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*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*

May 26, 2016

Kyle Edwards, Resident Agent
BRC Wellington, LLC
1865 West Ridge Road
Wellington, Utah 84542

Subject: Deficiencies in Application for Permitting the Deer Creek Waste Rock Site, BRC Wellington, LLC, C/015/0035, Task #4966

Dear Mr. Edwards:

The Division has completed a review of your application for permitting the Deer Creek Waste Rock Site which was determined to be administratively complete on September 21, 2015. The Division has identified deficiencies that will need to be corrected before approval of the application can be granted. Our Technical Analysis and Findings document is enclosed which discusses the Division's review and outlines the deficiencies that will need to be addressed. The initials of the deficiencies author are provided so that your staff can communicate directly with that individual should questions arise.

The plans as submitted are incomplete. Please revise the application accordingly and resubmit the entire package in order for us to complete the processing of your permit revision.

If you have any questions, please call me at (801) 538-5325.

Sincerely,

Daron R. Haddock
Coal Program Manager

DRH/ss
Enclosure
cc: Richard White, Earthfax
O:\015035.WRS\WG4966 PERMIT APP\deficiency letter.docx

1594 West North Temple, Suite 1210, Salt Lake City, UT 84116
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UTAH DNR OIL, GAS & MINING

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# Technical Analysis and Findings

## Utah Coal Regulatory Program

**PID:** C0150035
**TaskID:** 4966
**Mine Name:** BOWIE WASTE ROCK SITE
**Title:** PERMIT APPLICATION

## Environmental Resource Information

### Fish and Wildlife Resource Information

*Deficiencies Details:*

The amendment does not meet the State of Utah R645-301-322 requirements for Fish and Wildlife Resource Information or R645-301-322.100 by providing the level of detail needed to be sufficient to design the protection and enhancement plan required under R645-301-333. The following deficiencies must be addressed prior to final approval:

R645-301-322: The Permittee must update the MRP to include a current list of state sensitive fish and wildlife resources for the permit area, describe why those species are not within the permit area (exception of fish) and therefore should not be impacted, and provide sufficient information to validate the proposal that a protection and enhancement plan is not necessary. The level of detail provided (reference to 1988 survey but only provides map and hyperlink to Utah Conservation Data Center) is not sufficient to validate that a protection and enhancement plan is not required under R645-301-333. The Permittee must demonstrate each listed species was evaluated for potential impacts.

**lreinhart**

## Operation Plan

### Air Pollution Control Plan

*Deficiencies Details:*

R645-301-420, R645-301-421, R645-301-422, Provide documentation of communication with the Division of Air Quality for this remining operation. Such communication is referred to in Section 1.1.2.4.

**pburton**

### Spoil Waste Impounding Structures

*Deficiencies Details:*

R645-301-531,-532,-533.700: The Permittee must show all runoff from the disturbed area reporting to the total containment pond until the second year of successful seeding.

**cparker**

## Hydrologic Siltation Sedimentation

*Deficiencies Details:*

The amendment does not meet the State of Utah R645 requirements for Siltation Structures.
R645-301-763.100: The amendment must clarify the timeline for sediment pond removal. The structure cannot be removed sooner than two years after the last augmented seeding.

**kstorrar**

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# Technical Analysis and Findings

## Utah Coal Regulatory Program

May 26, 2016

| | |
|---|---|
| **PID:** | **C0150035** |
| **TaskID:** | **4966** |
| **Mine Name:** | **BOWIE WASTE ROCK SITE** |
| **Title:** | **PERMIT APPLICATION** |

## General Contents

### Identification of Interest

*Analysis:*

The application meets the State of Utah requirements for R645-301-112 Identification of Interest.

The applicant has submitted the Business Entity information, Applicant & Operator and Officer & Director information on pages 1-2 and 1-3 of the application. All required information was submitted. An AVS Evaluation was generated on September 2, 2015 with the ownership information provided. There were no violations listed in the system. The application information did not conflict with existing information listed in the AVS system.

**ssteab**

### Violation Information

*Analysis:*

The application meets the State of Utah requirements for R645-301-113, Violation Information.

As outlined on page 1-6 and on the Table 1-2 Affiliated Notes of Violation (page 1-11) on the application, neither BRC Wellington, LLC nor any stockholder having interest in the Waste Rock Site have had a State or Federal mining permit suspended or revoked in the five years preceding the date of submission of this application or have forfeited a performance bond or similar security deposited in lieu of bond revoked.

**ssteab**

### Right of Entry

*Analysis:*

The application meets the State of Utah requirements for R645-301-114, Right of Entry Information.

The site is located on lands that are entirely owned by BRC Wellington, LLC (as outlined in Appendix 1-1). Therefore, no other right of entry is required.

**ssteab**

## Legal Description

*Analysis:*

The application meets the State of Utah requirements for R645-301-115, Legal Description.

The applicant submitted updated pages on September 25, 2015 (pages 1-5, 1-7 and 1-9).

The legal description accurately describes the entire 49.05 acre parcel included within the permit area as described on updated page 1-9 and also located in Appendix 1-1 Asset Purchase and Sale Agreement, Schedule 5 (Real Property).

**ssteab**

## Permit Term

*Analysis:*

The application meets the State of Utah requirements for R645-301-116, Permit Term.

The application describes and identifies the lands subject to coal mining operations. It is anticipated that the Applicant will operate at the site for a period of less than 5 years.

**ssteab**

## Public Notice and Comment

*Analysis:*

The application meets the State of Utah requirements for R645-301-117, Public Notice and Comment.

The applicant provide a proposed public notice (page 1-7). The application was determined administratively complete on September 21, 2015 and was given approval to publish as required by R645-300-121. A copy of the affidavit is required to be submitted to the Division as soon as it becomes available.

The Division notified in writing local governmental agencies and all Federal or State governmental agencies involved in or with an interest in the permit process on September 22, 2015.

**ssteab**

## Filing Fee

*Analysis:*

A filing fee is not required, therefore R645-301-118 is not applicable.

**ssteab**

## Permit Application Format and Contents

*Analysis:*

The application meets the State of Utah requirements for R645-301-120, Permit Application Format and Contents.

The application submitted by BRC Wellington, LLC contains current information which is clear and concise and follows the format required by the Division.

**ssteab**

## Permit Application Format and Contents

*Analysis:*

The application meets the requirements of R645-301-120 for Application format and content. The Bowie Waste Rock site is actually already permitted under Permit C0150018 Deer Creek Mine. Because the waste rock is to be mined by a different entity, the site is being separated from the Deer Creek Mine permit and will have its own stand alone permit. An application to permit the site as a stand alone permit was submitted on August 11, 2015 and it was determined to be administratively completed on September 21, 2015. The application addresses each section of the rules as a stand alone application.

**dhaddock**

## Completeness

*Analysis:*

The application meets the requirement of R645-301-150. The Division determined the application to be administratively complete on September 21, 2015. This site was previously permitted under the Deer Creek Mine permit C0150018 and continues to meet the regulatory requirements for a permit. The application is is being made to provide for a stand alone permit that will be held under BRC Wellington, Inc.

**dhaddock**

# Environmental Resource Information

## General

*Analysis:*

The amendment meets the State of Utah R645 requirements for General Environmental Resource Information in terms of engineering.

The amendment meets the minimum requirements of R645-301-521 due to information stated the mine plan details, plates, and drawings showing the general resources affect by the proposed mine plan in Chapter 5.

**cparker**

## Permit Area

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-521.140 due to information stated in the mine plan details and plates which match the provided legal description of the mine boundary. The MRP includes narrative and drawings that detail the permit area within Chapter 5 and Plate 5-1.

**cparker**

## Historic and Archeological Resource Information

*Analysis:*

The amendment meets the State of Utah R645-301-411.140 requirements for cultural and historic resources information.

Section 4.1.1.1 on page 4-2 provides a narrative that describes the absence of cultural and historic resources listed or eligible for listing in the National Register of Historic Places within the permit area. A summary report of cultural resources antiquities permit 87-UT-54937 is located in Appendix 4-2 with a map on page 10-4.

There are no public parks or cemeteries within 100 feet of the permit area and there are no National System of Trails or Wild and Scenic Rivers in the permit or adjacent area.

Coordination with the State Historic Preservation Officer (SHPO) is evidenced by letter dated August 1, 1988 from The Division of State History and includes concurrence on National Register of Historic Places eligibility findings. No cultural sites were found, and therefore an MOU or Mitigation Plan is not recommended in accordance with R645-301-411.144.

