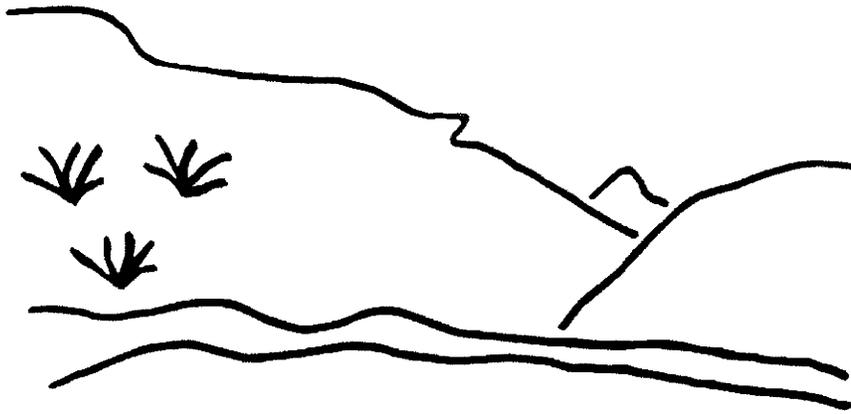


State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

Deer Creek Mine
PacifiCorp
Technical Analysis
June 10, 2005

Mine # C1015/018
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TECHNICAL ANALYSIS DESCRIPTION

TECHNICAL ANALYSIS DESCRIPTION

The Division ensures that coal mining and reclamation operations in the State of Utah are consistent with the Coal Mining Reclamation Act of 1979 (Utah Code Annotated 40-10) and the Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87). The Utah R645 Coal Mining Rules are the procedures to implement the Act. The Division reviews each permit or application for permit change, renewal, transfer, assignment, or sale of permit right for conformance to the R645-Coal Mining Rules. The Applicant/Permittee must comply with all the minimum regulatory requirements as established by the R645 Coal Mining Rules.

The regulatory requirements for obtaining a Utah Coal Mining Permit are included in the section headings of the Technical Analysis (TA) for reference. A complete and current copy of the coal rules can be found at <http://ogm.utah.gov>

The Division writes a TA as part of the review process. The TA is organized into section headings following the organization of the R645-Coal Mining Rules. The Division analyzes each section and writes findings to indicate whether or not the application is in compliance with the requirements of that section of the R645-Coal Mining Rules.

GENERAL CONTENTS

GENERAL CONTENTS

Except for Maps MFU1837D – Coal Ownership and MFS1838D – Surface Ownership, all legal and financial information for the Mill Fork Lease was moved from Volume 12 to Volume 1 of the Deer Creek Mine MRP, effective March 5, 2003. Legal and financial information was subsequently incorporated in the Legal and Financial Volume, which contains information for all four of PacifiCorp's Utah mines, on April 20, 2004. (MFS1838D and MFU1837D, which show ownership information for the Mill Fork and Rilda Canyon areas only, remain in Volume 12). [03292005, JDS]

IDENTIFICATION OF INTERESTS

Regulatory Reference: 30 CFR 773.22; 30 CFR 778.13; R645-301-112

Analysis:

The Permittee is PacifiCorp, an Oregon corporation. NA General Partnership, a Nevada General Partnership, owns all stock of PacifiCorp. Scottish Power NA1 Limited and Scottish Power NA2 Limited make up NA General Partnership, and Scottish Power plc owns both of these entities. Energy West Mining Company, a wholly owned subsidiary of PacifiCorp, is the operator. The Legal and Financial Volume, which is common to PacifiCorp's four Utah mines, contains ownership and control information, names of officers and directors, the name, address and telephone number of the Permittee and operator, Employer I.D. Numbers, and MSHA numbers, together with dates of issuance for coal mining and reclamation operations owned or controlled by the Permittee. The Officer and Director List in Appendix A of the Legal and Financial Volume has been updated to November 4, 2004. [04192005, JDS]

