soils are overall not sodic, the main cation is calcium in the form of gypsum. The exception is at sample location 12AS032, where the Sideshow soil is a smectite clay soil with shrink-swell characteristics noted by the presence of slikenides. At this location the SAR values range between 7.56 - 10.3 from 25 inches to 56 inches. This is considered only fair quality on the Division's suitability table. (Sample location 12AS032 was evaluated for density and total metals, as well.) The Teromote (Map Unit A1) and Boxcanyon (Map Unit F) soils have the lowest percentage of clay in surface horizons. They are the best available material in Area 1.

The plan for soil salvage is provided in Table 14 of Volume 11. This plan must be implemented by a soil scientist, because of the complexities of the soil survey and varying depth of suitable surface soils. Table 14 and Soil Map 10 in Vol 11 show the average salvage depths for soils A1, A2, A3 and F in Area 1. All A1, A2 and A3 soils will have 3.8 feet (45.6 inches)

recovered and stockpiled. Area F soils will have 4.0 ft recovered and stockpiled. The A horizon varies from 4 inches to 7.5 inches in these soils and therefore A and B horizons will be salvaged together. An average depth of 1.2 feet (14 inches) is proposed in Table 14 for topsoil salvage. Since Area 1 is 51.9 acres, an average topsoil salvage of 1.2 feet will produce 100,478 CY. The remaining 2.6 ft of salvage will produce 217,703 CY of subsoil.

A topsoil stockpile is shown on Dwg 2.4. According to that drawing, the topsoil stockpile will hold topsoil salvaged from the South haul road and Pit 1 development (Pit locations are shown on Dwg 5-53). The legend in Dwg 2-4 shows the remaining area of Area 1 as direct placement topsoil and subsoil. But, Chapter 5, page 5-36 indicates that overburden from the initial Pit 1 and southern half of Pit 2 will be hauled to a temporary excess spoil pile, creating additional disturbed area that must have topsoil removed. Also, the area above Pit 2 will have to be removed before any live haul can occur.

On December 15, 2015, an agreement was reached between the Division and Alton Coal Development concerning the topsoil/subsoil handling plan in Area 1 of the North Lease (Outgoing email sent 12/15/15 by P.Burton). The important points of our discussions to be written into the topsoil/subsoil handling plan were not found in this submittal.

To meet the requirements of R645-232.600 Timing and R645-301-232 Topsoil and Subsoil Removal, the following points were agreed upon:

1. The A horizon (topsoil) will be salvaged along with B horizon (subsoil) to a depth of 14 inches (1.2 feet) from all active mining areas (pits, roadways, haulroads, storage and repair yards, etc.) including the location of the proposed county road relocation. The only exception is that topsoil can remain under topsoil storage and subsoil storage piles, if the existing surface is delineated in some way.
2. In all active mining areas, including county road relocation area, the remaining subsoil (the B & C horizon above lithic contact, approximately 2.6 feet) will also be removed and stockpiled in a subsoil stockpile.
3. The remaining B & C subsoil may be protected in place beneath stockpiles (topsoil, subsoil, and spoil stockpiles) by using a marker fence to delineate the subsoil surface on 100 ft centers and by using gps survey grid of the topography of the subsoil surface layer. This subsoil will be recovered at reclamation to create the cover depth required over the spoil. (Spoil will be sampled for suitability, since spoil will make up 0.2 feet of the required 4 feet cover depth.)
4. A soil scientist will monitor the topsoil and subsoil removal and placement of geomarker.
5. A surveyor will map the surface elevation of the subsoil being protected in place.

Thus, the plan should indicate that prior to mining Pit 1, topsoil will be removed from all of Area 1 except beneath the topsoil and subsoil pile locations. The plan should also indicate removal of subsoil (B & C horizon) from all of Area 1 except beneath the topsoil and subsoil pile locations. In addition Drawing 2-4 must specify the area in acres to be stripped of topsoil prior to mining Area 1 so that volumes can be determined. The narrative must specify the method (equipment) to be used to strip the topsoil prior to mining in Area 1. The narrative must specify the size (volume contained) of the topsoil stockpiles shown on Drawing 2-4.

Specify the area in acres to be stripped of topsoil prior to mining Pit 1/Area 1 on Dwg 2-4 or in the narrative or both so that volumes can be determined. Specify the method (equipment) to be used to strip the topsoil and subsoil and to create the stockpiles prior to mining in Area 1. Specify the size volume of the subsoil stockpile on Drawing 2-4.

The soil survey presents a complicated map of the soils within mine development Areas 1, 2, and 3. The application states that a soil scientist will be consulted for prime farmland salvage, but the Division maintains that a soil scientist is required to interpret the mapping during soil salvage of all areas, including Area 1. The cover letter indicates Section 231.100 was modified as described above, however no changes were noted in the narrative provided to the Division on 12/18/2015.

#### Pit 1/Area 1 Topsoil Pile:

Drawing 2-4 labels a 60,000 CY topsoil stockpile. It shows the topsoil stockpiled approximately 20 feet deep over an area that is approximately 650ft long X 200 ft wide or roughly 3+ acres. Dwg 2-4 states that the topsoil stockpile will have a maximum slope of 3h:1v; the side slopes portrayed on Drawing 2-4 are about 32% or 3h:1v. From this drawing the Division estimates a volume of 96,800 CY could be contained within the topsoil stockpile. Thus, topsoil salvage from a larger area than currently described on Dwg 2-4 is possible within the current design.

#### Pit1/Area 1 Subsoil Pile:

Drawing 5-48 labels an 84,000 CY subsoil stockpile. Dwg 2-4 shows the subsoil stockpiled approximately 30 feet deep over an area that is approximately 250 ft long X 200 ft wide or roughly 1 acre. Dwg 2-4 shows the side slopes of the subsoil pile to be about 32% on the south to 38% on the north side (approaching 2.5h:1v). From this drawing the Division estimates

a volume of 48,400 CY could be contained within the topsoil stockpile. Thus, subsoil salvage from a larger area than currently described on Dwg 2-4 is possible within the current design.

**Pit 1/Area 1 Spoil Pile:**

Drawing 5-48 labels a 505,866 CY subsoil stockpile. Drawing 2-4 shows the spoils pile to be a trapezoidal wedge 20 ft deep on the north and 50 feet deep on the south side. The spoils will cover an area that is approximately 700 ft long X 550 ft wide or roughly 9 acres. Dwg 2-4 shows the side slopes of the subsoil pile to be about 33% on all sides (3h:1v). From this drawing the Division estimates a volume of 363,000 CY will be contained in the pile. Therefore this spoil pile will not contain the 505,866 CY projected.

Section 244.100 describes measures to be taken to stabilize stockpiled soils. The current practice of allowing stockpiles to sit a year or more before seeding and/or applying tackifier has not provided adequate protection to the topsoil or subsoil stockpiles, because there is too much uncertainty involved in the duration of the stockpiles. Please revise section 244 to indicate that the temporary topsoil and subsoil stockpiles will be surface roughened and seeded immediately. Please indicate that the temporary spoil pile will be roughened and a tackifier applied to the outslope as the pile rises. The cover letter indicates Section 244.100 was modified as described above, however no changes were noted in the narrative provided to the Division on 12/18/2015.

R645-301-232.600, AREA 1 Timing. The plan is silent on topsoil salvage prior to County road relocation. This topsoil must be salvaged and stockpiled to enable adequate volume of soil for reclamation of the road at final reclamation. The Permittee states in the cover letter dated 12/18/2016 that "The proposed relocation of Kane County public roads are outside the mine permit boundary of the proposed [Area 1] North Private Lease, Coal Hollow Mine. Kane County is the governmental entity with authority over Kane County Road 136/3900 (including the intersection of K3900 with K3100)."

In addition, the plan is silent on how to protect the topsoil and subsoil stockpiles from one reclamation event to the next. The plan must specify that after additions to topsoil and subsoil piles are made, they will be reshaped, bermed and seeded at the end of placement or by December 31st of each year, whichever comes first.

Section 232.720 describes replacement depths of 13 inches of topsoil over 31 inches of subsoil. Chap 2 should provide a table of topsoil and subsoil salvage volumes by Area 1, Area 2 and Area 3 and a proposed method of tracking those volumes as mining progresses. The cover letter indicates Section 232.100 was modified as described above, however no changes were noted in the narrative provided to the Division on 12/18/2015.

*Deficiencies Details:*

R645-301-231.100 and R645-301-232.600 AREA 1, Although ACD stated in the 12/18/2015 cover letter that they had updated Section 231.100 and Section 523, explicit soils handling information could not be found in the narrative. An approach that was discussed and agreed upon with ACD on 12/15/2015 could not be found in the update. To meet the requirements of R645-232.600 Timing and R645-301-232 Topsoil and Subsoil Removal, the following points were agreed upon and should be included in the narrative:

1. The A horizon (topsoil) will be salvaged along with B horizon (subsoil) to a depth of 14 inches (1.2 feet) from all active mining areas (pits, roadways, haulroads, storage and repair yards, etc.) including the location of the proposed county road relocation. The only exception is that topsoil can remain under topsoil storage and subsoil storage piles, if the existing surface is delineated in some way.
2. In all active mining areas, including county road relocation area, the remaining subsoil (the B & C horizon above lithic contact, approximately 2.6 feet) will also be removed and stockpiled in a subsoil stockpile.
3. The remaining B & C subsoil may be protected in place beneath stockpiles (topsoil, subsoil, and spoil stockpiles) by using a marker fence to delineate the subsoil surface on 100 ft centers and by using gps survey grid of the topography of the subsoil surface layer. This subsoil will be recovered at reclamation to create the cover depth required over the spoil. (Spoil will be sampled for suitability, since spoil will make up 0.2 feet of the required 4 feet cover depth.)
4. A soil scientist will monitor the topsoil and subsoil removal and placement of geomarker.
5. A surveyor will map the surface elevation of the subsoil being protected in place.

Thus, the plan should indicate that prior to mining Pit 1, topsoil will be removed from all of Area 1 except beneath the topsoil and subsoil pile locations. The plan should also indicate removal of subsoil (B & C horizon) from all of Area 1 except beneath the topsoil and subsoil pile locations. In addition specify the area in acres to be stripped of topsoil prior to mining Pit 1/Area 1 on Dwg 2-4 or in the narrative or both so that volumes can be determined. Specify the method (equipment) to be

used to strip the topsoil and subsoil and to create the stockpiles prior to mining in Area 1. Specify the size volume of the subsoil stockpile on Drawing 2-4.