**lreinhart**

## Climatological Resource Information

*Analysis:*

The amendment meets the State of Utah R645 requirements for Climatological Information.
The average precipitation and temperature for the area are provided. Graphs and tables of the data are given in Appendix 7-4.

**kstorrar**

## Vegetation Resource Information

*Analysis:*

The amendment meets the State of Utah R645-301-321 requirements for vegetation resource information.

Vegetation resource information is located in Section 3.20 on pages 3-2 and 3-3. Appendix 3-1 is a vegetation survey that was originally prepared for Deer Creek in June 1978. Although a significant amount of time has passed since the survey was done, it contains baseline information regarding the plant communities and provides reference areas. The information is adequate to predict the potential for reestablishing vegetation and includes productivity measurements on disturbed land.

**lreinhart**

## Fish and Wildlife Resource Information

*Analysis:*

The amendment does not meet the State of Utah R645-301-322 requirements for fish and wildlife resource information.

The plan acknowledges the Utah Conservation Database was accessed to determine Utah State Sensitive Species of concern but the amendment does not include a list of said species nor does it provide evidence of evaluation of species to make the determination that operations will not impact them. The only referenced survey was conducted in 1988 and is not considered adequate to address protected species listed in 2016. The referenced plate (3-2) only evaluates Deer and Elk habitat and does not include any other species listed.

The statement on page 3-5, â€œA review of information maintained by the Utah Conservation Data Center indicates that no threatened or endangered species, nor habitat for such species, are present within the permit areaâ€• is lacking evidence that evaluation of habitat was conducted. The Permittee must provide the Division with rational used to determine each species listed by the U.S. Fish and Wildlife Service, or Utah Division of Wildlife does not have habitat on the permit area and therefore does not require protection measures. This rational must be put in narrative form and be included in the MRP, under section 3.2.2.2.

Based on data provided by the Utah National Heritage Program of the Utah Division of Wildlife Resources, the Division has determined the following sensitive species occur in the project vicinity and therefore must be analyzed. Site specific species include Ferruginous Hawk, Colorado Cutthroat Trout, and Western Toad. Although impacts to these species are highly unlikely due to the scope of the mining operations, the MRP must contemplate those impacts. The statement regarding a lack of perennial and intermittent surface waters suffices this requirement for fish habitat.

The U.S. Fish and Wildlife "Information for Planning and Conservation website" was used to generate a list of Threatened, Endangered, or Candidate species in accordance with Section 7 of the Endangered Species Act and informal consultation occurred on 11/10/2015, consultation code 06E23000-2016-SLI-0037. This fulfills requirements under section 7 of the Endangered Species Act. None of the federal or state listed species are known to occur in the project area and their habitat does not exist within the project area boundaries but a narrative on such evaluation is not provided. The Division has determined that approval of this amendment would not affect a listed species or designated critical habitat and therefore the Division did not initiate formational consultation with U.S. Fish and Wildlife Service.

The permit area is not within a Sage-grouse Management Area and therefore consultation with Utah Division of Wildlife pursuant to the Governors Executive Order and MOU between DOGM, PLPCO, and DWR is not required.

The nearest known raptor nest is approximately 1.3 miles northeast of the site. Golden Eagles have been observed in flight. Since no mining is to occur and no new disturbance will occur, the potential for subsidence or destruction of a nest is eliminated. Any future sightings of Golden Eagles would be a sign of acceptance of any disturbing activities that may be in effect.

There are no perennial and intermittent surface waters and therefore, any impacts to fish would be from water depletions occurring from operations. As such, the Permittee calculated water depletion rates from dust suppression to be a total of 1.92 A.F. Therefore, depletion rates are under the required amount (100 AF annual) as required by the Colorado Fish Recovery Program and a fee to said program is not required.

*Deficiencies Details:*

The amendment does not meet the State of Utah R645-301-322 requirements for Fish and Wildlife Resource Information or

R645-301-322.100 by providing the level of detail needed to be sufficient to design the protection and enhancement plan required under R645-301-333. The following deficiencies must be addressed prior to final approval:

R645-301-322: The Permittee must update the MRP to include a current list of state sensitive fish and wildlife resources for the permit area, describe why those species are not within the permit area (exception of fish) and therefore should not be impacted, and provide sufficient information to validate the proposal that a protection and enhancement plan is not necessary. The level of detail provided (reference to 1988 survey but only provides map and hyperlink to Utah Conservation Data Center) is not sufficient to validate that a protection and enhancement plan is not required under R645-301-333. The Permittee must demonstrate each listed species was evaluated for potential impacts.

**lreinhart**

## Soils Resource Information

*Analysis:*

Analysis:
The application meets the requirements of R645-301-220, Environmental Description.

Within the 49.05 acre permit area (boundary shown on 5-1) there are two soil map units: Gerst and Strych. Chapter 2 provides a summary of the soil survey which is provided in Appendix 2-1. The soil survey is from the NRCS Web Soil Survey site. Figure 1-1 is the corresponding soils map. Soils are predominantly Gerst/Strych/Badland soils derived from Mancos Shale on colluviual slopes. Example profiles are provided in Section 2.2.2.3 for Gerst and Strych soil types. Depth to bedrock for the Gerst soil averages about two feet. Average annual precipitation is 10 inches distributed evenly throughout the year, with a slight increase in July - October. Elevation is above 6,000 feet. Slopes range from 2 to 70 percent.

Order 1 sample data is provided in Appendix 2-2. Samples were taken in April 1981. Sample locations are shown on Plate 2-1. There were some very high EC and SAR values encountered.

Soil productivity for the Semi-Desert Shallow Loam (Utah Juniper-Pinyon) range site is listed as 63 lbs/ac in a favorable year and 44 lbs /ac in a normal year and only 19 lbs/ac in an unfavorable year (Section 2.2.2.4). Productivity is dependent on soil moisture and the soil is dry 50 - 65% of the time when the soil temperature is greater than 41 degrees F (App. 2-1). Vegetation is black sagebrush, shadscale, bluegrass, Utah juniper and pinyon.

There is no prime farmland in this location. There were fruit orchards at the mouth of Huntington Canyon years ago, however.

**pburton**

## Land Use Resource Information

*Analysis:*

The amendment meets the State of Utah R645-301-411 requirements for land use information.

In Section 4.10 on pages, 4-1 and 4-2 premining land-use is described as wildlife habitat and zoned for mining and grazing. Soils in the permit area limits plant production capability and restrict use to recreational purposes, wildlife habitat, watershed, or aesthetic purposes.

Land use classification under Emery County Zoning is shown on a map provided as Appendix 4-1.

**lreinhart**

## Geologic Resource Information

*Analysis:*

The application meets the minimum requirements for Environmental Resource Information required under R645-301-623. This site was previously permitted under Pacificorp. The new owner Bowie Refined Coal is now wanting to excise the waste rock site from the Deer Creek Permit and then recover the waste coal and process it through their dry coal cleaning facility. The Environmental Resource information necessary yo permit this site was previously collected by Energy West. Energy West (the previous owner of the site) evaluated data collected from over 130 outcrop and core samples to assess the

potential acid- or toxic-forming characteristics of the waste rock that was disposed of at the site. These data are summarized in this current application and found in Appendix 6-1.
Comparison of these data with guidelines published by the Division of Oil, Gas and Mining indicates the following:
The pH of the waste rock is moderately alkaline and should not hinder reclamation.
The electrical conductivity of the waste rock is less than 4 mu/cm and should, therefore, not hinder reclamation.
The sodium adsorption ratio of the waste rock is generally less than 4, indicating that this factor should not hinder site reclamation.
The boron concentration of the waste rock is less than 5 m/kg, indicating that concentrations of this element should not hinder site reclamation.
The soluble selenium concentration sampled was 0.098 mg/kg, which is an acceptable concentration according to the Division guideline. The calcium carbonate concentration of the sample was 26.3%. This, together with the alkaline nature of the rock, suggests that the acid/base potential of the waste rock is acceptable. These data, taken together, indicate that the waste rock from which the coal will be recovered is neither acid- nor toxic forming.
Since no mining other than waste rock recovery will occur at the site, no subsidence control program has been prepared.