Information on pages 1-1 through 1-12 in the Legal and Financial Volume has been updated to clarify that PacifiCorp is the Permittee and owner of the coal leases, rather than Utah Power and Light. Centralia Mining LLC is no longer listed as a PacifiCorp coal-mining interest. [04192005, JDS]

Appendix B OF THE Legal and Financial Volume has information on Miscellaneous Licenses, Permits, and Approvals, which includes rights-of-way and Special Use Permits. Surface ownership and subsurface coal rights for the Deer Creek Mine are shown, respectively, on maps 1-2 (CE-10521-DR) and 1-1 (CE-10522-DR) in Volume 4 of the Deer Creek Mine MRP. The only lease interests in the permit area besides coal are oil and gas leases and grazing permits (Section 112.800). [04192005, JDS]

Findings:

Information provided in the application is considered adequate to meet the minimum Identification of Interests section of the regulations. [04192005, JDS]

VIOLATION INFORMATION

Regulatory Reference: 30 CFR 773.15(b); 30 CFR 773.23; 30 CFR 778.14; R645-300-132; R645-301-113

Analysis:

NOV Information is in Appendix D of the Legal and Financial Volume. The Permittee has provided a list of all violation notices received by any coal mining and reclamation operation owned or controlled by either the applicant or by any person who owns or controls the applicant. NOV information in Appendix D covers the three-year period preceding April 12, 2005. [04192005, JDS]

Findings:

Information provided in the application meets the minimum Violation Information section of the regulations. [04192005, JDS]

RIGHT OF ENTRY

Regulatory Reference: 30 CFR 778.15; R645-301-114

Analysis:

Total acreage in the permit area is 22,013.77 acres: 15,470.95 acres in federal leases, 1,020.00 acres in private leases, and 5,522.82 acres in State leases. [04192005, JDS]

The table titled Deer Creek Mine – Underground Right-of-Entry Information with Cited Surface and Subsurface Ownership in Appendix C of the Legal and Financial Volume provides the required information on surface and subsurface ownership for coal leased or owned by the Permittee in and adjacent to the Deer Creek Mine permit area. Section R645-301-112.600 lists the name and address of each owner of record of surface and subsurface property contiguous to the permit area. Maps 1-1 (CE-10522-DR) and 1-2 (CE-10521-DR) in Volume 4 of the Deer Creek Mine MRP show surface and subsurface ownership in and adjacent to the permit area. Surface right-of-entry information is tabulated in Section R645-301-114 (Surface). [04192005, JDS]

GENERAL CONTENTS

Copies of BLM lease relinquishment Decision Documents, with descriptions of the lands and rights being relinquished, are in the Supplemental Volume 1, Phase I, II, and III Lease Relinquishment Information, which is a confidential volume shared by the MRP's of the Deer Creek, Cottonwood/Wilberg, and Des Bee Dove Mines. [04192005, JDS]

Findings:

Right of Entry Information is adequate to meet the requirements of the R645 Coal Rules. [04192005, JDS]

LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS

Regulatory Reference: 30 CFR 778.16; 30 CFR 779.12(a); 30 CFR 779.24(a)(b)(c); R645-300-121.120; R645-301-112.800; R645-300-141; R645-301-115.

Analysis:

Permit Boundary Descriptions in Appendix G of the Legal and Financial Volume have been updated to incorporate the BLM lease relinquishments. [04192005, JDS]

Surface ownership and subsurface coal rights for the Deer Creek Mine are shown, respectively, on maps 1-2 (CE-10521-DR) and 1-1 (CE-10522-DR) in Volume 4 of the Deer Creek Mine (larger scale maps MFS1838D and MFU1837D in Volume 12 show this same information for the Mill Fork and Rilda Canyon areas). Legal descriptions are found in Appendix C of the Legal and Financial Volume. [03292005, JDS]

The Legal and Financial Volume contains a statement that no lands within or adjacent to the permit area have been identified as qualifying under R645-103-300 as areas unsuitable for surface effects of underground mining. [03292005, JDS]

Findings:

The information provided in the application meets the minimum Legal Description and Status of Unsuitability Claims requirements of the regulations. [04192005, JDS]

PERMIT TERM

Regulatory References: 30 CFR 778.17; R645-301-116.