R645-301-234.230 and R645-301-232.500 AREA 1 (and all future areas of NPL), Section 244.100 describes measures to be taken to stabilize stockpiled soils. The current practice of allowing stockpiles to sit a year or more before seeding and/or applying tackifier has not provided adequate protection to the topsoil or subsoil stockpiles, because there is too much uncertainty involved in the duration of the stockpiles. Please revise section 244 to indicate that the temporary topsoil and subsoil stockpiles will be surface roughened and seeded immediately. Please indicate that the temporary spoil pile will be roughened and a tackifier applied to the outslope as the pile rises. The cover letter indicates Section 244.100 was modified as described above, however no changes were noted in the narrative provided to the Division on 12/18/2015.

R645-301-231.400 and R645-301-232.600 AREA 1 (and all future areas of NPL), Section 232.720 describes replacement depths of 13 inches of topsoil over 31 inches of subsoil. Chap 2 should provide an inventory in table form of topsoil and subsoil salvage volumes by Area 1, Area 2 and Area 3 and a proposed method of tracking those volumes as mining progresses. The cover letter indicates Section 232.100 was modified as described above, however no changes were noted in the narrative provided to the Division on 12/18/2015.

R645-301-132 and R645-301-230 Area 1 (and all future areas of NPL), The soil survey presents a complicated map of the soils within Area 1, 2, and 3. A soil scientist is required to interpret the mapping during soil salvage of all areas, including Area 1. Please clarify the plan to state that a soil scientist will be present during topsoil and subsoil salvage in all areas, including Area 1. The cover letter indicates Section 231.100 was modified as described above, however no changes were noted in the narrative provided to the Division on 12/18/2015.

R645-301-234.230, AREA 1, The plan must specify that after additions to topsoil and subsoil piles are made, they will be reshaped, bermed and seeded at the end of placement or by December 31st of each year, whichever comes first. The cover letter indicates Section 234.230 was modified as described above, however no changes were noted in the narrative provided to the Division on 12/18/2015.

pburton

## Vegetation

### Analysis:

As required by R645-301-356.110 the Division is responsible for consulting with the applicant in determining appropriate reference area(s) as the benchmark for revegetation success of reclaimed disturbed areas. The Division's biologist assigned to this permit expansion (Joe Helfrich) conducted a field investigation of the proposed reference areas with the applicant's consultant, (Pat Collins of Mt. Nebo Scientific) on August 13, 2015. For the three vegetative communities identified, two reference areas were proposed V03 Sagebrush and Wetland V06. An alternative reference area for site V03 has been established as Site V05. The third community (pasture lands) will be reclaimed in accordance with the species composition of the plants identified and surveyed within the proposed area to be surfaced mined. There are three potential impacts to these two reference areas, air quality, water quality and available ground water in light of the 100' buffer of no disturbance on either side of Kanab creek. The riparian wetland vegetation communities located along Kanab creek below the southern end of the permit boundary will be sampled annually during the life of the mine. This area has been established as site (V22), DOGM/Mt. Nebo Scientific site visit 10/28/2015.

The application should include the following information to address these potential impacts:

A monitoring frequency for the proposed reference areas V03, V05 and V06 and site V22 during the reclamation liability period;

Vegetation map #2 should be updated to include Area V22 and;

A commitment to mitigate impacts to these wetland riparian vegetation communities located along Kanab creek below the southern end of the permit boundary.

### 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 is required in accordance with R645-301-330;

The application needs to include the following information:

This deficiency applies to areas 2 and 3

A monitoring frequency for the proposed reference areas V03, V05 and V06 and site V22 during the reclamation liability period;

This deficiency applies to area 1

Vegetation map #2 should be updated to include Area V22 and;  
A commitment to mitigate impacts to these wetland riparian vegetation communities located along Kanab creek below the southern end of the permit boundary.

Additional information may be required by DWR and/or FWS.

jhefric

## Road Systems Classification

*Analysis:*

Area 1:

The application meets the minimum requirements of R645-301-527.100 by classifying each road as primary or ancillary. Section 527 was updated to include the one additional primary haul road that will be located in the North Private Lease, as detail in Drawing 5-60. All temporary roads that will be constructed and utilized throughout the mining operations, though temporary in nature, will be designed to R645-301-534.110-.150 regulations. No permanent roads will be installed within the permit area.

cparker

## Road System Plans and Drawings

*Analysis:*

Area 1:

The application for Area 1 does not meet the minimum requirements of R645-301-527.210 and R645-301-534.100 by failing to include details of the access in addressing the minimum requirements of R645-301-527.100, -527.200 and deficiency # 49. The Permittee added a square polygon labeled as the access point to Drawing 5-47 and 5-48 and referenced said access in the narrative of section 527.100 and .200 but there are no details shown on Drawing 5-60 showing the designed access.

To address deficiencies of missing USACE permit information, narrative describing the Nationwide Permit 14 was added to Chapter 5. Alton submitted a pre-construction notification, SPK 2011-001248, describing the disturbances and mitigation to the USACE. The permittee failed to include a copy of the pre-construction notification. Since the narrative states that the sizing of culvert C-3 will be determined by USACE a copy of the approval needs to be submitted with Appendix 5-12.

*Deficiencies Details:*

Area 1:

R645-301-527.100, -527.200: There is no clear designed access to the permit area off K3900 for operations limited to within Area 1 on Drawing 5-60.

R645-301-526, -527.220: The Permittee failed to include copies of the USACE NWP-14 approval and pre-construction notification in Appendix 5-12.

cparker

## Road System Performance Standards

*Analysis:*

Area 1:

The application meets the minimum requirements of R645-301-527.230 by detailing the general maintenance of all roads within the permit area. Narrative within Section 527.230 details the required statement stating that in the event of a catastrophic event the repairs to the roads will be made as soon as possible.

The application meets the minimum requirements of R645-301-527.250 with no alternative specification or steep cut slopes associated with roads to be anticipated or contemplated at the time of this application.

The application meets the minimum requirements of R645-301-534.150 by submitting plans and drawing for each road to be maintained within the permit area to prevent and control erosion.

cparker

## Road System Certification

### Analysis:

#### Area 1:

The application meets the minimum requirements of R645-301-512.250 by having all primary haul roads designed and certified by Dan Guy, a professional engineer. All primary haul roads will be built in a stable manner to ensure environmental protection and safety with no stream fords.

The application does not meet the minimum requirements of R645-301-521.170 by addressing deficiency # 51 by updating the narrative to include reference to required USACE NWP permit acquired. Narrative was also added detailing NWP-14 and that the pre-construction notification was acquired but no copy of either document was included in Appendix 5-12.

The application did meet the minimum requirements of R645-301-232.600 detailing specifically that top soil and sub soil will be salvaged for temporary haul roads and active surface mining areas, but failed to discuss the specific arrangement of the leaving of topsoil and subsoil during the development of Pit 1.

The application meets the minimum certification requirements by submitting plans and drawing for each road to be prepared by or under the direction of and certified by a qualified registered professional engineer. Chapter 5 Section 521.170 details each road that will be constructed and maintained within the North Private Lease. Drawing 5-60 details the primary haul road that will be located within the North Private lease permit area. The above stated drawing details that the haul road will be approximately 2,700 feet long with three culverts. The maximum grade of the haul road will be 7.1% to get the haul around the location of Pond 6. The narrative and drawing 5-60 detail that C-2 has pending USACE approval but did not include a copy of any correspondence or USACE 404 NWP permit.

### Deficiencies Details:

#### Area 1:

R645-301-521.170, R645-301-527.220: The application is missing a copy of the pre-construction notification and USACE 404 NWP-14 to demonstrate that all other applicable state and federal regulations have been met.

R645-301-232.600: The Permittee failed to clarify the narrative as described in Chapter 5 section 521.170 in regards to the soil salvaging for Area 1 with the development of Pit 1. The narrative needs to either describe the process or at least reference the appropriate Chapter 2 narrative. The Permittee did amend the last paragraph to state that topsoil and subsoil will be salvaged for all active surface mining areas that will be developed, regardless of the temporary nature, including roads.

cparker

## Road System Other Transportation Facilities

### Analysis:

#### Area 1:

The application meets the minimum requirements of R645-301-521.170 by as there are no conveyors or rail systems to be used within the proposed permit area.

cparker

## Spoil Waste Disposals of Noncoal Mine Wastes

### Analysis:

#### Area 1:

The application meets the minimum standards or R645-301-528.330 due detailing the disposal of noncoal mine waste disposal located in the current MRP Chapter 5 Section 528.330. Noncoal mine waste will be temporary stored in appropriate containers and removed from the permit area to be properly disposed of according to applicable State and Federal regulations.

Section 528.332 contains a discussion of the proposed alluvial ground water drains to be left in place. These drains were not installed at the site due to the site spoil having such a low permeability that the drains would not facility any collection. This narrative was removed in December 18, 2015 to address deficiency # 54.

cparker

## Spoil Waste Coal Mine Waste

### Analysis:

#### Area 1:

The application meets the minimum standards of R645-301-513.300 due to not changes in the MRP text. The application does not change the approved MRP that states no underground development, coal processing waste, or excess spoils will be disposed of underground.

The application original application did not meet the minimum requirements of R645-301-528.320, -301-536.300- through 563.330, and -542.730 due to missing information detailing the handling of the coal mine waste associated with the development of Pit 1 to meet R645-301-528.333. The text meets the minimum requirements of R645-301-528.320 as all coal mine waste generated past Pit 1 will be backfilled in other subsequent pits as part of the contemporaneous reclamation and operations meeting R645-301-528.333.

To address deficiency #55 the December 18, 2015 submission added clarifying text detailing that coal mine waste developed during the extraction of Pit 1 will be stored on top of the unmined coal until enough coal has been removed to place the coal mine waste on the floor of the pit. This narrative was added to Chapter 5 Section 522 and 528 to meet the minimum requirements of R645-301-528.320, -301-536.300- through 563.330, and -542.730.

cparker

## Spoil Waste Refuse Piles

### Analysis:

#### Area 1:

The application meets the minimum standards of R645-301-513.400, R645-301-514.200-.250, and R645-301-528.322 due to not changes in the MRP text. The MRP does not contemplate any refuse piles within the current Coal Hollow Mine and the North Private Lease.

cparker

## Spoil Waste Impounding Structures

### Analysis:

#### Area 1:

The application meets the minimum requirement of R645-301-512.140 by having all hydrology maps as described under -301-722 certified by a professional geologist Eric Petersen.

The application meets the minimum requirements of R645-301-512.240 by having a professional engineer, Dan Guy, who has experience in design and construction of impoundments certify the designs of Ponds 5 through Pond 9.