The Geology and Stratigraphy of the Waste Rock site is shown in Figure 6-1. There are essentially three geological units present at the surface of the Waste Rock site. 1) the Masuk Member of the Cretaceous formation covers the majority of the Waste Rock site itself. 2) The Quarternary age alluvium that is just to the south of the waste rock site, and 3) The Quaternary age pediment mantle that is found just to the east of the permit area.
The Bowie Waste Rock site is located near the mouth of Huntington Canyon, about 6 miles northwest of the town of Huntington, Utah. The site is located on the southern flank of Gentry Mountain just south of Wild Horse Ridge. Rocks exposed in the area are marine-derived mudstones in the lower portion of the Masuk Member of the Mancos Shale. The Masuk Shale on the bench which adjoins the site on the east and west is covered by a 5- to 20- foot thick layer of terrace gravel of Quaternary age. North-south trending normal faults have disrupted the strata in the region. However, no faults are known to exist within the permit area.

Stratigraphy. The oldest rocks exposed in the region are part of the marine Mancos sequence deposited in Late Cretaceous time. This formation contains several alternating units of off-shore marine mudstones near-shore marine sandstones.
The upper unit of the Mancos is the Masuk Member, which underlies the surface of the site. The Masuk Member consists of shale and shaly siltstone that is thin to medium bedded with a few thin interlayered sandstone beds .The Masuk Member is generally devoid of significant water.

The benches on the west and east sides of the permit area are covered by a Quaternary pediment mantle. These materials are highly variable, of fluvial origin, and consist of a poorly bedded mixture of silt, sand, pebbles, cobbles, and boulders derived from adjacent uplands In the vicinity of the permit areas, these materials are generally 5 to 20 feet thick.
Structure. The strata in the permit area dip west-northwest at an angle of 2 to 3 degrees into the Straight Canyon Syncline. The nearest known fault to this area plotted by Witkind et al. (1987) is located approximately 2 miles to the west. No faults are known to exist in the permit area. Regionally, the strata contain vertical joints trending in both a northwest and northeast direction. It is hard to identify jointing in the weathered Masuk shale outcrops, but in fresh cuts the joints appear to be wide spaced. Very limited amounts of ground water migrate down these fractures because the clays present in the rock swell when in contact with water, thus sealing the fractures.

**dhaddock**

## Hydro Baseline Information

*Analysis:*

The amendment meets the State of Utah R645 requirements for Baseline Information.
The amendment provides a background on the quantity and quality of groundwater within the permit area. Only ephemeral waters drain from the permit area to Huntington Creek.

**kstorrar**

## Probable Hydrologic Consequences Determination

*Analysis:*

The amendment meets the State of Utah R645 requirements for Probable Hydrologic Consequences Determination. The amendment provides a narrative and additional Appendices addressing potential impacts to the hydrologic balance. Sediment will be contained and treated on site by either the sediment pond or by silt fences. These runoff controls will minimize impacts to surface and groundwater adjacent to the permit area. On site fueling may take place and the amendment outlines how any leaks and/or spillage will be handled.

**kstorrar**

## Hydro SurfaceWater Monitoring Plan

*Analysis:*

**kstorrar**

## Maps Affected Area Boundary Maps

*Analysis:*

The amendment meets the State of Utah R645 requirements for Affected Area Boundary Maps.

The amendment meets the minimum requirements of R645-301-521.100 through-521.130 by updating all the relevant maps for the entire area shown on the mine plan as detailed on Plate 5-1.

The amendment meets the minimum requirements of R645-301-521.110.R645-301-521.110 requires previously mined areas to be shown a typical cross section and plan view of the permit area on Plate 5-1.

**cparker**

## Maps Existing Structures and Facilities

*Analysis:*

The amendment meets the State of Utah R645 requirements for Existing Structures and Facilities Maps.

The amendment meets the minimum requirements of R645-301-521.120 which require a map clearly showing the location of all building in and within a1000 ft of the proposed permit area, along with identifying the current use of said building. The amendment included a minor narrative in Chapter 5, Section 5.1.2.1 detailing the existing surface features. The topography detailed on Plate 5-1 was generated from a September 2014 survey of the site.

Narrative in Chapter 5 Section 5.2.1.1 details that the location of buildings and public roads located within 1,000 feet of the permit boundary are shown on Figure 5-1. Said figure shows a house, several farm buildings. Figure 5-1 does disclose enough information of the current use of buildings, e.g. are the houses inhabited, and address within the narrative a reference to an landownership map or discussion located elsewhere within the MRP that would clarify such information.

**cparker**

## Maps Existing Surface Configuration

*Analysis:*

The amendment meets the State of Utah R645 requirements for Existing Surface Configuration Maps.

The amendment meets the minimum requirements of R645-301-521.150 as it includes a drawing or plate that clearly calls out the existing surface. Narrative within the MRP Chapter 5 Section 5.1.2.1 states that the topography noted on Plate 5-1 is based on a survey of the site conducted in September 2014. No additional waste has been placed at the since the survey

**cparker**

## Maps Mine Working

*Analysis:*

The amendment meets the State of Utah R645 requirements for Mine Workings Maps.

The amendment meets the minimum requirement of R645-301-521.140 which require maps that clearly show all mine plans. The Site does not have any mine workings under the waste rock to show and Plate 5.1 shows the existing surface configuration.

**cparker**

## Maps Permit Area Boundary

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-521.140 as Drawings were updated within the amendment to detail the new permit boundary, lease boundary, and adjacent areas to the current mine plan. Plate 5-1 details the Permit area with existing topography to meet the boundary map requirements. Plate 5-2 clearly shows the permit boundary and adjacent area

**cparker**

## Maps Subsurface Water Resources

*Analysis:*

The amendment meets the State of Utah R645 requirements for Subsurface Water Resources Map.
A cross-section of the recharge source and location of groundwater within and adjacent to the permit area is provided.

**kstorrar**

## Maps Surface and Subsurface Manmade Features

*Analysis:*

The amendment meets the State of Utah R645 requirements for preexisting Surface and Subsurface Manmade features maps.

The amendment meets the minimum requirement of R645-301-521.122 as it includes a drawing or plate that clearly calls out the existing surface and subsurface man made features within, passing through, or passing over the permit area. R645-301-521.120 through-521.125 requires maps to clearly show existing surface and subsurface facilities. Chapter 5 Section 521.122 details existing surface and subsurface facilities within, passing through, or over the permit area.

The amendment meets the minimum requirements of R645-301-521.123 by including Plate 5-1 which shows the public road, State route 31 is located with 100 feet of the permit boundary. No coal recovery operations will be conducted within 100 feet of a public road.

The amendment meets the minimum requirements of R645-301-521.124.Regulations required the location and size of existing areas of impoundments, water treatment facilities, and coal development waste. The narrative on page 5-9 of Section 5.2.1.1 calls out the location and size of the existing diversion ditches and waste rock pile detailed on Plate 5-1.

The amendment meets the minimum requirements of R645-301-521.125 by detailing the location of the sedimentation pond and detailing that no permanent water impoundments, coal processing waste banks, and coal processing waste dams/embankments exist within the permit area.

**cparker**

## Maps Surface and Subsurface Ownershiip

*Analysis:*

The amendment meets the State of Utah R645 requirements for Surface and Subsurface Ownership Maps.

The amendment meets the minimum requirements of R645-301-521.130 which requires landowners, right of entry, and public interest maps as updated within the amendment on Plate 5-2 and Chapter 5 Section 5.2.1.1. Additional information such as warranty deeds are provided within Appendix 1-1. The permit area consists of approximately 49.05 acres and no Federal or State land exists within the permit area.

**cparker**

### Maps Surface Water Resource

*Analysis:*

The amendment meets the State of Utah R645 requirements for Surface Water Resources Map.
A map of surface water resources within and adjacent to the permit area is provided.

**kstorrar**

### Maps Vegetation Reference Area

*Analysis:*

The amendment meets the State of Utah R645-301-323 requirements for maps and aerial photographs.

The results of vegetation and wildlife surveys in the permit area are provided on Plates 3-1 and 3-2, respectively. The permit area and location of the reference area for determining revegetation success is shown on Plate 3-1. This map also shows the general pre-disturbance boundaries of plant communities and vegetation sample areas. No monitoring stations have been established to gather data for fish and wildlife or any special habitat features since none are known to exist.

**lreinhart**

## Operation Plan

### Mining Operations and Facilities

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-523, -526, and 528 by addressing

The amendment 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. The narrative within Chapter 5 Section 5.1.2.1 incorrectly states that coal mining of the waste rock site will be conducted. Specific details of rejected coal mine waste are detailed in Section 5.2.2 and final reclamation and placement of waste are detailed in Sections 5.2.8.3 and 5.3.6. Upon final mining operations the waste will be compacted and buried as per R645 regulations detailed in Section 5.4.22.