Analysis:

GENERAL CONTENTS

Deer Creek Mine permit was renewed February 7, 2001 and will be up for renewal again on February 7, 2006. [03292005, JDS]

Drawings MFU1840D and MFU1841D in Volume 12 and CM 10899-DR and CM-10900-DR in Volume 5 identify the lands subject to coal mining over the life of the operation, including the size, sequence, and timing of the mining anticipated and permit boundaries with yearly projections of mining through 2021. [03292005, JDS]

See the following section for information on the public notice.

Findings:

Permit Renewal Information is adequate to meet the requirements of this section of the Coal Mining Rules. [03292005, JDS]

PUBLIC NOTICE AND COMMENT

Regulatory References: 30 CFR 778.21; 30 CFR 773.13; R645-300-120; R645-301-117.200.

Analysis:

Appendix F of the Legal and Financial Volume contains copies of the Affidavits of Publication for the permit renewals of the four PacifiCorp mines. The Public Notices contained:

1. Name and business address of Permittee
2. Map or description of the permit area
3. Location of where permit application is available for public review
4. Name and address of Division for comments. [03292005, JDS]

Findings:

Information provided is considered adequate to meet the minimum Public Notice and Comment section of the regulations. [03292005, JDS]

FILING FEE

Regulatory Reference: 30 CFR 777.17; R645-301-118.

Analysis:

Findings:

GENERAL CONTENTS

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

Some baseline hydrologic data are included in Volume 12, and additional data are in Annual and Quarterly reports.

The Table of Contents of Volume 9 has been updated to show the removal of Map HM-11. The information from HM-11 is now included on the revised Map HM-10. The only reference to HM-11 in Volume 9 has been removed. [03292005, JDS]

Findings:

Information provided is considered adequate to meet the minimum requirements of the Permit Application Format and Contents section of the regulations. [03292005, JDS]

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

References cited are listed at the end of the Table of Contents for the Geology section and at the end of the Hydrology section. [03292005, JDS]

Findings:

Reporting of Technical Data Information is adequate to meet the requirements of this section of the Coal Mining Rules. [03292005, JDS]

MAPS AND PLANS

Regulatory Reference: 30 CFR 777.14; R645-301-140.

Analysis:

Maps submitted are in the formats required by the Division. [03292005, JDS]

Findings:

Maps and plans provided are considered adequate to meet the minimum requirements of the Maps and Plans section of the regulations. [03292005, JDS]

COMPLETENESS

Regulatory Reference: 30 CFR 777.15; R645-301-150.

Analysis:

The Division determined the Mill Fork Lease Extension significant revision administratively complete on December 18, 2001. On February 1, 2005 the Division notified the Permittee that the proposed Replacement of Volume 11 (RILDA Canyon Facilities), Task ID #2093, was administratively complete. The amendment refers to data in Annual Reports and other sources for some information required for adequate and complete baseline water-quantity and water-quality data. [03292005, JDS]

Findings:

Information provided in the amendments is considered adequate to meet the minimum requirements of the Completeness section of the regulations. [03292005, JDS]

ENVIRONMENTAL RESOURCES INFORMATION

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

GENERAL

Regulatory Reference: 30 CFR 783.12; R645-301-411, -301-521, -301-721.