The Permittee amended text within Chapter 5 Section 512.240 to clarify that a detailed geotechnical analysis was only conducted for the south Coal Hollow private lease in and the report can be found in Appendix 5-1. Text was added to the section stating how the detail field investigation that was conducted for the North Private Lease found the soils to be representative of the south lease negating the need for another detailed geotechnical analysis, specific slope stability, as demonstrated in Appendix 5-12 for the North Private Lease. The original text did not take into account the additional ponds added since the last submission of the permit application. The Permittee will amended this section to address all ponds in the north lease. The December 18, 2015 submission did update the pond and ditch information to match the updated proposed structures, however, no narrative was added to this section detailing the limited review of the various ditches and ponds; specifically that only Pond 5, Pond 6, and Ditches 5 through 11 are the only structures currently under review.

The application meets the minimum requirements of R645-301-513.200 by detailing within the MRP that no impoundments and sedimentation ponds meet the size or other qualifying criteria of MSHA 30 CFR 77.216.

The application meets the minimum requirements of R645-301-514.310-313 by text within Section 514.310-313 and 514.320 detailing inspection made regularly during construction, upon completion, and at least yearly until removal at final reclamation.

The application meets the minimum requirements of R645-301-532 by adding a detail to Drawing 5-48 stating the sediment

control measures carried out within the disturbed area to prevent untreated runoff along the eastern edge of Area 1 with a berm and silt fence.

The application meets the minimum requirements of R645-301-533.110 -220 by detailing that a geotechnical report was completed for the impoundments. The expected consolidation of the native soils around the ponds is expected to be minimal, approximately 1%.

The application meets the minimum requirements of R645-301-533.300 due to similar soils experienced in the south lease, as detailed in Appendix 5-11, so an expected slope stability factor range of 1.2 to 1.9 can be expected.

The application meets the minimum requirements of R645-301-533.400-500 by detailing that slopes will be protected by seeding and prior to construction all vegetation, topsoil, and sub soil will be removed.

The application meets the minimum requirements of design drawings as detailed on Drawing 5-67 and 5-68 for the north private lease permit area 1. Drawing 5-76B details the reclamation sequence of the facilities to meet R645-301-356.300 and -763 by retaining all ponds until the second year of seeding to facility erosion control treatment.

*Deficiencies Details:*

**Area 1:**

R645-301-512.240,-532: The Permittee did amend text within Chapter 5 Section 512.240 to address the ponds within the North Private Lease, however, the narrative is still missing a discussion stating the specific Area 1 features are currently under review.

R645-301-532: The Permittee added details addressing how drainage off the eastern part of Area 1 will be treated and controlled off the disturbed area by a berm and silt fence on Drawing 5-48, however, such drainage features need to be depicted on Drawing 5-65 as well.

cparker

## **Spoil Waste Burning and Burned Waste Utilization**

*Analysis:*

**Area 1:**

The application meets the minimum standards of R645-301-513.800 and R645-301-528.323 due to not changes in the MRP text that no waste will be burned within the Permit area.

cparker

## **Spoil Waste Coal Processing Waste to Abandoned**

*Analysis:*

**Area 1:**

The application meets the minimum standards or R645-301-528.340 due to not changes in the MRP text stating that no coal processing waste will be returned to the underground workings at the Coal Hollow Mine.

cparker

## **Spoil Waste Excess Spoil**

*Analysis:*

To address deficiency # 58 of the December 18, 2015 resubmission and to meet the minimum requirements of R645-301-521.143, R645-301-745.111, R645-745.113: The Permittee added reference to Appendix 7-16 to Chapter 5 Section 521.143 subsection 745.111 and 745.113 to support the statements made in regards to the soil toxicity within each section.

**Area 1:**

The application meets the minimum requirements of R645-301-512.210 due to new slope stability calculations provided for the North Lease temporary excess spoil pile in Appendix 5-11. Chapter 5 Section 512.210, 521.143 and various other sections call out that a professional engineer has certified the designs of the North Private Lease temporary excess spoil pile according to 535.100 and that the analysis can be viewed in Appendix 5-11. The Permittee submitted text detail the design, placement, and disposal sequencing of the North Private Lease temporary spoil pile with applicable designs and

slope stability analysis as required by R645-301-535.

The application meets the minimum requirements of R645-301-514.100 detailing inspection of the excess spoil pile during construction, completion and quarterly. There was no change was made to Chapter 5 Section 514.100-.120.

To address deficiency # 60 of the December 18, 2015 resubmission and to meet the minimum requirements of R45-301-532.200: The permittee amended the narrative of Section 532.200 to stat that in the event the temporary spoil pile is left in place beyond six months it will be covered with tackifier or some other means of stabilization.

The application does not meet the minimum requirements of R645-301-521.143 due to missing text referencing and detailing the specific operations to be utilized within regards to the temporary excess spoil pile on the North Private Lease during Pit 1 development. The submitted application states that topsoil and subsoil will be separately removed and segregated from other material prior to placement of any spoil, as shown with the hatch on Drawing 2-4. The simple hatch detailed on Drawing 2-4 does not contain sufficient details and information of the implantation of soil salvage techniques to be utilized within the area that are more detailed in Chapter 2. Drawing 2-4 does indeed show the typical salvage plan for continuous pit development. Narrative is missing all mention of the details outline with Chapter 2 for the development of Pit 1, hence the narrative of this section needs to be amended detailing the specific measure taken to protect topsoil/subsoil not stockpiles. Section 521.143 details how the temporary spoil pile will be 23 to 59 feet tall and cover approximately nine acres.

The application in Chapter 5 Section 521.143, subsection 745.111 and 745.113 states that the excess spoil piles in the current Coal Hollow Mine permit are and the temporary North Private Lease spoil pile will be composed of high-clay tropic shale that will limit infiltration and has a minimal potential for leaching of pollutants. The section is missing a reference for the stated Laboratory data where various leaching tests are presented.

R645-301-528.310 is not met due to missing references of geotechnical review of the overburden. The MRP fails to reference the geotechnical report the shows swell factor for how the volumes depicted in the table are arrived at. Appendix 5-11 details a new the swell factor of 10.7% with a 3:1 shale alluvium composition. The consolidation test shows approximately a 5% consolidation at 4000 psf with water. The expected temporary spoil pile will be closer to 5500 psf but the consolidation shouldn't result in large subsidence that would jeopardize that stability of the pile, utilizing the slope failure analysis from Taylor-Geo-Engineering report. See deficiency of missing reference for R645-301-521.143 for repeated sections within Section 528.310.

Section 528.310 does detail that the temporary spoil will be in place for less than six months before being rehandled as pit backfill.

To address deficiency # 61 of the December 18, 2015 re-submission and meet the minimum requirements of R645-301-528.200 the Permittee added a reference to Appendix 5-11 for geotechnical properties of spoil to section 528.310.

R645-301-535.100 Long term static safety factor for the temporary spoil pile is 1.6 to 1.7 with lifts not to exceed four feet. The MRP states that the spoil structure will be re-handled to backfill the open pit in a short time frame, defined as six months. The spoil pile within the North Private Lease will not be covered with subsoil or topsoil. The geotechnical report in Appendix 5-11 contains a sufficient foundation investigation for the temporary spoil pile, with an expected consolidation of the area of approximately 5% meeting R645-301-535.112, -535.151, and -535.152.

#### *Deficiencies Details:*

##### Area 1:

R645-301-521.143: The Permittee will amend Drawing 2-4 to show the hatch indicating topsoil and subsoil recovery to extend below the entire extent Area 1 between Pit 1 and the area expected to be disturbed by the construction and maintenance of the topsoil, subsoil, and spoil piles. Corresponding volumes of topsoil and subsoil will be updated to account for the addition soil. The Permittee failed to adequately address deficiency # 59 in the December 18, 2015 submission. The application does not meet the minimum requirements of R645-301-521.143 due to missing text referencing and detailing the specific operations to be utilized within regards to the temporary excess spoil pile on the North Private Lease during Pit 1 development.

cparker

## **Hydrologic General**

### *Analysis:*

**The amendment does not meet the State of Utah R645 requirements for Water Rights and Replacement.**

An updated analysis on Water Rights and Replacement must be completed to determine the total volume of state appropriated groundwater and surface water within and adjacent to the North Private Lease. Baseline hydrologic information must be supported with a hydrogeologic groundwater model of the alluvial aquifer within and adjacent to the North Private Lease.

*Deficiencies Details:*

The amendment does not meet the State of Utah R645 requirements for Water Rights and Replacement. The following deficiency must be addressed prior to final approval:  
R645-301-727, R645-301-731.800: An updated analysis on Water Rights and Replacement must be completed to determine the total volume of state appropriated groundwater and surface water within and adjacent to the North Private Lease. Baseline hydrologic information must be supported with a hydrogeologic groundwater model of the alluvial aquifer within and adjacent to the North Private Lease.

kstorrar

## Hydrologic Ground Water Monitoring

*Analysis:*

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

Backfilling Tropic Shale in Pit 20 and Pit 21 will increase TDS in the alluvial aquifer. The amendment must address how earth materials will be handled to protect groundwater quality and prevent the harmful infiltration of increased TDS into the alluvial aquifer.

The application must provide a monitoring plan for alluvial groundwater discharged into the open-pits. Ground-water will be monitored and data will be submitted at least every three months.

The amendment must demonstrate ground-water quantity in the alluvial aquifer will be protected during open-pit mining using a hydrogeologic groundwater model of the alluvial aquifer that rests within and is adjacent to the North Private Lease.

*Deficiencies Details:*

R645-301-731.112; R645-301-731-121: Backfilling Tropic Shale in Pit 20 and Pit 21 will increase TDS in the alluvial aquifer. The amendment must address how earth materials will be handled to protect groundwater quality and prevent the harmful infiltration of increased TDS into the alluvial aquifer.

R645-301-731.211; R645-301-731.212: The application must provide a monitoring plan for alluvial groundwater discharged into the open-pits. Ground-water will be monitored and data will be submitted at least every three months.

R645-301-731.112: The amendment must demonstrate ground-water quantity in the alluvial aquifer will be protected during open-pit mining using a hydrogeologic groundwater model of the alluvial aquifer that rests within and is adjacent to the North Private Lease.

kstorrar

## Hydrologic Water Quality Standards

*Analysis:*

**AREA 1:**

The amendment does not meet the State of Utah R645 requirements for Sediment Control Measures. Past inspections at the Coal Hollow mine have found improperly installed and maintained straw bale check dams. Additionally, the Division of Water Quality has expressed reluctance to allow straw bale check dams to treat runoff from ASCA-1. These factors have led to the determination that straw bale check dams will not adequately control or prevent suspended solids from running offsite and may not be used as the only erosion control treatment in ASCA-1. The amendment must provide designs and calculations demonstrating runoff will be reduced and sediment will be retained within ASCA-1 through the use of an effective erosion control treatment. Rock check dams are one example of an effective erosion control treatment because they are effective over the long-term and are less prone to failure. Additionally, the amendment must include a narrative on the sediment clean out level behind the erosion control structures. The current narrative only describes replacing straw bales at a given sediment level, however it does not commit to removing the trapped sediment once it reaches a defined level.