*Deficiencies Details:*

**cparker**

### Existing Structures

*Analysis:*

The amendment meets the State of Utah R645 requirements for Existing Structures.

The amendment meets the minimum requirements of R645-301-526 by providing updated information to include the discussion of the existing buildings associated with the Site. The narrative of Section 5.2.6.1 details that no permanent structures are present at the site at the time of the amendment submittal.

The amendment meets the minimum requirements of R645-301-526.200 by detailing no known existing utilities within the permit area in Section 5.2.1.1 and Section 5.2.6.2. Chapter 5 section 5.2.6.2 narrative details that temporary utilities will be utilized at the site with no permanent utilities developed.

The amendment meets the minimum requirements of R645-301-526.400 by stating in Section 5.2.6.1 that all equipment will be operated in accordance with manufacturer's recommendations an permits issued by DOGM and the Utah Division of Air Quality.

**cparker**

## Relocation or Use of Public Roads

*Analysis:*

The amendment meets the State of Utah R645 requirements for the Relocation or Use of Public Roads.

The amendment meets 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. The amendment meets the minimum requirements of R645-301-521.133 due to no relocation of a public road or mining operations existing within 100 feet of public road

**cparker**

## Air Pollution Control Plan

*Analysis:*

Analysis:
The application does not meet the requirements for R645-301-420, R645-301-421, R645-301-422, because Section 1.1.2.4 states that the air quality approval will be obtained from the Utah Division of Air Quality and the Air Quality Order will be placed in Appendix 4.4, but neither the date of communication with DAQE or the NOI submitted to DEQ for the current operation was not provided. Consequently, the deficiency noted in January 2016 is repeated below.

Table 1-1 lists an outdated Utah Department of Environmental Quality Division of Air Quality Approval Order DAQE #AN2952001-3. The Air Quality permit has not yet been approved for the crushing and screening equipment. The Division is refered to Appendix 4-4 for monitoring requirements and dust suppression requirements in Sections 4.2.2 and Section 4.2.3, but there is no information in Appendix 4-4, yet.

*Deficiencies Details:*

R645-301-420, R645-301-421, R645-301-422, Provide documentation of communication with the Division of Air Quality for this remining operation. Such communication is referred to in Section 1.1.2.4.

**pburton**

## Air Pollution Control Plan

*Analysis:*

The amendment meets the State of Utah R645-301-422 requirements for the air pollution control plan.

Evidence of coordination and compliance efforts with the Utah Division of Air Quality is noted in Section 4.2.2 on page 4-5 and Appendix 4-4. Controls to be implemented at the site to suppress dust consist of watering roadways, material-handling operations, and loading operations. Storage piles will also be sprayed with water as necessary to minimize dust emissions.

**lreinhart**

## Coal Recovery

*Analysis:*

The amendment meets the State of Utah R645-301-525.130 requirements for Subsidence Control Plan with a renewable resources survey.

The minimum requirements of R645-301-521.140 are met in the amendment Section 5.2.1.1 and Section 5.2.5 detail the no

underground mining will occur at this site.

The minimum requirements of R645-301-525.130 are met in the amendment Section 5.2.1.1 details the no underground mining will occur at this site.

**cparker**

## Subsidence Control Plan Renewable Resource

*Analysis:*

The amendment meets the State of Utah R645-301-525.130 requirements for Subsidence Control Plan with a renewable resources survey.

The minimum requirements of R645-301-521.140 are met in the amendment Section 5.2.1.1 and Section 5.2.5 detail the no underground mining will occur at this site.

The minimum requirements of R645-301-525.130 are met in the amendment Section 5.2.1.1 details the no underground mining will occur at this site.

**cparker**

## Subsidence Control Plan Subsidence

*Analysis:*

The amendment meets the State of Utah R645-301-525.400 requirements for Subsidence Control Plan.

The minimum requirements of R645-301-525.400 are met in the amendment Section 5.2.1.1 and Section 5.2.5 detail the no underground mining will occur at this site.

**cparker**

## Subsidence Control Plan Performance STD

*Analysis:*

The amendment meets the State of Utah R645-301-525.700 requirements for Public Notice of Proposed Mining.

The minimum requirements of R645-301-525.700 are met in the amendment as the Permittee presented a clear subsidence plan for protected areas that includes the appropriate notification at least six months prior to mining. Section 5.2.1.1 and Section 5.2.5 detail the no underground mining will occur at this site.

**cparker**

## Subsidence Control Plan Notification

*Analysis:*

The amendment meets the State of Utah R645-301-525.700 requirements for Public Notice of Proposed Mining.

The minimum requirements of R645-301-525.700 are met in the amendment as the Permittee presented a clear subsidence plan for protected areas that includes the appropriate notification at least six months prior to mining. Section 5.2.1.1 and Section 5.2.5 detail the no underground mining will occur at this site.

**cparker**

## Subsidence Control Plan Slides and Other Damage

*Analysis:*

The amendment meets the State of Utah R645 requirements for Slides and Other Damage.

The amendment 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 amendment includes narrative in Chapter 5 Section 5.1.5 detailing the emergency contact procedures in the event of a slide, including contacting the Division

by the fastest available means.

The amendment 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:*

The amendment meets the State of Utah R645-301-332 requirements for describing impacts of subsidence to fish, wildlife, and vegetative resources.

As described in Section 3.3.2 on page 3-6, no underground mining operation will occur within the permit area. Thus, the planned actions will not result in subsidence of renewable resource lands.

The amendment meets the State of Utah R645-301-333 requirements to describe how using best technology currently available to minimize adverse impacts to fish and wildlife, including compliance with the Endangered Species Act.

The fence surrounding the permit area was designed to be compatible with wildlife migration. This fence will be maintained during operations. No disturbance will occur outside of that fenced area. Furthermore, runoff control measures will be maintained to preclude off-site surface-water impacts. Other protective measures within the disturbed area boundary will include adhering to clean industrial hygiene procedures, properly disposing of all waste (papers, cans, bottles, etc.), and instructing employees not to hunt or harass wildlife in the permit and adjacent areas.

**lreinhart**

## Topsoil and Subsoil

*Analysis:*

Analysis:
The application meets the requirements of R645-301-230, Operation Plan.

Section 2.3.1.1 states that there is 33,900 CY of subsoil and 2,300 CY of topsoil in stockpiles. Plate 2-1 shows the general locations of topsoil and subsoil stockpiled at the site. Plate 5-1 outlines the locations of the soil stockpiles. Section 2.3.4.1 states that the upper foot of these stockpiles is topsoil and below the topsoil is subsoil. In addition there is topsoil along the road embankments which was seeded and evaluated for reclamation success (App. 3-2). Topsoil was placed one foot deep above subsoil on berms of completed cells. Roadways are constructed on subsoil.

Stockpiles are protected with silt fences and are signed.

Section 2.3.1.1 and Section 2.4.2.1 describe removal and redistribution of topsoil and subsoil from the contemporaneously reclaimed refuse. The location for storage and protection of topsoil and subsoil during remining must be identified, per R645-301- 234. The deficiency written in January 2016 is restated below.

**pburton**

## Vegetation

*Analysis:*

The amendment meets the State of Utah R645-301-331 requirements for protection of vegetation.

The operation plan is described in Section 3.3 on page 3-6. The site is previously disturbed and there will be no new surface disturbance. Due to the scope of the project, interim revegetation is not reasonable or required.

**lreinhart**

## Road Systems Classification

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-527.100 by classify each road as primary or ancillary. The MRP section 5.2.7 contains the narrative describing how the access road from the facility will be used to transport coal and is classified as the only primary road. Various ancillary roads will be utilized within the existing disturbance in the development of operations to remove coal within the waste rock and will be temporary in nature.

**cparker**

## Road System Plans and Drawings

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-534.100 by submitting plans and drawing for each road to be maintained within the permit area. The narrative in Section 5.2.1.1 and Section 5.3.4.1 detail how Energy West constructed an access road to the waste rock pile at the beginning of site operations. The access road will be maintained by BRCE during coal recovery and reclamation activities of the Bowie waste rock site. The access road was originally associated with Utah Power and Light Research Farm, prior to the construction of the waste rock site by Energy West. In the late 1980s Energy West upgraded the road upon the issuance of the waste rock facility permit to the current 24 feet roadway width to meet the R645 requirements of primary haul roads.