Analysis:

The Permittee provides environmental resource information in Volumes 1-3 and 8-12, with maps and plans in Volumes 4-7. All proposed mining activity is underground, but new portals being proposed to be built in Rilda Canyon will provide ventilation and faster and safer access to the working face: these portals will not be used for coal transportation. [03292005, JDS]

The Deer Creek Mine is in East Mountain, part of the Wasatch Plateau. Its extent is shown on several maps in the MRP. Map 1-2 (CE-10521-DR) shows the permit area in relationship to surface ownership and map 1-1 (CE-10522-DR) identifies the owners of adjacent coal. The Deer Creek Mine lies between Huntington Canyon on the east and Joes Valley, a Graben valley, on the west. Genwal Resources, Inc. controls leases to the north associated with the Crandall Canyon Mine. The Huntington #4 Mine, now reclaimed, lies east of the southeastern section of the Deer Creek Mine. Coal is mined from the Hiawatha (lower) and Blind Canyon (upper) coal seams. The extracted coal is transported through mains to the Deer Creek Mine surface facilities in Deer Creek Canyon. [03292005, JDS]

The topographic features are presented on several maps and overburden Isopach maps. Rilda Canyon, Mill Fork Canyon and Little Bear Canyon intersect the permit area on the east, two tributary canyons to Crandall Canyon intersect from the north, and at least five small canyons intersect the lease on the west. The canyons are steep. The East Mountain ridgeline runs north to south down the western third of the property. [03292005, JDS]

Numerous springs occur on the permit area. The majority of springs appear above the Castlegate Sandstone. Little Bear Spring, an important source of drinking water, emanates east of the lease area. Tracer dye studies indicate that water from the Mill Fork drainage flows through fractures associated with the Mill Fork Graben to supply much, perhaps all, of the flow at Little Bear Spring. [03292005, JDS]

The Permittee accesses the Mill Fork Lease through mains from the Deer Creek Mine, and the entries cross the Mill Fork Graben. The plans for developing entries from the Deer Creek Mine to the Mill Fork Lease were submitted and reviewed as a separate permit amendment that added 65.7 acres to the permit (approved October 2, 2002). The Permittee addressed concerns related to ground-water interception and subsidence under that permit amendment. [03292005, JDS]

Findings:

The Permittee has submitted sufficient information to address the General section of the regulations. [03292005, JDS]

PERMIT AREA

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

Analysis:

Maps 1-2 (CE-10521-DR) and 1-1 (CE-10522-DR) identify the permit boundary, which is also identified as the lease area. The Mill Fork lease is accessed from the Deer Creek Mine through a 65.7-acre modification to lease U-06039. [03292005, JDS]

Drawing MFS1866D in Volume 12 shows that subsidence from mining in the Mill Fork Extension might occur outside the permit boundary but be confined to the Genwal #1 Mine area. The Division is allowing subsidence to occur outside the permit boundary in this case because all subsidence will be confined to permitted lands. [03292005, JDS]

Findings:

The Permittee has submitted sufficient information to address the Permit Area section of the R645 Coal Rules. [03292005, JDS]

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.12; R645-301-411.

Analysis:

An historic and archeological resource evaluation was conducted in the Mill Fork area in 1995 by archeological Environmental Research Corporation. A stratified sample or Class II survey was the survey method used. This survey actually sampled 15 percent of the lease area.

ENVIRONMENTAL RESOURCES INFORMATION

No significant resources were found. Two non-significant prehistoric lithic scatters, no historic and no paleontological resources occur on the lease area. The EA states that the 2 non-significant prehistoric sites were found in the Star Point Sandstone and not in the Castlegate Sandstone. The Star Point Sandstone is not likely to be effected by subsidence.

The EA lists several mines and access roads in areas surrounding the lease area developed in the late 1930's and 1940's. The old mines include the Tip Top, Old Leamaster, Johnson, Comfort, Rominger, and Helco Mines. A gas field to the southwest of the lease area was developed in the 1950's. One well lies within the permit area. No evaluation of the historic significance of these mines and gas field is provided in the MRP. No effects of subsidence are expected to occur on these sites.

A letter dated February 8, 2002 from James Dykman, State Historic Preservation Officer, concurs with a determination of No Historic Properties Affected.

Findings:

The information provided in the application meets the minimum Historic and Archeological Resource Information requirements of the regulations.

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.18; R645-301-724.