#### AREA 2, 3:

The amendment does not meet the State of Utah R645 requirements for Water Quality Standards in Area's 2 and 3. From the outfall of Pond 7, discharged effluent will flow for 200' within the permit area before draining through the southern permit boundary. While effluent passes through this disturbed area drainage it will pick up additional pollutants prior to leaving the site. Thus, effluent discharging the permit area at the outlet of C-2 does not accurately represent effluent levels discharging from Pond 7. Effluent discharging from Pond 7 from both the decant pipe and large runoff events must be sampled prior to mixing with ASCA-1 runoff. Effluent discharges through the emergency spillway samples must be taken at the inlet of C-2.

#### Deficiencies Details:

#### AREA 1:

The amendment does not meet the State of Utah R645 requirements for Sediment Control Measures. R645-301-742: The amendment must provide designs and calculations demonstrating runoff will be reduced and sediment will be retained within ASCA-1 through the use of an effective erosion control treatment. Supporting calculations must show the Alternative Sediment Control Area measure will capture the calculated sediment yield of 28.14 (tons/ac)/yr in ASCA-1. The amendment must provide a design of the treatment structures as they will be installed in the drainage ditches. The supporting narrative must define a level at which trapped sediment will be cleaned out from behind the treatment structures.

#### AREA 2-3:

The amendment does not meet the State of Utah R645 requirements for Water Quality Standards in Area's 2 and 3. R645-301-751, R645-301-752.230: Based on conversations with the Division of Water Quality it is determined decant effluent from Pond #7 may not flow through the disturbed permit area and mix with ASCA-1 effluent. Sediment Pond #7 decant effluent must be piped separately under the haul road and county road and sampled at the edge of the permit boundary.

kstorrar

### Hydrologic Diversion Perennial and Intermitten

#### Analysis:

The amendment does not meet the State of Utah R645 requirements for the Diversion of Perennial Streams that drain a watershed of at Least One Square Mile. The amendment must provide a certified engineered design of Kanab Creek reconstruction after the haul road crossing is removed.

#### Deficiencies Details:

R645-301-742.320: The amendment does not meet the State of Utah R645 requirements for the Diversion of Perennial Streams that drain a watershed of at Least One Square Mile. The amendment must provide a certified engineered design of Kanab Creek reconstruction after the haul road crossing is removed.

kstorrar

### Hydrologic Diversion Misc. Flows

#### Analysis:

The amendment does not meet the State of Utah R645 requirements for Diversion of Miscellaneous Flows. A narrative is needed justifying the boundary of the undisturbed watershed UA-4 in Drawing 5-66.

#### Deficiencies Details:

R645-301-742.330: A narrative is needed justifying the boundary of the undisturbed watershed UA-4 in Drawing 5-66.

kstorrar

### Hydrologic Sediment Control Measures

*Analysis:*

AREA 1:  
The amendment does not meet the State of Utah R645 requirements for Sediment Control Measures. It appears the application only provides a response to the previous Task's deficiencies and that no text has been added to the amendment.  
AREA 1:  
The amendment must include a narrative for controlling sediment during the construction of Sediment Ponds 6 and 7. Disturbance of earth and sediment must be controlled during the construction of the sediment ponds.  
AREA 1:  
The amendment must provide a narrative for sediment control measures along the eastern boundary of Area 1.

*Deficiencies Details:*

AREA 1:  
The amendment does not meet the State of Utah R645 requirements for Sediment Control Measures.  
AREA 1:  
R645-301-742: The amendment does not meet the State of Utah R645 requirements for Sediment Control Measures. The amendment must include a narrative for controlling sediment during the construction of Sediment Ponds 6 and 7.  
AREA 1:  
R645-301-742: The amendment must include a narrative in the amendment detailing the sediment control measures along the eastern boundary of Area 1.

kstorrar

### **Hydrologic Siltation General**

*Analysis:*

The amendment does not meet the State of Utah R645 requirements for Siltation Structures.  
The amendment must include an engineered design with supporting calculations of the open-pit dewatering system for the maximum expected volume of 360,000 gpd to Sediment Pond #7.

*Deficiencies Details:*

R645-301-742.220: The amendment must include an engineered design with supporting calculations of the open-pit dewatering system for the maximum expected volume of 360,000 gpd to Sediment Pond #7.

kstorrar

### **Hydrologic Discharge Structures**

*Analysis:*

R645-301-742.323; R645-301-744.100: The amendment does not meet the State of Utah R645 requirements for Diversions and Discharge Structures.  
The post-mining topography map shows multiple areas where water is routed from the elevation of the fields down to the elevation of Kanab Creek. The most notable diversion is the new bowl that will be created instead of reforming the ephemeral channels to the west of Kanab Creek. The amendment must include a narrative with supporting calculations for the post-mining topography of permanent diversions that drain miscellaneous flows from the height of the fields bordering Kanab Creek down to the elevation of Kanab Creek.

*Deficiencies Details:*

R645-301-742.323; R645-301-744.100: The amendment does not meet the State of Utah R645 requirements for Diversions and Discharge Structures.  
The amendment must include a narrative with supporting calculations for the post-mining topography of permanent diversions that drain miscellaneous flows from the height of the fields bordering Kanab Creek down to the elevation of Kanab Creek.

kstorrar

### **Hydrologic Impoundments**

*Analysis:*

R645-302-316.500, The plan should take note of this requirement for placement of water bodies during and following mining in prime farmland designated areas.

*Deficiencies Details:*

R645-302-316.500, The plan should take note of this requirement for placement of water bodies during and following mining in prime farmland designated areas.

pburton

## Hydrologic Impoundments

*Analysis:*

AREA 1:  
The amendment does not meet the State of Utah R645 requirements for Sedimentation Ponds. Appendix 5-12 incorrectly states the North Private Lease ponds will discharge under “an approved UPDES Permit” because the North Private Lease does not have a UPDES permit. Currently, the Permittee is in the process of obtaining a UPDES permit for the North Private Lease Ponds from the Division of Water Quality. In the interim, between the construction of Ponds 5 and 6 and acquiring a UPDES permit, the ponds in the North Private Lease must contain all runoff from the disturbed area. As total containment structures, the ponds must maintain a minimum storage capacity that is 110% of a 10-year 24-hour runoff event at all times. The minimum storage capacity level must be clearly marked and may not be exceeded by sediment or water held within the structure. When the ponds capture and contain a runoff event and the storage capacity is exceeded, the amendment must include a clear narrative outlining pond maintenance to bring the ponds back into storage capacity compliance. The narrative must include a water drawn down and/or sediment clean out procedure that will bring the ponds into compliance within 24-hours of exceeding minimum storage capacity. In lieu of providing a very detailed, clear and concise total containment plan for the current designs, the sediment pond structures will be considered temporary impoundments. As temporary impoundment structures they must be designed to contain runoff from a 100-year 6-hour precipitation event.

*Deficiencies Details:*

AREA 1:  
The amendment does not meet the State of Utah R645 requirements for Sedimentation Ponds. R645-301-742.221.33; R645-301-742.221.36; R645-301-742.224; R645-301-742.225.1: The amendment must provide a detailed, clear and concise operation plan for the total containment sediment ponds 5 and 6. See Analysis for total containment requirements.

kstorar

## Support Facilites and Utility Installations

*Analysis:*

Area 1:  
The application meets the minimum requirements of R645-301-521.180 by referencing Section 526.220 for details of the narrative of each support facility and drawing 5-47. The support faculties depicted on Drawing 5-48 for Area 1 were the only facilities shown on Drawing 5-47 that were reviewed by the Division at this time.  
  
The application meets the minimum requirements of R645-301-526 that requires the description, plans, and drawing for each support facility to be constructed, used, or maintained within the proposed permit area, drawing 5-47 details the support facilities locations for the North Private Lease. All references to relocation of the public road were updated in relation to the North Private Lease in Chapter 5 Section 526. The

cparker

## Signs and Markers

*Analysis:*

Area 1:  
The application does not meet the minimum requirements of R645-301-521.200-270.

The general requirements are met by the general discussion of signs detailing the required signs will be maintained during all actives including: Mine Permit Identification signs, Permit markers, buffer zone markers and topsoil markers, however, there needs to be clarifying narrative added to the section detailing that due to the sub area bonding within Areas the bonded area will be staked and marked at all points of operation.

*Deficiencies Details:*

R645-301-121.200, -521: The Permittee will add text detailing that areas where Phase 1 through Phase 3 bond release is held will be staked and marked at all times.

cparker

## **Explosives General**

*Analysis:*

The application does not meet the minimum requirements of R645-301-521.167 as the narrative within Chapter 5 Section 521.167 needs to clarify that blasting operations conducted at the Coal Hollow Mine and North Private Lease were and will be conducted by a consultant that will handle and control the handling of all explosive onsite and that all explosive storage is controlled by the consultant offsite.

*Deficiencies Details:*

R645-301-521.167: The permittee will clarify the narrative with Chapter 5 Section 521.167 to address the blasting consultant and plan included within the application.

cparker

## **Explosives Preblasting Survey**

*Analysis:*

The amendment does not meet the State of Utah R645 requirements for Blasting: Preblasting Survey.

The application essentially restates rules R645-301-524.310 thru 350, which includes all the requirements for preblasting surveys. The application also states that there are no dwellings or structures within one-half mile of the proposed North Lease permit area, which means that there will probably not be surveys done. The application does state that in 2011, preblasting surveys were done for the Swapp and Sorensen Ranches.

On December 18, 2015, the Division received additional information that clarified that the nearest structures, which they had previously just said was 2,686 feet away, was measured from the northwest corner of the proposed North Lease permit area. This structure has been identified on Drawing 1-7. This is extremely close to within one half mile of the proposed permit area, and while according to the rules, they do not have to offer a preblast survey, the Division would highly recommend offering surveys to structures that are this close to one half mile. Also, it is unclear whether any ranch structures outside of Alton town have been evaluated as to how close they are to the permit boundary. It would be very beneficial to have a map that includes the entire proposed North Lease permit boundary, a one half mile boundary line around the permit boundary, and any structures within or near this boundary. During a Divisions cursory review (see attached figure), it appears that there are some type of ranching structures directly west of the proposed permit boundary that are within one half mile that have not been identified by the Permittee.

The amendment does not meet the State of Utah R645 requirement for Preblasting Survey. The following deficiency must be address prior to final approval:

*Deficiencies Details:*

R645-301-524.320 During a Divisions cursory review (see attached figure), it appears that there are some type of ranching structures directly west of the proposed permit boundary that are within one half mile that have not been identified by the Permittee. These structures would fall under the preblast survey requirements. Also, while the structure identified on Drawing 1-7 is just outside of one half mile (about 40 feet), the Division would recommend that a preblast survey still be offered to the structure owner.

cparker

## **Explosives General Performance Standards**

*Analysis:*

The amendment meets the State of Utah R645 rules for Blasting: General Performance Standards.