The road was designed to meet minimum R645 design regulations with a prepared subgrade that was scarified six inches and re-compacted to 90% of standard Proctor density. The subgrade consists of 10 inches of bottom ash that was moisture- continued and compacted. The road base consists of 1 inch crushed gravel with approximately 9% fines. The final surface lift of the access road consists of 3 inch thick layer of compacted, rotomilled asphalt. The gradient of the access road averages from approximately 3.3% to 1.7%. The road has a crown with a 1% slop toward the roadside drainage channels. The cuts into rock were constructed at slope of approximately 0.5H:1V. A locking gate is installed on the access road near the intersection of State Route 31 to control access to the site.

No alterations or relocations of any natural drainage ways were required within the permit area to accommodate the needs of transportation systems.

The original amendment did not meet the minimum requirements of R645-301-534.130 due to missing a slope stability analysis. A slope stability analysis was provided within appendix 5-3 of the MRP. The amendment now meets the minimum requirements of R645-301-534.130.

**cparker**

## Road System Performance Standards

*Analysis:*

The amendment meets the State of Utah R645 requirements for Performance Standards of roads within the permit area.

The amendment 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. The amendment meets the minimum requirements of R645-301-527.250 with no alternative specification or steep cut slops associated with roads to be anticipated or contemplated at the time of this amendment. Section 5.2.1.1 details how road within the permit area were typically constructed with a 1.5H:1V cut and fill slopes.

The amendment 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. Typicals of the roads to be constructed within the disturbance boundary are show on Plate 5-1.

**cparker**

## Road System Certification

*Analysis:*

The amendment meets the State of Utah R645 requirements for Primary Road Certification

The amendment meets the minimum requirements of R645-301-521.170 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. The narrative of Chapter 5 Section 5.1.2.2 and 5.2.7 detail that all primary haul roads are designed and certified by Richard White, a professional engineer. All primary haul roads will be built in a stable manner to ensure environmental protection and safety with no stream fords.

**cparker**

## Road System Other Transportation Facilities

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-521.170 by submitting plans and drawing for each road, conveyor, and rail system to be used within the proposed permit area. There are no conveyors or rail systems to be used within the proposed permit area.

**cparker**

## Spoil Waste Disposals of Noncoal Mine Wastes

*Analysis:*

The amendment meets the State of Utah R645 requirements for Spoil and Waste Materials.

The amendment meets the minimum standards or R645-301-528.330 due to tThe narrative of Section 5.2.1.1 surface facilities states that no non coal mine waste will be generated at the site and any "general refuse that is generated on site will be regular removed from the site. This waste will consist predominately of daily miscellaneous garbage that will be responsibility of the individuals that generate the waste." The narrative defines what, how, and where the noncoal mine waste will be "regularly" removed.

The amendment meets the minimum requirements of R645-301-528.330 by detailing that no non-coal waste or hazardous waste will be disposed of within the permit area. As identified in Section 5.2.8.3 on page 5-18, No non-coal waste that is defined as hazardous in 40 CFR 261 will be generated at the site. Page 5-10 includes a description of removal of general refuse and miscellaneous garbage.

**cparker**

## Spoil Waste Coal Mine Waste

*Analysis:*

The amendment meets the State of Utah R645 requirements for Coal Mine Waste.

The amendment meets the minimum standards or R645-301-528.320 due to not changes in the MRP text. The amendment does not meet the minimum requirements of R645-301-512.230. The narrative with Chapter 5 Section 5.1.2.2 details how the existing waste rock pile was designed by professional engineer, but is missing a narrative detailing that any coal mine waste generated during the re-mining of the waste rock will be placed in an engineered designed manor meeting the R645 requirements.

The amendment meets the minimum standards of R645-301-513.300. The amendment narrative includes a discussion of how coal mine waste fires will be handled. The narrative also states no underground development, coal processing waste, or excess spoils will be disposed of underground.

The amendment meets the minimum requirements of R645-301-528.320 with the narrative of Section 5.2.8.1 states that coal will be recovered from the waste rock site by crushing and screening equipment to the extent possible to maximize coal recovery within economic constraints. No overburden or excess spoil will be handled within the permit area.

The amendment meets the minimum requirements of R645-301-536.100 by detailing the 1988 geotechnical evaluation prior

to the waste rock construction. Appendix 5-3 contains the original geotechnical report which also shows the stability analysis resulted in a static safety factor of 1.5. Section 5.3.6.2 details the placement of reject coal in two foot lifts to achieve an approximate outslope of 2H:1V. The minimum requirements of R645-301-536 are met due to information stated in narrative of Section 5.3.6.7. Narrative was added detailing waste placement in a manner meeting R645 regulations.

**cparker**

## Spoil Waste Refuse Piles

*Analysis:*

The amendment meets meet the State of Utah R645 requirements for Refuse Piles
The amendment meets the minimum standards or R645-301-528.322 due to not changes in the MRP text. The amendment meets the minimum standards of R645-301-513.400. The original waste rock pile was designed and constructed in accordance with the relevant MSHA regulations the amendment detailed information how the waste placement after coal processing will also be replaced in a manner approved by MSHA regulations.

The amendment meets the minimum requirements of R645-301-514.200-.250. The narrative of Section 5.1.4.1the amendment states how a qualified individual, with experience in the construction of refuse piles, will inspect the waste rock pile at least quarterly. The quarterly inspections will continue during the coal recovery operations and through to the final grading and revegetation of the waste rock pile. The quarterly reports of each inspection will be provided to the Division after each inspection.

The amendment meets the minimum requirements of R645-301-528.322, -301-536, and -542.730 due to information detailing the handling of the coal mine waste to meet R645 requirements.. Section 5.2.8.3 describes in further detail the methods of handling waste rock rejected material within the permit area. The narrative states that all rejected material, approximately 127,700 CY of material, will be placed back on areas currently occupied by waste rock.

The amendment meets the minimum requirements of R645-301-536.900 by including a narrative referencing the appropriate section of the MRP to find the required R645 information.

**cparker**

## Spoil Waste Impounding Structures

*Analysis:*

The amendment meets the State of Utah R645 requirements for impounding structures.

The amendment meets the minimum requirement of R645-301-512.140 by having all hydrology maps as described under -301-722 certified by a professional engineer, Richard White.

The amendment meets the minimum requirements of R645-301-512.240 by having a professional engineer, Richard White, who has experience in design and construction of impoundments certify the designs of Ponds.

The amendment 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 amendment meets the minimum requirements of R645-301-514.310-313 by text within Section 5.1.4.3 detailing that quarterly inspection will be made during coal recovery operations and throughout the period of final grading and revegetation. The quarterly reports will be prepared by a qualified individual and provided to the Division after each inspection. A copy of the inspection reports will also be kept at the BRCW office in Wellington, Utah.

The amendment does not meet the minimum requirements of R645-301-532 by failing to detail the sediment control measures carried out within the disturbed area to prevent untreated runoff.

The amendment does not meet the minimum requirements of R645-301-531 and -532 as the narrative describes some site runoff not being treated by the pond. The permittee must have an UPDES permit associated with the site to have discharge.

Narrative within the MRP details that a total containment sediment pond is located within the permit area. This single pond is the only water impoundment detailed in Section 5.3.1 and 5.3.2. The specific design details of the pond may be found in Section 7.3.2 of the MRP. The pond is located on the west side of the waste rock pile with appropriate culverts and ditches

directing drainage flowing into the pond, however, there is drainage off the disturbed area of the waste rock that does not report to the pond. The Permittee does not maintain an UPDES permit for the site as the pond is designed for a total containment, therefore any runoff from the disturbed area must report to the pond. Any onsite drainage outside the disturbed area is treated with silt fences and straw waddles and directed away from the site.

The amendment meets the minimum requirements of R645-301-533.110 -220 by detailing a geotechnical report that was completed for the impoundment that should detail a static safety factor of at least 1.3 for a normal pool with steady state seepage saturation conditions are met in appendix 5-3.

The amendment meets the minimum requirements of R645-301-533.300 due to narrative in section 5.3.3.3 detailing that outslopes and inslopes of the sedimentation pond will be periodically inspected for signs of surface erosion.

The amendment meets the minimum requirements of R645-301-533.400-500 by detailing that slopes are protected as riprap has been placed to protect the pond slopes and embankments near the discharge structures as well as soil stockpiles being revegetated.

The amendment meets the minimum requirements of R645-301-533.700 by providing a detailed design plan for structures that was prepared under the professional engineer. The pond was designed to meet the R645 storm requirements for a total containment structure. Narrative in Section 5.3.3.7 details the inspection and maintenance schedule for the pond with sediment removal when the pond accumulates 60% of the design sediment storage volume.