Analysis:

Information on precipitation, winds, and temperature is discussed in Section R645-301-724.400. Baseline climatological information is in Volume 9. The Annual Reports contain updated information from weather stations at the Hunter and Huntington power plants, Electric Lake, and East Mountain. Additional data have not been deemed necessary to ensure compliance with other regulatory requirements. [03292005, JDS]

Findings:

Climatological Resource Information in the Deer Creek Mine provides information that is adequate to meet the requirements of the Coal Mining Rules. [03292005, JDS]

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.19; R645-301-320.

Analysis:

The biology section of the application uses resource information taken from the Data Adequacy document and the EA.

R645-301-300 Biology, section of the MRP describes the diversified topography, complex habitats and vegetation in terms of ecosystems and uses the classifications of conifer ecosystem, aspen ecosystems, transitional ecosystems and pinyon-juniper ecosystems and two vegetation communities, which are: mountain brush and sagebrush grasslands. Vegetation types in the Mill Fork Lease area are described on the vegetation map (Drawing #: MFS1821B) as:

Perennial Grasslands (high elevation)
Perennial Grasslands (mid-low elevation)
Perennial forb lands (high-elevations)
Perennial forb (mid to low elevations)
Perennial forb (alpine elevations)
Black sagebrush
Wyoming sage
Big basin sage
Silver sage
Rabbit brush
Mountain brush
Oak brush
Mountain maple
Mountain mahogany
High mountain brush
Manzanita
White fir
Ponderosa pine
Douglas fir forest
Spruce-alpine-fir-forest
Blue spruce
Limber & bristle cone
Aspen snowberry
Aspen sage
Aspen creeping barberry
Aspen mixed conifer
Aspen mixed mountain brush
Pinyon juniper woodlands (likely a mistake because this is identified at 9,500 feet elevation)
Utah & Rocky Mountain Juniper
Barren Rock outcrops and ledges
Descriptions of the vegetation in the MRP and the Vegetation Map match.

ENVIRONMENTAL RESOURCES INFORMATION

The MRP describes the transitional ecosystem as various vegetation types that resulted after a fire about 25 years ago. The fire covered a large portion of the Mill Fork area and likely prior to recent man's attempt to control fire this area was in a fire cycle so climax communities have never been defined in the Mill Fork area. The vegetation communities comprising the transitional ecosystems are the predominant communities in this area.

Findings:

The information provided meets the minimum "Vegetation Resource Information" requirements of the regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.21; R645-301-322.

Analysis:

The Mill Fork area contains portions of Crandall Creek and is a watershed for Little Bear, Mill Fork, and Right Fork of Rilda Creek. These are all tributaries to Huntington Creek. The western portion of the area is a watershed to Indian Creek. All of these named creeks contain fish and are important fisheries.

Macroinvertebrate data may be used to determine water quality for fish. The Division in consultation with DWR and USFWS recommends collecting three years of macroinvertebrate baseline data prior to disturbance. The data should be collected one time per year at the same sampling station. The best time of year for sampling is during the summer once immature populations have grown enough for biologists to distinguish among species. Furthermore, sample size should be sufficient enough to reduce mean variation.

Deer Creek mine provides a brief summary of the report - USGS Open-File 81-539. The mine operator plans to use the data in this report for the macroinvertebrate baseline data for the Mill Fork Creek below the confluence of the Left and Right Forks. The report was the result of a collaborative effort among staff from USGS, Utah Department of Natural Resources, and the Division. Data was collected from years 1977 (Oct.), 1978 (July & Oct.), and 1979 (Oct.). From the MRP summary, the results show significant differences between seasons. The macroinvertebrates were at "maximum numbers" for the July sample, but were "not present in any of the October samples" (pg 3-8, 3rd ¶). The Shannon-Weiner diversity index for Crandall and Mill Fork canyons were 2.38 and 2.09, respectively. The Division requests that the mine operator submit the completed report - USGS Open-File 81-539. PacifiCorp has chosen to provide one copy of the report to the Division's library instead of incorporating the full report into the MRP (see Incoming folder, dated February 13, 2003).