The application includes a general blasting plan in Appendix 5-4 of the approved MRP. This plan states that blasting will be necessary, and details explosive handling, storage, transportation and use. Each blasting hole will be loaded with a booster with a delay cap and ANFO (or packaged emulsion for wet holes).

According to appendix 5-4, the blasting schedule is defined as Monday through Friday, between 1 pm and 6 pm. This schedule will be published in the Southern Utah News, a newspaper of general circulation for the area, and will be provided to the Town of Alton, Kane County, Kana Field Office BLM, and when blasting at the Coal Hollow Mine only, the Sorensen and Dame Ranches. This blasting plan needs to be re-published for blasting in the North Lease due to the change in location, and this schedule will be re-published every 12 months or anytime the schedule changes. The scheduling and publishing information described in Appendix 5-4 should be included in Chapter 5 as well. Currently the Chapter 5 information is not specifically defined.

The information that is committed to be provided in each blasting schedule is sufficient to meet the R645-301-524.460-465 rules.

The design of the general blasting plan was reviewed. With the information provided in the application, the following information was calculated to verify that they were falling in the general design standard ranges: burden, hole spacing, stemming, powder column, loading density, charge weight, powder factor, scale distance, and peak particle velocity. The information provided in the example blasting design appears to fall within acceptable ranges.

On December 18, 2015 the Permittee provided additional information regarding the blasting schedule and public notice information. Appendix 5-4 was updated to include an example of the blasting notice that would be published in the Southern Utah New as well as various government agencies, neighbors, and municipalities. The example notice appears to include all required publication information. References to this information were added to Chapter 5.

*Deficiencies Details:*

cparker

## **Explosives Blasting Signs Warnings Access Control**

*Analysis:*

The amendment meets the State of Utah R645 requirements for Blasting: Blasting Signs, Warnings, and Access Control.

The application provides a commitment to place signs indicating "Blasting Area" along the edge of any blasting area and at the point of access to the area. The also commit to place a sign reading "Warning! Explosives in Use", and listing the meaning of audible blast warnings at the entrance to the mine.

The application defines the blasting warning and all-clear signals. These are spelled out the Chapter 5 of the proposed MRP as well as Appendix 5-4.

Commitments were listed in the application to prevent the presence of livestock or unauthorized people during blasting, and a Certified Blaster will be responsible to determine when travel within the blasting area can resume.

cparker

## **Explosives Control of Adverse Effects**

*Analysis:*

The amendment does not meet the State of Utah R645 requirements for Blasting: Control of Adverse Effects.

The application limits airblasts due to blasting operations to a maximum of 133 dB at any structure outside the mine permit area. To evaluate compliance with this limit, the Permittee has committed to monitor once per quarter, unless there are no blasts. The plan states that these measurements will be taken, "as required by the Division at locations specified by the Division".

The application also indicates that seismographic (ground vibration) monitoring will occur once per quarter, unless there are no blasting activities. They commit to notify the Division prior to their first blast, and to conduct monitoring on the first blast.

The Permittee needs re-evaluate if monitoring should take place at structures located within one half mile of the permit boundary (ranching structures west of permit area). They should also evaluate whether a ground vibration limit needs to be established at these structures.

The Permittee has provided information on how the public access on this road will be restricted during a blast. The MRP states that blockers will be placed on the County Road west of the permit boundary at least 1000 feet from the nearest blast hole. This location will be established by the blaster at the pre blast safety meeting.

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

*Deficiencies Details:*

R645-301-524.641 The sections discussing airblast and ground vibration monitoring should be updated and re-evaluated to include potential monitoring and establishment of a maximum allowable limit on the ground vibrations at structures located within one half mile of the permit boundary, specifically the ranching structures located west of the permit boundary.

cparker

## **Explosives Records of Blasting Operations**

*Analysis:*

The amendment meets the State of Utah R645 requirements for Records of Blasting Operations.

Chapter 5 of the proposed MRP and Appendix 5-4 outline the records to be kept of each blasting event. The Permittee has provided an example form that will be used to log and record each blast.

cparker

## **Maps Affected Area**

*Analysis:*

**Area 1:**

Drawings 5-45 and 5-46 of the pre-mining topography meets the minimum requirements of R645-301-521.100 by accurately showing the proposed North Lease permit boundary according to the pre mining topography.

The original application did not meet the minimum requirements of R645-301-141 in Drawing 5-74 and 5-75 due to the scale. The reclamation scenario drawings must match the scale of bond release figures. Division standard in Technical Directives and R645-301-141 regulations require a larger scale (1":100') for the post mining topography and two foot contour intervals. To address this deficiency, #78 of the December 18, 2015 resubmission, and meet the minimum requirements of R645-301-141, R645-301-121.200, R645-301-521.151: Drawing 5-57 was amended to include alluvium overburden. Drawings 5-74 and 5-75 scales and contours were amended to two foot contours to match the bond release map designs of a 1:100 scale with two foot contours. The Permittee also added Drawing 5-74A through Drawing 5-74C detailing the post mining topography for each Area 1 through 3.

To address deficiency # 79 of the December 18, 2015 resubmission and meet the minimum requirements of R645-301-121.200, R645-301-521 Text was added to Section 521.150 detailing reclamation plans are approved only within the permit area, limited to Area 1 footprint for clarity.

The application meets the minimum requirements of R645-301-521.110 which requires previously mined areas to be show. Within the application Chapter 5, Section 521.110 details the previously historic mining operations within the Alton Amphitheater. The text also details how none of these previous mining operations are within the permit areas or adjacent to the permit areas, as defined in R645-100-200.

cparker

## **Maps Facilities**

*Analysis:*

**Area 1:**

The application meets the minimum requirements of R645-301-521.161 by detailing the proposed facilities to be constructed within the permit area on Drawing 5-47 and specifically limited to the facilities shown on Drawing 5-48 are only being considered for this review.

The application meets the minimum requirements of R645-301-521.162 by providing a map detailing the yearly and overall disturbance for the North Private Lease within Drawing 5-46, however, to meet R645-301-800 and R645-301-521.163 the Permittee is only allowed to disturb areas where adequate bond has been approved.

The application does not meet the minimum requirements of R645-301-521.163 as there is no clear narrative, or reference to a narrative or drawing, that details what pits will be bonded for within Area 1 as the approved permit area.

The minimum requirements of R645-301-521.164 are met as updated information in the December 18, 2015 submission was included in Section 164 and 528 detailing all coal storage and loading will happen within active pits.

*Deficiencies Details:*

**Area 1:**

R645-301-521.163: there is no clear narrative or reference to a narrative that details what pits will be bonded for within Area 1 as the approved permit area.

cparker

## **Maps Facilities**

*Analysis:*

**AREA 1:**

The amendment meets the State of Utah R645 requirements for Mining Facilities. The amendment provides a narrative for when siltation structures will be constructed.

kstorar

## **Maps Mine Workings**

*Analysis:*

**Area 1:**

The application meets the minimum requirements of R645-301-521.140 which requires maps that clearly show all mine plans. Drawings 5-53, 5-57, and 5-77 were updated with notes detailing the specific phase of operations or reclamation depicted by each pit extent shown respectively.

cparker

## **Maps Certification Requirements**

*Analysis:*

R645-301-512 minimum requirements are met as all mine drawings and plates are stamped by a Utah certified professional engineer, Dan Guy, with experience in underground and surface mining operations.

cparker

## **Reclamation Plan**

### **General Requirements**

*Analysis:*

**Area 1:**

The application meets the minimum requirements of R645-301-513 by detailing no ponds meet the MSAH, 30 CFR 77.216 requirements, no refuse piles will be constructed and all sealing of underground openings shall meet MSHA, 30 CFR

75.1711 and R645-301-551 requirements.

The application meets the minimum requirements of R645-301-541.200 by detailing that all pits will be backfilled and the site will be reclaimed by the approximate time table shown on Drawings 5-74 through 5-76B.

The application meets the minimum requirements of R645-301-553 in the narrative of Section 542-100 through 600 as conflicting text stating that pits will be backfilled within 60 days or 1500 linear feet was corrected. The Permittee has never been granted additional time under R645-301-542.200 for the current Coal Hollow Mine and specific variance would need to be applied for under the proposed North Private Lease before text could be incorporated into the MRP. Pit 10 is the only pit that is except from this rule due to the state of the underground mining portals at the base of the pit.

cparker

## PostMining Land Use

### Analysis:

#### Analysis:

The Area 1/Pit 1 application meets the requirements for post-mining land use, Area 2 does not. R645-302-316.100 requires that designated special areas of prime farmland may be mined, if the approved proposed postmining land use of the designated special prime farmlands areas is cropland. The application states Section 222.400 that the soils in the northern portion of the North lease are in agricultural production of alfalfa and small grains. The plan states in Section 410 that the North Private Lease area consists of cropland and pastureland and undeveloped rangeland. These areas are shown on Exhibit 4.2. Section 411.100 states that after reclamation the land will be restored to its pre-mining uses.

The North lease permit/disturbed area has been reduced and no longer includes the crop lands. Area 1 within the North Lease permit boundary is shown on Exhibit 4-2.

The Area 1 land is pastureland in the SW corner of the North Lease. Area 1 lands are owned by Heaton Brothers LLC. Area 1 lands are pasturelands and will be returned to pasturelands.

Area 2 of the North Lease contains wetlands and occasionally irrigated pasturelands that have prime farmland status or are farmlands of statewide importance. These lands are owned by Heaton Brothers LLC, Orval Palmer and Greta Palmer, Dean R Heaton, Ferril and Dorothy Heaton. These lands will be returned to pasturelands. Chapter 4, page 4-21 through 4-23 describes current land use. Appendix 4-8 provides post mining productivity goals and statements by Dean R Heaton and Ronald W. Heaton (for Heaton Brothers LLC) concerning the removal of ponds and erosional features from their properties.

Area 3 of the North Lease contains pasturelands and rangeland owned by Ferril and Dorothy Heaton. Productivity of Ferril (and Dorothy) Heaton's land is stated in Appendix 4-8. Kanab Creek and the uplands adjacent to the riparian area will not be disturbed. Sloping rangeland on the east side of the permit area will be reclaimed to more gentle slopes (Dwg 5-74) and will be seeded to pasture. Exhibits 7, 8, 9 and 12 of the Confidential folder contains the Ferril and Dorothy Heaton Lease Agreements. Restoration of fences, reclamation of private roads, drainage and irrigation ditches and weed control are agreed to in the lease.