The amendment does not meet the minimum requirements of R645-301-356.300 and -763 by retaining all ponds until the second year of seeding to facility erosion control treatment. The amendment include appendix 5-4 which detailes justification for the removal of the ponds prior to the R645 regulations but said procedures are currently under review by the Division and OSM and not approved.

*Deficiencies Details:*

R645-301-531,-532,-533.700: The Permittee must show all runoff from the disturbed area reporting to the total containment pond until the second year of successful seeding.

**cparker**

## Spoil Waste Burning and Burned Waste Utilization

*Analysis:*

The amendment meets the State of Utah R645-301-513.800 and R645-301-528.323 requirements due to no changes in the MRP text that no waste will be burned within the Permit area.

The amendment meets the minimum standards of R645-301-513.800 and R645-301-528.323 due the narrative in Section 5.2.8.3 detailing that no significant potential for this coal to spontaneously combust. In the event of any coal fires the MRP states that the fires will be handled as described in Section 5.1.3.8.

**cparker**

## Spoil Waste Coal Processing Waste to Abandoned

*Analysis:*

The amendment meets the State of Utah R645 requirements for the approved return of coal development into abandoned underground workings.

The amendment meets the minimum standards or R645-301-528.340 due to no underground workings associated with the site.

**cparker**

## Spoil Waste Excess Spoil

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-512.210, R645-301-514.100, R645-301-521.143,

R645-301-528, and R645-301-535.100 as there is no change in the approved MRP Chapter 3 Section 3.2.3.1 that states that no excess spoil will be generated.

**cparker**

## Hydrologic Ground Water Monitoring

*Analysis:*

The amendment meets the State of Utah R645 requirements for Groundwater Monitoring. The amendment will continue quarterly groundwater monitoring at the waste rock site.

**kstorrar**

## Hydrologic Water Quality Standards

*Analysis:*

The amendment meets the State of Utah R645 requirements for Water Quality Standards and Effluent Limitations.
The amendment states water from the sediment pond may be used for dust suppression. The water will be applied within the permit area on permeable surfaces so excess runoff will be minimal. Any excess that does occur will be captured by sediment control structures and be retained within the permit area.

**kstorrar**

## Hydrologic Diversion General

*Analysis:*

The amendment meets the State of Utah R645 requirements for Diversions.
Diversions have been designed to safely convey runoff from design storms ranging from 10-year 24-hour to 100-year 24-hour events. The application provides supporting calculations and designs for the ditches.

**kstorrar**

## Hydrologic Diversion Misc. Flows

*Analysis:*

The amendment meets the State of Utah R645 requirements for Sediment Control Measures.
Plate 7-2 within the amendment shows the location of diversion ditches and any sheet flow on the refuse pile will be properly conveyed to the sediment pond, siltation structures that encompass the operational area during mining.

**kstorrar**

## Hydrologic Siltation Sedimentation

*Analysis:*

The amendment does not meet the State of Utah R645 requirements for Siltation Structures.
The amendment proposed to remove the sediment pond during the initial phase of reclamation. The Division is currently working with our oversight agency, the Office of Surface Mining Reclamation and Enforcement, to clearly define the Best Technology Currently Available for Siltation Structures at the time of reclamation. While the definition of the Best Technology Currently Available for Siltation Structures at the time of reclamation is under consideration by OSM, the Division relies upon past precedence for this deficiency. In the interim, the pond may not be removed sooner than two years after the last augmented seeding.

*Deficiencies Details:*

The amendment does not meet the State of Utah R645 requirements for Siltation Structures.
R645-301-763.100: The amendment must clarify the timeline for sediment pond removal. The structure cannot be removed sooner than two years after the last augmented seeding.

**kstorrar**

## Hydrologic Exemptions

*Analysis:*

The amendment meets the State of Utah R645 requirements for siltation structure exemptions.
The first exemption ASCA-1 will treat runoff with a sediment fence and the second exemption area ASCA-2 will treat runoff with a vegetative filter.

**kstorrar**

## Hydrologic Impoundments

*Analysis:*

The amendment meets the State of Utah R645 requirements for Impoundments.
The amendment provides a narrative, calculations, and designs of the sediment pond. The pond is designed for total containment. The sizing takes into account sediment storage in addition to impounding a 100-year 24-hour event. The amendment includes a narrative and timeline for sediment removal from the pond. The impoundment includes an emergency spillway in the unlikely event that it discharges water.

**kstorrar**

## Support Facilites and Utility Installations

*Analysis:*

The amendment meets the State of Utah R645 requirements for Support Facilities and Utility Installations.

The amendment meets the minimum requirements of R645-301-521.180 and -526 the require the description, plans, and drawing for each support facility to be constructed, used, or maintained within the proposed permit area The narrative of Section 5.2.1.1 details the single existing impoundment and support roads. Plate 5-1 details the general location of all support facilities located within the Permit area. Plate 7-1 shows the pond plan and cross sections.

The application meets the minimum requirements of R645-301-526.220 that requires the description, plans, and drawing for each support facility to be constructed, used, or maintained within the proposed permit area. Chapter 5 Section 5.2.6.2 details that the support facilities at the site will consist of only mobile equipment. No permanent equipment or utilities will be issued for the coal recovery operations of the waste rock. All temporary installations of structures will be located, maintained, and used in a manner to prevent or control erosion utilizing best technology currently available.

**cparker**

## Signs and Markers

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-521.200 by the general discussion of signs. Section 5.2.1.1 details that the access road will have a locking gate to control access to the site. Section 5.2.1.2 details the various specific information that will be displayed on the permit identification signs to meet R645 regulations. The perimeter of the permit area will be marked with a fence, as shown on Plate 5-1. There are no stream buffer zone markers within the Permit area as there are perennial or intermittent stream channels within the permit area. All topsoil and subsoil markers have been placed on the respective soil stockpiles to meet R645 regulations.

**cparker**

## Explosives General

*Analysis:*

The amendment meets the State of Utah R645 requirements for general Use of Explosives.

The application meets the minimum requirements of R645-301-521.167 as the narrative within Chapter 5 Section 5.2.4 states that no blasting operations conducted will be conducted at the site.

**cparker**

## Explosives Preblasting Survey

*Analysis:*

The amendment meets the State of Utah R645 requirements for a Preblasting Survey.

The amendment meets the minimum requirements of R645-301-524.300 as the application states no blasting will be conducted at the site, therefore a pre-blasting survey is not required.

**cparker**

## Explosives General Performance Standards

*Analysis:*

The amendment meets the State of Utah R645 requirements for establishing General Performance Standards.

The amendment meets the minimum requirements of R645-301-524.430 as the application states no blasting will be conducted at the site, therefore a pre-blasting survey is not required.

**cparker**

## Explosives Blasting Signs Warnings Access Control

*Analysis:*

The amendment meets the State of Utah R645 requirements for Blasting Signs and Warnings

The amendment meets the minimum requirements of R645-301-524.460 and -524.530 as the application states no blasting will be conducted at the site, therefore a pre-blasting survey is not required

**cparker**

## Explosvies Control of Adverse Effects

*Analysis:*

The amendment meets the State of Utah R645 requirements for Blasting: Control of Adverse Effects

The amendment meets the minimum requirements of R645-301-524. as the application states no blasting will be conducted at the site, therefore a pre-blasting survey is not required.

**cparker**

## Explosives Records of Blasting Operations

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-524.700 as the application states no blasting will be conducted at the site, therefore a pre-blasting survey is not required.

**cparker**

## Maps Affected Area

*Analysis:*

The Application meets the minimum requirements for geological maps required by R645-301-624.
An Area Geologic Map and Statigraphic section are found as Figure 6-1. The site is located near the mouth of Huntington Canyon, about 6 miles northwest of the town of Huntington, Utah. Rocks exposed in the area are marine-derived mudstones in the lower portion of the Masuk Member of the Mancos Shale. The Masuk Shale on the bench which adjoins the site on the east and west is covered by a 5- to 20- foot thick layer of terrace gravel of Quaternary age. North-south trending normal faults have disrupted the strata in the region.

However, no faults are known to exist within the permit area.
Stratigraphy. The oldest rocks exposed in the region are part of the marine Mancos sequence deposited in Late Cretaceous time. This formation contains several alternating units of off-shore marine mudstones near-shore marine sandstones.