A large portion of the permit area contains deer and elk habitat. Deer and elk are shown to have summer range and high value winter range within the permit area (MFS1849Band MSF1822B). Population numbers and trends of deer and elk herd unit 16B can be derived from DWR annual reports dating from 1998 (www.wildlife.utah.gov/hunting/biggame.html). Herd unit 16B, however, covers an area from about Scofield to Ferron and does not focus on the Mill Fork Lease expansion area. DWR cautions to avoid projecting the herd unit 16B population numbers and trends for such a large area to the smaller area of the Mill Fork Lease (LeRoy Mead personal communication, February 25, 2003). The Manti-LaSal National Forest requested that this information be put in the MRP knowing that only regional numbers are available. The intent is to look at trends for the area and the trend for deer is a decreasing population (Rod Player personal communication, February 26, 2003).

A survey for the spotted bat (Forest sensitive species list) and Townsend's big-eared bat was completed in the existing permit area and lease area (Appendix A). Results found no Townsend's big-eared bats. Spotted bats found were solitary and evenly spaced over foraging habitat (lower elevations off the lease area). Roosting sites can be found within lease area and throughout the Huntington drainage in suitable cliffs. The study concludes that by looking at areas that have already been mined cliff failures have not dramatically impacted resident populations. Spotted bats are "common" enough throughout the area that localized cliff failure does not pose a serious threat to the population.

The coal lease is stipulated that SITLA in cooperation with the USFS may impose mitigation on the loss of spotted bats. The mitigation may include avoidance during specific times and /or the prevention of bat occupancy during periods of subsidence, such as by netting or screening (Stipulation #20).

A statement is provided in the MRP that no threatened or endangered species of plants or animals inhabit the Mill Fork area (Section R645-301-322.210). This statement is based on PacifiCorp conversations with USFS Personnel Rod Player and Bob Thompson, qualified Wildlife Biologist and Botanist, and information contained in the Environmental Analysis.

The MRP discusses the potential presence of Monti's milkvetch, Canyon sweetvetch, Peterson catchfly, and Link trail columbine. A query to the Utah Natural Heritage program identified Carrington daisy, USFS sensitive species, occurring in the permit area. The MRP describes the potential of this species occurring primarily within the southern region of the mine permit area. Mr. Bob Thompson suggests that there will be no impacts to this species caused from subsidence. The Utah Natural Heritage program identified the Link Canyon columbine and Canyon sweetvetch, USFS sensitive species, occurring adjacent to the permit area in Little Bear Canyon. The MRP addresses the potential for occurrence.

Raptor surveys have been conducted along the escarpment zone of the Huntington Creek

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Drainage. The below table summarizes the data available in the DWR database for surveys conducted in the Mill Fork area.

Table 1. Summary of raptor nest status, location and species from DWR database.

Nest No.	78	1210	1211	1282	963	1206
Species	Golden Eagle	Golden Eagle	Golden Eagle	Red tail Hawk	Golden Eagle	Red tail Hawk
2002	Tended	Active	Inactive	Inactive	Tended	Inactive
2001	Inactive	Tended	Dilapidated	N/A	Inactive	Inactive
2000	Tended	N/A	N/A	N/A	Tended	N/A
1999	Inactive	N/A	N/A	N/A	N/A	N/A
1998	Active	N/A	N/A	N/A	N/A	N/A
Location	Mill Fork Permit Area*	Mill Fork Permit Area	Mill Fork Permit Area	Genwal Permit Area	Huntington #4 Mine Permit Area	Current Deer Creek Permit Area

*For the purposes of this Technical Analysis the Mill Fork extension to the Deer Creek Permit Area is differentiated from the Deer Creek Permit Area recognizing Mill Fork Lease will be a part of the Deer Creek Permit Area.

There are 3 golden eagle nests in the Mill Fork lease area. Two red tail hawk nests and several eagle nests are adjacent to the lease area but not within the subsidence zone. Current mining plans show one coal seam to be mined under nest 1210 in 1211. Currently, no other nests are within the zone of mining.