Area 2: Buried irrigation pipe in Greta and Orval Palmer's property is described in Section 521.122 of the MRP and shown in Figure 12 of App. 7-16. There is nothing specified in Exhibit 16 (the Palmer's lease) with regard to replacing this irrigation system. Therefore, Appendix 4-8 must include a statement from Greta and Orval Palmer regarding the replacement of agricultural water lines in Tract 9-6-12-3. The Permittee responded on 12/18/2016 that "the Palmer lease provides concurrence with the post-mining land use as discussed in R645-301-412.200." However, the application was not written until after the date of execution of the lease (June 30, 2014). Therefore they could not have agreed to what was written. The Permittee further states on 12/18/2015 that the Palmers accept compensation for damage to existing facilities in lieu of replacement." The lease does state in Section 3.06 that compensation arrangements (fees, royalties, payments) are "sufficient for reasonable and customary damages and losses", but such a statement does not indicate to the Division that the irrigation system is not to be restored. The Permittee should request of the Palmers a statement similar to that received from Dean Heaton and the Heaton Brothers for the post mining irrigation system.

Deficiency R645-301-412.200, AREA 2, Buried irrigation pipe in Greta and Orval Palmer's property is described in Section 521.122 of the MRP and shown in Figure 12 of App. 7-16. There is nothing specified in Exhibit 16 (the Palmer's lease) with regard to replacing this irrigation system. Therefore, Appendix 4-7 must include a statement from Greta and Orval Palmer regarding the replacement of agricultural water lines in Tract 9-6-12-3.

Deficiencies Details:

pburton

**WildLife Protection**

Analysis:

The application needs to include a commitment to implement the criterion included in the sage grouse management plan for the North lase area during the reclamation liability period. An additional seed mix for reclamation of wetland habitat has been added for the North Private Lease as a protection and enhancement measure for that high value 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 following information is required in accordance with R645-301-342; ACD will need to provide a commitment to implement the criterion included in the sage grouse management plan for the North lase area during the reclamation liability period.

Additional information may be required by DWR an or FWS.

jhelfric

**Approximate Original Contour Restoration**

Analysis:

The application meets the minimum R645-301-512.200 due to no variance from a and -553.110 through -553.150 as the MRP narratives and certified drawings provides a basis for the Division to be able to determine that the proposed backfill and grading plan will minimize off-site effects, achieve a final surface configuration which closely resembles the general surface configuration of the land prior to mining, provide a subsurface foundation for vegetative cover capable of stabilizing the surface from erosion, and support the approved post mining land use.

cparker

**Backfill and Grading General**

Analysis:

The application does not meet the general requirements of R645-301-553 by detailing a general backfill and grading plan.

The plan 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 post mining 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 post mining land use. However, the narrative on page 5-98 does not demonstrate understanding of the R645-301-553 rule. The application of the 1500 linear feet is the linear distance in the direction of the working face and that backfill and grading must commence within 60 days of coal removal. The pits as depicted on Drawing 5-53 show that no pit is longer then approximate 1000 linear feet, therefore the ruling factor of R645-301-553 is that rough backfill and grading will begin in each pit 60 days after coal removal for the area within the pit. The pit development, as discussed and depicted in the Chapter 5 drawings, show work will move from south to north. Backfill and grading of each pit will then progress 60 days following from south to north behind the working coal removal face. The Permittee will amend the narrative of section 553 to state as such.

To address deficiency #92 of the December 18, 2015 submission R645-301-121.200: The narrative stating R645-301-553.800 applies to the North Private Lease area will be removed. The narrative in the Section -553.800 was corrected to only reference the current south Coal Hollow Mine and all North Private Least references will be removed. Section 553.110 originally incorrectly stated that R645-301-553.800 apply as the North Lease Permit area does not meet the conditions listed within R645-301-553.110. A site having a swell factor alone does not qualify the -553.800 thick overburden regulations. Thick overburden regulations only apply when the site has a swell factor, cannot achieve AOC due to underground coal mining fill, has permanent features such as spoil, waste, or refuse piles, previously mined areas, and underground mining regraded fills.

To address deficiency # 93 of the December 18, 2015 resubmission and meet the minimum requirements of R645-301-553.140,-527.220, 542.620 the Permittee added a new Drawing 5-79 and discussion in Appendix 5-12, Chapter 5 section 527.220 and chapter 5 section 542. Clarify if any of the culverts will remain and how the changed slope will control drainage without erosion. The original application contained no discussion how R645-301-527.220 and R645-301-542.620 will be address with the change of the drainage of the area by no replacing the arroyo and what culverts, if any, will remain post reclamation.

*Deficiencies Details:*

R645-301-553: Rewrite narrative to show understanding of R645-301-553 that rough backfill and grading will follow within 60 days of coal removal.

cparker

## **Backfill and Grading Previously Mined**

*Analysis:*

The minimum requirements of R645-301-521.152 and R645-301-553.500 are met within the application as there are no previously mined areas with the mining operations.

cparker

## **Backfill and Grading on Steep Slopes**

*Analysis:*

The minimum requirements of R645-301-553.200 are met within the application as there is no area where backfilling on a steep grade or slope will exist within the North Private Lease.

cparker

## **Backfill and Grading Steep Special Provisions**

*Analysis:*

The minimum requirements of R645-301-537 and -553 are met within the application as there is no area where backfilling on a steep grade or slope will exist within the North Private Lease.

cparker

## **Mine Openings**

*Analysis:*

The applicant has met the minimum regulatory requirements for the closure of wells and boreholes. The plans for Casing and Sealing of holes is located in the original MRP Section 631. No changes have been proposed with this application. Boreholes will be backfilled to within 1 foot of the land surface with concrete or other materials approved by the Division as necessary to prevent contamination of groundwater or surface-water resources or to protect the prevailing hydrologic balance. The upper approximately 1 foot will be backfilled with native materials to facilitate reclamation (see Drawing 6-11). Exploration holes and boreholes that may be uncovered during mining and reclamation activities will be permanently closed unless approved for water monitoring or otherwise managed in a manner approved by the Division. Permanent closure methods will be designed to prevent access to the mine workings by people, livestock, fish and wildlife, and machinery and to keep acid or other toxic drainage from entering water resources.

dhaddock

## **Mine Openings**

*Analysis:*

**Coal Hollow Mine:**

The minimum requirements of R645-301-513.500, R645-301-529, and R645-301-551 are not met within the application due to a missing narrative of how the drift portals will be sealed. The current section meets the regulations in regards to a

discussion detailing how all exploration borehole and existing wells will be sealed to meet all pertinent State and Federal regulations. Specifically, the MRP Chapter 5 Section 513.500 details how water wells will be capped, sealed, and backfilled to meet all pertinent federal and state regulations. Wells with a depth greater than 30 feet will be sealed in accordance with the requirements of "Administrative Rules for Water Well Drillers."

*Deficiencies Details:*

**Coal Hollow Mine:**

R645-301-513.500, R645-301-529, R645-301-551: The Permittee will amend Chapter 5 Section 513.500 to include the reclamation of the underground portals within Pit 10 by backfill of approximately 135 ft of vertical backfill, meeting MSHA 30 CRF 1711-2 requirements. The portals need to be called out on Drawing 5-37A detailing the backfill as the seal.

cparker

## **Topsoil and Subsoil**

*Analysis:*

**Analysis:**

In Area 1, the plan describes 31 inches of subsoil replacement and 13 inches of topsoil replacement (Section 240 and Section 231.100-231.400). Appendix 6-2 describes several limitations in the suitability of the overburden. To ensure four feet of suitable material is within the root zone, Sections 232.500 and 232.720 of the plan include sampling of the replaced overburden (spoil). This plan describes grabbing one composite sample for 'every 2 to 5 acres' of the regraded spoil surface to a depth of six inches. The plan should describe initial sampling on a grid of 2.5 acres (not 2 to 5 acres). The plan does not identify what parameters are to be analyzed. The plan states the spoil will meet the suitability requirements for topsoil, but to be clear and avoid misunderstanding, the plan should identify analysis for the parameters outlined in Table 3 and Table 7 of the Utah Guidelines for Overburden and Topsoil Handling. The plan does not describe what will occur if a sample is reported to be unsuitable. (The plan must describe further sampling around the original site to delineate the extent of the unsuitable spoil.) The plan should also describe development of a mitigation plan for the unsuitable spoil. The 12/18/2015 response did not change language in Section 232.500 and Section 232.700 from 'every 2 to 5 acres' to 'every 2.5 acres', as described in the cover letter and did not provide a sampling grid or a contingency for further sampling should results come back 'poor to unacceptable.'

In addition to spoil sampling, Section 232.500 describes subsoil sampling prior to removal and stockpiling. The following analysis will be run on overburden proposed for substitute subsoil: pH, conductivity, SAR, percent lime, and texture. Locations of proposed substitute subsoil sampling should be identified on Drawing 2-4, Topsoil Handling Plan. For the North Lease, these statements supercede the last three paragraphs in Section 232.500 and therefore, those paragraphs should be specified as pertaining only to the Coal Hollow Mine sampling plan.

Please describe the process of to be followed when a portion of the topsoil is utilized and a portion remains in the topsoil stockpile. How will the remaining topsoil be protected and in what time frame? The plan should specify that partially utilized stockpiles of topsoil and subsoil will be reshaped, bermed and seeded at the end of use or by December 31st of each year, whichever comes first.

Subsoil placement without subsequent topsoil placement led to severe erosion in previous reclamation work. Compaction of subsoil by vehicle traffic has also been a concern in ongoing reclamation. MRP Section 242.200 currently states that the regraded land will be treated if necessary to reduce potential slippage of the redistributed material and Section 341.220 states that an environmental professional will determine whether ripping is required. However, neither section addresses the treatment of replaced subsoil. Section 242.200 requires modification to state that when subsoil placement is not immediately followed by topsoil placement (within a month), the graded subsoil will be treated with mulch or tackifier (per Section 244.200) to prevent erosion in the interim; and the subsoil will be ripped to a depth of 18 inches prior to topsoil placement.

Section 243 plans for composite sampling of replaced topsoil every 2 acres at final reclamation. The composite sample will be analyzed for N:P:K. This sampling will be completed within three months of topsoil placement.

R645-301-234.230, The plan should include a topsoil/subsoil balance table that is updated as reclamation progresses and which is provided to the Division at year end.

Drawing 3-11 Reclamation Treatment Map show Area 1 will be seeded with Pasture Mix, Table 3-38.

Drawings 5-76A Earthworks Reclamation Sequence and 5-76B Facilities Reclamation Sequence, asbuilts, will be included

with the annual report (Chapter 5, page 5-106).