The benches on the west and east sides of the permit area are covered by a Quaternary pediment mantle. These materials are highly variable, of fluvial origin, and consist of a poorly bedded mixture of silt, sand, pebbles, cobbles, and boulders derived from adjacent uplands

**dhaddock**

### Maps Affected Area

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-521.100 through-521.130 by not updating all the relevant maps for the entire area shown on the mine plan. As described in Section 5.2.1.1 the surface contour data from an aerial survey conducted on September 26, 2014 by Aero-graphics is depicted on Plate 5-1. The plate shows two foot contour intervals of the map clearly show the existing surface topography of the permit and adjacent areas.

**cparker**

### Maps Facilities

*Analysis:*

The amendment meets the State of Utah R645 requirements Mining Facilities Maps.

The application meets the minimum requirements of R645-301-521.161 by detailing the existing waste rock pile, haul roads, sedimentation pond, and soil stockpile areas relevant to mining operations on Plate 5-1.

The application meets the minimum requirements of R645-301-521.162 by providing a map detailing the yearly and overall disturbance for the waste rock site.

The application meets the minimum requirements of R645-301-521.163 as there is a clear narrative and reference to a narrative or drawing that details what surface mining operations are bonded for within the permit area.

**cparker**

### Maps Mine Workings

*Analysis:*

The amendment meets the State of Utah R645-301-521.140 requirements for Mine Workings Maps.
The application meets the minimum requirements of R645-301-521.140 which requires maps that clearly show all mine plans and no underground mine workings are present within the permit area

**cparker**

### Maps Certification Requirements

*Analysis:*

The amendment meets the State of Utah R645-301-512Certification Requirements.

The application meets the minimum requirements of R645-301-512 as all mine drawings and plates are stamped by a Utah certified professional engineer, Richard White, with experience in surface mining operations.

**cparker**

## Reclamation Plan

### General Requirements

*Analysis:*

The amendment meets the State of Utah R645 requirements for Reclamation Activities.
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 stating that surface coal mining activities will be conducted within the permit area. Remining of the waste rock site is by definition of R645-100-200 surface coal mining and reclamation activities. The Permittee will amended section 5.4.1.2 to address the appropriate R645 regulations.

The application meets the minimum requirements of R645-301-553 in the narrative of Section 5.4.2.2 which details the backfilling and grading of the waste rock site at final reclamation. See the backfill and grading analysis for further details.

**cparker**

## PostMining Land Use

*Analysis:*

The amendment meets the State of Utah R645-301-412 requirements for postmining land use.

The description of the PMLU is located in Section 4.1.2.1 on pages 4-3 and 4-4. The proposed use is wildlife habitat. The plan explains how the proposed postmining land use is to be achieved through reclamation. The PMLU is consistent with county zoning ordinances and compatible with adjacent land uses. BRCW owns and operates the site therefore, landowner comments are not required.

**lreinhart**

## WildLife Protection

*Analysis:*

The amendment meets the State of Utah R645-301-342 requirements for a fish and wildlife plan for the reclamation and postmining phase of operation.

Enhancement measures identified in Section 3.4.2.1 on page 3-8 includes seeding native and non-native plants that serve as valuable wildlife forage. NOTE: Care should be taken because some plants in the mix are not native (alfalfa and yellow sweetclover), Low rabbitbrush is highly competitive and will invade naturally, and Bottlebrush squirreltail outcompetes many of the desirable shrub species in the mix. Consideration to modifying the seedmix for these reasons should be given.

The Division finds the proposed operation will not affect the continued existence of endangered or threatened species or result in destruction or adverse modification of their critical habitats, as determined under the Endangered Species Act.

Section 3.4.2.2 should reference Appendix 3-3, Letter from DWR.

**lreinhart**

## Approximate Original Contour Restoration

*Analysis:*

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

The amendment meets the minimum R645-301-512.200 ,-553.110 through -553.150, and -302-270 due to the proposed post mining land use change that would not require a variance from approximate original contour (AOC).

AOC as defined by R645-301-553.100 through -553.150 is achieved when the final grade closely resembles the general surface configuration of the land prior to mining activities and provides a subsurface foundation for vegetative cover capable of stabilizing the surface from erosion. The reclamation plan proposed with Chatper 5 meets these minimum requirements.

The amendment meets the minimum R645-301-512.200 and -553.110 as there is no change in the MRP and all grading will be place back to approximate original contours.

cparker

## Backfill and Grading General

*Analysis:*

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

The amendment meets the general requirements of R645-301-553 by failing to detail a general backfill and grading plan that details how disturbed areas will be backfilled and graded to achieve the approximate original contour, eliminate all highwalls, spoil piles, and depressions, and achieve a postmining slope that does not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long term static safety factor of 1.3 and to prevent slides, minimize erosion and water pollution both on and off the site, and support the approved postmining land use.

The minimum requirements of R645-301-553 are met within the amendment as there is no change to the existing MRP grading reclamation details. The application meets the general requirements of R645-301-553 by detailing a general backfill and grading plan that details how disturbed areas will be backfilled and graded to achieve the approximate original contour, eliminate all highwalls, spoil piles, and depressions, and achieve a postmining slope that does not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long term static safety factor of 1.3 and to prevent slides, minimize erosion and water pollution both on and off the site, and support the approved postmining land use.

A time table of all major reclamation operations is located in Table 5.1. Reclamation details the removal of the asphalt access road. The asphalt will be placed on the reject pile prior to the pile being regraded to slope from east to west and north to south. The reject material will be pushed into the sedimentation pond using dozers and other various equipment. All backfilled material will be compacted using a sheepsfoot roller to achieve approximately 90% of standard proctor density. Plate 5-3 details the reclamation channels to be cut through the pile to control site drainage. The channels will be lined with riprap and have the dimensions, however, the drainage from the channels does not route to the pond to meet R645-301-356.300 and -301-763 reclamation requirements.

The final reclamation surface will be mulched, crimped and soil surface roughened to promote moisture retention and minimize erosion.

The application meets the minimum requirements of R645-301-553.252 by including an analysis of the waste rock to be non acid forming or toxic to justify the placement of less than four feet of cover material. The justification of the toxicity of the waste rock is present in Section 6.2.3 of the MPR. A total of 35 inches of subsoil will be place with an additional 2.5 inches of topsoil for sufficient growth media for revegetation of the site.

cparker

## Backfill and Grading Previously Mined

*Analysis:*

The amendment meets the State of Utah R645 requirements for Previously Mined Areas.

The minimum requirements of R645-301-553.500 are met within the amendment as there is no change to the existing MRP grading reclamation details. The MRP narrative in Chapter 5 Section 5.2.1.1 states that there are no previously mined areas with the mining operations.

cparker

## Backfill and Grading on Steep Slopes

*Analysis:*

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

The minimum requirements of R645-301-553.200 are met within the amendment as there is no change to the existing MRP grading reclamation details.

cparker

## Backfill and Grading Steep Special Provisions

*Analysis:*

The amendment meets the State of Utah R645 requirements for Special Provisions for Steep Slope Mining.

The minimum requirements of R645-301-537 and -553 are met within the amendment as there is no change to the existing MRP grading reclamation details.

**cparker**

## Mine Openings

*Analysis:*

The application meets the requirements of R645-301-513, R645-301-529, R645-310-551 and R645-301-631. As this is a Coal Waste recovery operation there will be no mine openings or exploration drill holes installed.

**dhaddock**

## Mine Openings

*Analysis:*

The amendment does not meet the State of Utah R645 requirements for Mine Openings.

The minimum requirements of R645-301-513.500, R645-301-529, and R645-301-551 are met within the amendment as there is no change to the existing MRP sealing of mine openings at the time of final reclamation. The R645 requirements are met within the application do to no mine openings associated with the Deer Creek waste rock site.

The application does not meet the minimum requirements of R645-301-542.740 by stating that no underground mine openings are present within the permit area.

**cparker**

## Topsoil and Subsoil

*Analysis:*

Analysis:
The application meets the requirements of R645-301-240 Reclamation Plan.
Section 2.4.2.1 describes replacement of topsoil and subsoil from stockpiles after coal recovery. Section 2.4.2.2 describes scarification of subsoil prior to topsoil redistribution. Section 2.4.3 describes the application of fertilizer. Section 2.4.4 describes soil stabilization using surface roughening and mulch.

**pburton**

## Road System Reclamation

*Analysis:*

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

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, are met as all road will be reclaimed. Section 5.4.2.2 details the reclamation of the asphalt access road by removing the road surface and placing the waste within the waste rock pile.

**cparker**

## Road System Retention

*Analysis:*

The amendment meets the State of Utah R645 requirements for Retention of Roadway Facilities.

The minimum requirements of R645-301-534 and -552 are met within the amendment as there is no change to the existing MRP reclamation of roads that will be retailed at the end of mining that exist throughout the permitted area.

**cparker**

## Contemporaneous Reclamation General

*Analysis:*

The amendment meets the State of Utah R645-301-352 requirements for contemporaneous reclamation.

Given the relatively short duration of anticipated coal recovery operations at the site, contemporaneous reclamation is not considered practical.

**lreinhart**

## Contemporaneous Reclamation General

*Analysis:*

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

The minimum requirements of R645-301-553 in regards to contemporaneous reclamation and backfilling activities are met within the application as the MRP details the sequencing of mining and backfilling of the operation in Chapter 5 Section 526, 528 and 553.

**cparker**

## Revegetation General Requirements

*Analysis:*

The amendment meets the State of Utah R645-301-341 requirements for a revegetation plan.

The reclamation plan for final revegetation is located in Section 3.4.1 on page3-7 and 3-8. The plan describes how reclamation of all lands disturbed will comply with the biological protection performance standards. The plan includes a detailed schedule and timetable for each major step (Section 5.4.2.1) seed mix (Table 3-1), planting methods, and mulching. Measures proposed to determine success of revegetation are identified in Section 3.5.6.

The amendment meets the State of Utah R645-301-353 requirements for vegetative cover.

The revegetation plan is described in Section 3.40 on page 3-7. The seed mix presented in Table 3-1 is intended to provide vegetative cover that will be diverse, effective, and permanent. The seed mix is comprised of species native to the area as well as introduced species recommended by the Utah Division of Wildlife Resources for enhancement of wildlife habitat. The seed mix was selected to be compatible with the climate, potential seedbed quality, and drought tolerance and should result in cover at least equal in extent to the reference site.

The amendment meets the State of Utah R645-301-357 requirements for extended responsibility period.

The period of extended responsibility will begin after the last year of augmented seeding, fertilization, irrigation, or other revegetation work, excluding husbandry if approved by the Division. The average annual precipitation is around 7-10 inches and therefore, the extended responsibility period will be 10 years.

**lreinhart**

## Revegetation Timing

*Analysis:*

The amendment meets the State of Utah R645-301-354 for revegetation timing.

Reclaimed areas will be revegetated during the first favorable period for planting as discussed in Section 3.4.1.1 and Reclamation Timetable identified as table 5-1.

lreinhart

## Revegetation Mulching and Other Soil Stabilization

*Analysis:*

The amendment meets the State of Utah R645-301-355 requirements for mulching and soil stabilizing.

Mulching and soil stabilizing practices are identified in Section 3.5.3.1 on page 3-10. The area to be revegetated will be mulched during reclamation. The mulching, together with the seed mixture and surface roughening of the redistributed topsoil, should provide adequate erosion control.

lreinhart

## Revegetation Standards for Success

*Analysis:*

The amendment meets the State of Utah R645-301-356 requirements for revegetation standards for success.

Success standards are identified in Section 3.5.6.1 on pages 3-12 and 3-13. Success will be determined by comparison to data obtained from the reference area shown on Plate 3-1. Final comparisons will involve random sampling of both the reference area and the revegetated site. Estimates of ground cover and density of woody plant species will be made for the revegetated areas and the reference areas. The PMLU is wildlife habitat.

lreinhart

## Stabilization of Surface Areas

*Analysis:*

Analysis:
The application meets the requirements of R645-301-244, Soil Stabilization, because, Section 2.3.1.3 describes annual inspection and repair of erosion on the soil stockpiles and Section 2.4.4 describes using surface roughening and mulch at reclamation.

pburton

## Cessation of Operations

*Analysis:*

The amendment meets the State of Utah R645 requirements for Cessation of Operations

The minimum requirements of R645-301-515 and -541 are met within the amendment as there is no change to the existing MRP plan of communication with the appropriate parties in the event of the cessation of operations and final reclamation.

The application includes a narrative in Section 5.1.5.3 that details the operations the Permittee will follow in the event a temporary cessation will last for a period of 30 days or more. The notice of intention to cease or abandon operations will be submitted to the Division and include all required applicable information outlined in R645-301-515.300 through -515.322.

The minimum requirements of R645-301-541 are met within the application as there is no change to the existing MRP plan of communication with the appropriate parties in the event of the cessation of operations and final reclamation.

cparker

## Maps Affected Area Boundary

*Analysis:*

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

The minimum requirements of R645-301-542 are met within the amendment as there is no change to the existing MRP plan. The application meets the minimum requirements by detailing the affected area on Plate 5-1. The disturbed area is the only surface area that will be affected by surface mining operations of the waste rock site.

**cparker**

## Maps Bonded Area

*Analysis:*

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

The minimum requirements of R645-301-800 are met within the application as the bonded area map depicts the disturbed area on Plate 5-1. The information in Plate 5-1 matches the information depicted in Appendix 8-1. Plate 5-3 details the final reclamation grading and contour map of all area disturbed on Plate 5-1.

**cparker**

## Maps Reclamation BackFilling and Grading

*Analysis:*

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

The minimum requirements of R645-301-542 are met within the application including the final grading map of Plate 5-3. A clearer bond area map was provided showing the appropriate justification for various areas of backfilling volumes detailed in Appendix 8-1.

**cparker**

## Maps Reclamation Facilities

*Analysis:*

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

The minimum requirements of R645-301-542 are met within the application as there is a detailed map or plan for showing the sequence of reclamation time table. Table 5-1 is included in Chapter 5 and depicts the time require to reclaim each individual feature.

There is a discussion and engineering design provided in Chapter 5 to show that the natural drainages that 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. All surface coal mining operation facilities will be reclaimed as depicted in Plate 5-3.

**cparker**

## Maps Reclamation Final Surface Configuration

*Analysis:*

The amendment meets the State of Utah R645 requirements for Final Surface Configuration Maps.

The minimum requirements of R645-301-542 are met within the amendment as the application only includes Plate 5-3 depicts the final surface configuration in plan view. The application is missing cross section profiles showing the buried waste placement.

**cparker**

## Maps Reclamation Surface and Subsurface Man Made

*Analysis:*

The amendment meets the State of Utah R645 requirements for Reclamation of Surface and Subsurface Manmade Features Maps.

The minimum requirements of R645-301-542 are met within the application due no remaining manmade features at final reclamation.

**cparker**

## Maps Reclamation Certification Requirments

*Analysis:*

The amendment meets the State of Utah R645 requirements for Certification Requirements

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

**cparker**

## Bonding and Insurance General

*Analysis:*

The amendment meets the State of Utah R645 requirements for Bonding and Insurance Requirements.

The amendment meets the minimum requirements of R645-301-800 as the applicant is current on the bond and insurance standings. The detail line item costs references various sub areas of grading that are labeled on a map. The various backfill volumes can be verified by the tables and plates provided.

**cparker**

## Bonding Form of Bond

*Analysis:*

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

The application meets the minimum requirements of R645-301-860.100 as the applicant states that upon acceptant of the permit the Permittee will file for a surety bond licensed to do business within Utah.

**cparker**

## Bonding Determination of Amount

*Analysis:*

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

The amendment meets the minimum requirements of R645-301-830.140 as the Permittee submitted detailed bond information in regards to the amendment in chapter 8 and plate 5-3. Detailed line items are contained within Appendix 8-1. A total direct cost of $610,821 was calculated for the reclamation of the waste rock site. With a totally indirect cost of 26.8% the total cost of reclamation of the site and minimum bond required for the site is$847,000 in 2020 dollars.

**cparker**

## Bonding Terms and Conditions Liability Insurance

*Analysis:*

The application meets the State of Utah requirements for R645-301-800, Certificate of Liability Insurance.

A Certificate of Liability Insurance has been submitted for the Insured, Bowie Refined Coal, LLC.

However, prior to final approval, the Insured will be required to update the Description of Operations as Bowie Waste Rock Site C/015/0035 and the Certificate Holder as the Division of Oil, Gas & Mining.

**ssteab**

## Bonding Terms and Conditions Liability Insurance

*Analysis:*

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|---|
| The amendment meets the State of Utah R645 requirements for Terms and Conditions for Liability Insurance.<br><br>The application meets the minimum requirements of R645-301-850 as the site currently has insurance for personal injury and property damage with a copy of the certificate located in Appendix 1-2. |

**cparker**