*Deficiencies Details:*

**Findings:**

R645-301-233.100, AREA 1 (and all future areas), In addition to spoil sampling, Section 232.500 describes subsoil sampling prior to removal and stockpiling. Locations of proposed substitute subsoil sampling should be identified on Drawing 2-4, Topsoil Handling Plan. The 12/18/2015 response did not add language in Section 232.500 and Section 232.700 as described in the cover letter and did not provide a sampling grid. In addition the narrative was not corrected as discussed to change 'every 2 to 5 acres' to 'every 2.5 acres'.

R645-301-731.300 AREA 1 (and all future areas). To ensure four feet of suitable material is within the root zone, Section 232.500 of the plan includes sampling of the replaced overburden (spoil). This plan currently is ambiguous about sampling frequency ('every 2 to 5 acres'). The plan should state that a sample will be taken on a grid every 2.5 acres, on a grid with collection of gps data for the sample location. The plan does not identify what parameters are to be analyzed. The plan states the spoil will meet the suitability requirements for topsoil, but to be clear and avoid misunderstanding, the plan should identify analysis for the parameters outlined in Table 3 and Table 7 of the Utah Guidelines for Overburden and Topsoil Handling. Should a sample analysis indicate spoils are poor or unacceptable, the plan must describe a contingency for further sampling within the 2.5 acre area to delineate the extent of the unsuitable spoil. The plan should also suggest a mitigation plan for unsuitable spoil. The 12/18/2015 response did not change language in Section 232.500 and Section 232.700 from 'every 2 to 5 acres' to 'every 2.5 acres', as described in the cover letter and did not provide a sampling grid or a contingency for further sampling should results come back 'poor to unacceptable.'

R645-301-121 AREA 1 (and all future areas), The last three paragraphs in Section 232.500 do not pertain to the North Lease and therefore, those paragraphs should be specified as pertaining only to the Coal Hollow Mine sampling plan. The 12/18/2015 response did not change language in Section 232.500 as described in the cover letter

R645-301-242.100 AREA 1 (and all future areas). MRP Section 242.200 currently states that the regraded land will be treated if necessary to reduce potential slippage of the redistributed material and Section 341.220 states that an environmental professional will determine whether ripping is required. However, neither section addresses the treatment of replaced subsoil. Section 242.200 requires modification to state that when subsoil placement is not immediately followed by topsoil placement (within a month), the graded subsoil will be treated with mulch or tackifier (per Section 244.200) to prevent erosion in the interim; and the subsoil will be ripped to a depth of 18 inches prior to topsoil placement. The 12/18/2015 response did not change language in Section 242.200 as described in the cover letter

R645-301-243, AREA 1 (and all future areas). Section 243 plans for composite sampling of replaced topsoil every 2 acres at final reclamation. The composite sample will be analyzed for N:P:K. This sampling will be completed within three months of topsoil placement. The 12/18/2015 response did not change language in Section 243 as described in the cover letter

R645-301-234.230, AREA 1 (and all future areas). The plan will include a topsoil/subsoil balance table that is updated as reclamation progresses and which is provided to the Division at year end. The 12/18/2015 response did not add a table in Section 234.230 as described in the cover letter.

R645-301-234.230 and R645-301-242.130, AREA 1 (and all future areas). Please describe the process of to be followed when a portion of the topsoil is utilized and a portion remains in the topsoil stockpile. How will the remaining topsoil be protected and in what time frame? The 12/18/2015 response did not change the narrative in Section 234.230 as described in the cover letter. In any case the proposed change to the narrative is not entirely acceptable, because it contains vague wording such as 'reasonable time period following end of use,' and refers to Section 341.100 which does not describe seeding windows, and describes waiting until the next appropriate season. A definite date by which seeding would be accomplished is preferable.

pburton

## **Road System Reclamation**

*Analysis:*

**Area 1:**

The minimum requirements of R645-301-534 are met within the application as all primary roads will be designed to

R645-301-534.300 and all temporary ancillary roads will meet the general 534 design requirements. There are not any roads with the permit area that R645-301-537 would apply.

The minimum requirement of R645-301-542.600, R645-103-224.420 through -224.422 are not met due to no mention of K3100 within the attached Kane County Agreements, see Operations Relocation and/or Use of a Public Road

*Deficiencies Details:*

R645-301-521.133 & R645-103-.224.422, R645-301-526, R645-301-542.600: The Permittee failed to provide written proof of measures to be used to ensure that the interest of the public and landowners affected are protected with the realignment of K3100. (e.g. A letter communicating the ownership of the road, maintenance, bonding, and use of K3900 and K3100 by the public needs to be provided to the Division.) There is no written finding in regards to K3100 within not requiring the same level of proof Grant of Easement, Permit and Design by Kane County DOT, no proof of public notice, and no written statement from Kane County waving the requirement of such measures.

cparker

## Road System Retention

*Analysis:*

The minimum requirements of R645-301-534 and -552 are met within the application all primary and ancillary roads within the MRP will be reclaimed at the end of mining.

cparker

## Contemporaneous Reclamation General

*Analysis:*

The minimum requirements of R645-301-553 in regards to contemporaneous reclamation and backfilling activities are not met within the application. The MRP details the sequencing of mining and backfilling of the operation in Chapter 5 Section 526, 528 and 553 but never mentions the partial bonding of pits within each Area and how reclamation and bonding will be incremental.

*Deficiencies Details:*

R645-301-553: The Permittee will describe the incremental bonding by pit and reclamation in the appropriate sections.

cparker

## Revegetation General Requirements

*Analysis:*

The existing seed mixtures and reclamation techniques in the MRP (Chapter 3, Section 3.41) are also applicable in the North Private lease area. For the additional plant communities that were found and described in the Vegetation & Wildlife Habitat of the North Private Lease Area {Volume 12}, seed mixtures were added to the MRP (Chapter 3, Section 3.41) in the first submittal. New reference areas and revegetation success standards for the additional plant communities of the North Private Lease are proposed in the DISCUSSION section (Volume 12). An additional seed mix for reclamation of wetland habitat has been added for the North Private Lease as a protection and enhancement measure for that high value habitat. The information is adequate to meet the requirements of this section of the regulations. Additional information may be required pending receipt of comments from DWR and FWS.

jhelfric

## Revegetation Standards for Success

*Analysis:*

Analysis:  
R645-302-317.600 outlines revegetation and and restoration of soil productivity. MRP Section 317.620 et seq describes the implementation of a plan yet developed for the measurement of soil productivity within 10 years after completion of soil replacement. Productivity will be measured for three consecutive years before bond release. The level of management will be the same as for non-mined prime farmland in the surrounding area. R645-302-317.622, R645-302-317.627 and R645-302-317.628 require the the Division consult with the NRCS State Conservationist for the reference crop and the post

mining land use evaluation. That coordinated review is ongoing.

*Deficiencies Details:*

**Deficiency:**

R645-302-317.622, R645-302-317.627 and R645-302-317.628 require the the Division consult with the NRCS State Conservationist for the reference crop and the post mining land use evaluation. That coordinated review is ongoing and the recommendations made by the NRCS will be incorporated into the mining plan.

pburton

## Stabilization of Surface Areas

*Analysis:*

**Analysis:**

The application describes the stabilization of stockpiles in Section 244.100 (see deficiency written under Topsoil and Subsoil Operations plan) and the use of mulch in Section 244.200. The use of mulch is described as being one of three methods: straw, hydromulch or a sterile nurse crop. In past practice, the Permittee has utilized certified weed free straw and a quick growing sterile nurse crop and an application of nutrimulch (Turkey manure) to stabilize and fertilize the reclaimed surface. Section 244 should be revised to accurately state the revegetation practices found to be successful at the Coal Hollow Mine and which will be applied in Area 1, keeping in mind the prevalence of clay soil texture.

Section 242.200 describes treating the regraded land, as necessary, to reduce slippage of subsoil and topsoil. There have been two instances of slippage of the subsoil and topsoil on the Excess Spoils pile at the Coal Hollow Mine. The excess spoil pile slopes were 3h:1v, about at the limit of the disc/harrow used to seed and crimp mulch. The plan must include routine ripping of the regraded spoil on all slopes 3h:1v or steeper and on all areas compacted by traffic or on areas holding water.

At the coal Hollow Mine site, areas surrounding Pit 10 and other active mine areas are shedding water from the alluvium contributing to unwanted water in the pits. A plan for stabilizing the backfilled material to promote a reduction in the runoff is required for the alluvium during mining and reclamation. The Permittee has responded that this problem is significant only where groundwater flows out from the contact of alluvium and shale and as a result the solution can be deferred until Areas 2 & 3 are developed. However, this issue of operational sediment control practices applies to all working areas in Areas 1, 2, & 3. The deficiency was rewritten to better explain the Division's concern.

*Deficiencies Details:*

R645-301-244 AREA 1 (and all future areas), The use of mulch is described as being one of three methods: straw, hydromulch or a sterile nurse crop. In past practice, the Permittee has utilized certified weed free straw and a quick growing sterile nurse crop and an application of nutrimulch (Turkey manure) to stabilize and fertilize the reclaimed surface. Section 244 should be revised to accurately state the revegetation practices found to be successful at the Coal Hollow Mine and which will be applied in Area 1, keeping in mind the prevalence of clay soil texture. The 12/18/2015 submittal did not include the changes to Section 244.200 as described.

R645-301-242.200, AREA 1 (and all future areas), Section 242.200 describes treating the regraded land, as necessary, to reduce slippage of subsoil and topsoil. There have been instances of slippage of the subsoil and topsoil on excess spoil pile slopes (3h:1v). The plan must include routine ripping of the regraded spoil prior to subsoil placement on all slopes 3h:1v or steeper and on all areas compacted by traffic. The 12/18/2015 response suggests a misunderstanding of what is being requested. Please contact the Division to discuss this requirement for ripping of spoil prior to placement of subsoil onto compacted spoil or graded land with slopes greater than or equal to 3h:1v.

R645-301-532.200, AREA 1 (and all future areas), An operational plan for stabilizing the laid-back alluvium/shale material to promote a reduction in the runoff is required to reduce the rate and volume of runoff into and through working areas during operations and reclamation.

pburton

## Cessation of Operations

*Analysis:*

**Coal Hollow Mine:**

To address deficiency # 105R645-301-515.321 and -515.322 The Permittee addressed errors within said sections. Section

515.320 labeled was corrected 515.321 and is pertinent to Underground mining which requires beyond the exact number of surface acres affected, the horizontal and vertical extent of subsurface strata which have been in the permit area prior to cessation. The section labeled 515.321 within the application was corrected to 515.322 which is pertinent to Surface mining operations

**Area 1:**

The original application did not meet the minimum requirements of R645-301-515 by not detailing a clear procedure to be followed in the event of temporary cessation of coal mining and reclamation activities after Pit 1 in the North Private Lease. The application did not detail temporary cessation procedures in the event mining and pit development may be halted beyond the 60 days allowed by R645-301-553. The application does include that 30 days or more before temporary cessation the Permittee will notify the Division.

To address deficiency # 106 of the December 18, 2015 resubmission and meet the minimum requirements of 515.312 the narrative was added how the temporary excess spoil pile would be stabilized to meet R645-301-532.200 minimize erosion and sediment transport off site, e.g tackifier.

cparker

## Maps Affected Area Boundary

*Analysis:*

See deficiency under MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

*Deficiencies Details:*

See deficiency under MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

cparker

## Maps Bonded Area

*Analysis:*

**Area 1:**

The minimum requirements of R645-301-800 are met within the application as the bonded area map was updated in Drawing 5-77 to show the reclamation backfill crest of the individual pits.

cparker

## Maps Reclamation BackFilling and Grading

*Analysis:*

The minimum requirements of R645-301-542 are met within the application with extraction footprints of the individual pits detailed on Drawing 5-55 and reclamation backfill crest shown on Drawing 5-77.

cparker

## Maps Reclamation Facilities

*Analysis:*

**Area 1:**

The minimum requirements of R645-301-542 in reference to R645-301-121.200 are not met due to discrepancies with the labeling of the topsoil and subsoil piles located within Area 1 on various drawings throughout the MRP. The Permittee will amend all drawings to correctly show the labels on the appropriate soil stockpiles.

The remainder of the minimum requirements of R645-301-542 are met within the application as included the addition of Drawing 5-79 detailing the proposed design of the replacement of the natural drainages that will be destroyed due to mining operations will be placed back in a stable manor meeting the requirements of R645-301-358.400, R645-301-521.100 through-521.130, R645-301-731.610, R645-301-527.220 and R645-301-121.200

*Deficiencies Details:*

R645-301-121.200: The Permittee will correct errors with discrepancies of the Topsoil stock pile and subsoil stock pile

labels changing throughout the Chapter 5 drawings.

cparker

## Maps Reclamation Final Surface Configuration

*Analysis:*

Areas 1:

The minimum requirements of R645-301-542 are met within the application as there engineering designs provided on Drawing 5-79 to show that the natural drainages that will be destroyed due to mining operations will be placed back in a stable manor meeting the requirements of R645-301-358.400, R645-301-521.100 through-521.130, R645-301-731.610 and R645-301-121.200.

cparker

## Maps Reclamation Surface and Subsurface Man Made

*Analysis:*

Area 1:

The minimum requirements of R645-301-542 are met not within the application due to missing information in regards to K3100 replacement. See attached drawing showing the drawing legal descriptions included in the Kane County agreement.

*Deficiencies Details:*

R645-301-542: see relocation of public road deficiency

cparker

## Maps Reclamation Certification Requirments

*Analysis:*

R645-3010-512 minimum requirements are met as all mine drawings and plates are stamped by a Utah certified professional engineer, Dan Guy, with experience in underground mining operations.

cparker

## Bonding and Insurance General

*Analysis:*

The application meets the minimum requirements of R645-301-850 as the applicant currently holds liability insurance through American Mining Insurance Co, effective until 12/10/16. The insurance includes the required Marsh from, explosives and claims made per occurrence.

cparker

## Bonding Form of Bond

*Analysis:*

The application meets the minimum requirements of R645-301-860.100 as the applicant currently maintains a surety bond amount of \$12,750,000 which is held by Lexon Insurance Co with a rider held by Ironshore Indemnity Inc for 342 disturbed acres.

cparker

## Bonding Determination of Amount

*Analysis:*

**Analysis:**

R645-302-317.220, The Division will use the soil-reconstruction specifications of R645-302-317.210 to carry out its responsibilities under R645-302-310 through R645-302-316 and R645-301-800. Soil reconstruction specifications must be considered adequate prior to approval.

*Deficiencies Details:*

R645-302-317.220, The Division will use the soil-reconstruction specifications of R645-302-317.210 to carry out its responsibilities under R645-302-310 through R645-302-316 and R645-301-800. Soil reconstruction specifications must be considered adequate prior to approval.

pburton

## **Bonding Determination of Amount**

*Analysis:*

The application does not meet the minimum requirements of R645-301-830.140

The application includes the line item cost of the north Area facilities. For the development of mining operations of Pit 1 within Area 1 the bond must include the reclamation cost of: Pond 5, Pond 6, Diversion Ditches 05 through 09, Culvert C-1, Culvert C-2, Perimeter fencing, backfill from spoil pile for Pit 1 and Pit 2, and contemporaneous backfill for Pit 3 through 5. Equipment costs include the use of a 7 CY excavator, 40 ton haul truck, water truck, grader and several dozers. The Area 1 bond shows the calculations for one culvert, all diversion ditches, Pond 5 and Pond 6.

There are errors on the structure demolition and disposal due to missing information. The table only includes one 24 inch and one 144 inch culvert, while Drawing 5-65 details four culverts. The current bond for Area 1 shows only one culvert while Drawing 5-48 shows C-1 and C-2 within Area 1.

The note on the bond calculations states that all surface disturbances includes all ditches, ponds, and roads outside the pit areas. However, the line item breakout of the facilities and special areas already accounts for the ponds and ditches. The note is misleading and needs to be corrected.

The Permittee needs to add narrative specify what bond incremental will be applied for, specifically as of 12/1/15 disturbances associated only with Pit 1 and all surface soil salvage and erosion control features within Area 1.

Drawing 5-48 shows stockpiles will be present in the northeastern corner of Area 1, over Pit 11, which does not have any surface disturbance accounted for. The permittee must add the Phase 2 and Phase 3 bonding for the appropriate section of Pit 11 to be impacted by mining operations within Area 1.

*Deficiencies Details:*

Area 1:  
R645-301-830.140: Pit 11 has surface disturbances associated with it and is not bonded for. There is only one culvert bonded for but two shown on the drawings. Missing narrative for the sequencing of bonding shown within Appendix 8-1.

cparker

## **Bonding Terms and Conditions Liability Insurance**

*Analysis:*

The application meets the minimum requirements of R645-301-850 as the applicant currently holds liability insurance through American Mining Insurance Co, effective until 12/10/15. The insurance includes the required Marsh from, explosives and claims made per occurrence.

cparker

## **Special Categories**

### **Auger Mining**

*Analysis:*

The MRP does not contain any reference to the R645-302-240 regulations for auger mining operations.

*Deficiencies Details:*

The MRP does not contain any reference to the R645-302-240 regulations for auger mining operations. The Permittee shall

## Operations Alluvial Essential Hydrologic Functions

### Analysis:

The application meets the minimum requirements of R645-302-322. A report entitled "Alluvial Valley Floor Field Investigation in the North Private Lease" was developed and submitted to the Division on July 17, 2014. This report along with supplemental information submitted on October 10, 2014 allowed the Division to make a determination regarding the existence of any alluvial valley floor within the proposed permit and adjacent areas. It was determined by the Division that an alluvial valley floor does not exist in the area being proposed for mining, however, there is an alluvial valley floor to the North on adjacent property.

Further, the hydrologic monitoring data indicate that the alluvial groundwater systems present within and adjacent to the North Private Lease area do not contribute to the essential hydrologic function of agricultural lands within the North Private Lease area. No irrigation wells are present in the shallow alluvial groundwater system within the North Private Lease area. Waters that are currently or have historically been utilized for irrigation of lands within the North Private Lease area have been derived from the Kanab Creek surface-water system. The surface-water diversions to the existing and historic irrigation systems are located up-stream of the North Private Lease area. The depths to water in the shallow groundwater systems within agricultural areas in the North Private Lease area are too deep to facilitate subirrigation of agricultural vegetation within the area. Additionally, the water quality of shallow groundwaters in much of the North Private Lease area is poor (Table B-2a, Table B-2b in appendix B), which would likely limit its usefulness for flood irrigation and/or subirrigation even if it were accessible for use.

Consequently, there is essentially no potential for mining-related activities to affect the water supply of any potential AVF areas in the North Private Lease area. Also, because it is possible to successfully restore the flat land surface and associated soils during reclamation, the potential for mining-related activities to cause material damage to the land resource within potential AVF areas is very low. In other words, proposed mining operations in the North Private Lease area will not cause damage to the water source of any identified alluvial valley floors in the North Private Lease.

dhaddock

## Operations Alluvial Protection of Agricultural

### Analysis:

The Division finds that the regulatory requirements for the protection of farming have been met. A determination has been made that the proposed mining area does not contain an AVF, but that the AVF is to the north of the proposed permit area. Mining in the proposed permit area will not interrupt, discontinue, or preclude farming on the adjacent area AVF. Recharge to the AVF is from the North and would not be disrupted by mining in the proposed permit area, which is to the south of the AVF.

dhaddock

## Auger Mining

### Analysis:

The amendment does not meet the State of Utah R645 requirements for Auger Mining. The location of auger holes and operations plan is unclear. The application does not include a written commitment to Special Categories of Mining R645-302-240 Auger Mining and Remining Operations in the North Lease area. The rules require an evaluation of the proposed auger mining areas and any potential mitigative measures that need to be addressed. These rules include, but are not limited to: R645-302-241.200, R645-302-242, R645-302-243, R645-302-244.200, R645-302-245.110, R645-302-245.120, R645-302-245.130, R645-302-245.210, R645-302-245.220, R645-302-245.221, R645-302-245.222, R645-302-245.230, R645-302-245.231, R645-302-245.232, R645-302-245.300

R645-301-722: The application does not provide planned locations of highwall mining locations in Appendix 7-16 Figure 3.

### Deficiencies Details:

R645-302-240: The application does not include a written commitment to Special Categories of Mining R645-302-240 Auger Mining and Remining Operations in the North Lease area. The rules require an evaluation of the proposed auger

mining areas and any potential mitigative measures that need to be addressed. These rules include, but are not limited to: R645-302-241.200, R645-302-242, R645-302-243, R645-302-244.200, R645-302-245.110, R645-302-245.120, R645-302-245.130, R645-302-245.210, R645-302-245.220, R645-302-245.221, R645-302-245.222, R645-302-245.230, R645-302-245.231, R645-302-245.232, R645-302-245.300

R645-301-722: The application does not provide planned locations of highwall mining locations in Appendix 7-16 Figure 3.

kstorrar

## Operations In Alluvial Monitoring

### *Analysis:*

The application does not include a written commitment to Special Categories of Mining R645-302-332. Application Contents for Operations Affecting Designated Alluvial Valley Floors.

### *Deficiencies Details:*

R645-302-332: The application does not include a written commitment to Special Categories of Mining R645-302-332. Application Contents for Operations Affecting Designated Alluvial Valley Floors.

kstorrar