The DWR raptor survey flight path was viewed for the 2002 data. No flight line was seen on the western side of the lease area along the Joes Valley Fault. The area was flown several years ago and no nests found (phone conversation with Chuck Semborski October 4, 2002). The pre-subsidence survey map (MFS1839D) shows outcrops in the first long wall panel that could potentially contain raptor habitat. The Division in consultation with DWR and USFWS is requiring this area to be surveyed for raptors prior to longwall mining.

The Raptor Location Map (MFS1852B) provides the location and number of species-specific raptor nests within and adjacent to the Mill Fork lease area. Nest status is available to the Division after the yearly survey is performed.

The mine operator discusses the habitat requirements for the Mexican Spotted Owl (MSO) and provides a summary of research on potential habitat within the permit area and the adjacent lands. Dr. Willey modeled the Mill Fork least tract area for MSO foraging and nesting habitat. Figure 1 (pg 3-12) shows potential nesting and foraging habitat within the permit area and adjacent lands. The mine operator defines the dark green pixels as “potential foraging areas of steep sloped mixed conifers” and the black pixels as “potential nesting habitat” (pg 3-11, 2nd

¶). The operator also summarizes a DWR report that states that most nests in southern Utah are found in caves or cliff ledges in steep-walled canyons (pg 3-11, 2nd ¶).

Figure 1 (pg 3-12) shows that potential nesting habitat is not within the Mill Fork permit area, but exists north and east of the permit area. This map does not include a distance scale; therefore it is difficult to determine distances between permit area and the modeled nesting habitat sites. Figure 1 also shows discrete parcels of foraging habitat located in the far southwestern corner, and along the mid-eastern and northeastern boundaries of the permit area.

Dr. Frank Howe, DWR, in a meeting with the Division and USFWS discussed the potential for Mexican spotted owl in Utah. Potential habitat was discussed in terms of vegetation, slope, elevation and curvature as follows:

- Vegetation - mixed conifer, P-J, tends towards wooded but not always, fewer but larger trees
- Slope - 60 to 80%, minimum 40%
- Elevation - less than 8,000', if greater than 8,000' only mixed conifer (Douglas fir mix)
- Curvature - canyons, branches off of main canyons, steep walls, cooler north aspects

One of the concerns of the Division is the level of disturbance from subsidence to foraging and nesting habitat. The MRP addresses the presence or absence of four habitat factors within the permit area as requested by the Division. The mine operator states that there is no potential MSO habitat within the lease area, including the 1.6 acres of potential foraging habitat near the far southwestern corner, that could be impacted by subsidence (Figure 2; pg 3-13). The USFWS reviewed a summary of the Division's memo on the possible effect of mining operations on the MSO. USFWS states that Rod Player supports the Willey-Spotskey model predicting "no potential MSO nesting habitat within the Mill Fork permit area". Furthermore, USFWS supports there "will be negligible impact from mining subsidence to 1.6 of 182 acres of predicted potential foraging habitat within this expansion". USFWS agrees with the Division that because there is no nesting habitat for the MSO and mining operation will be below ground, mining operations are "not likely to adversely affect" the MSO (letter, February 11, 2003).

Findings:

The information provided meets the minimum "Fish and Wildlife Resource Information" section of the regulations.

SOILS RESOURCE INFORMATION

ENVIRONMENTAL RESOURCES INFORMATION

Analysis:

Findings:

LAND-USE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.22; R645-301-411.

Analysis:

The Mill Fork lease area land use is primarily grazing, wildlife and recreation. Other uses in the area are gas production. Currently there is one producing well and plans for future gas development. A pipeline for the one gas well follows Forest Road 244 off the permit area. Utah Power and light has a ROW for a 345 KV power transmission line and another line for the Genwal, Crandall Canyon Mine. The Flat Canyon road enters and leaves the southwest portion of the permit area.

Findings:

The information provided meets the minimum Land Use Resource Information requirements of the regulations.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Alluvial Valley Floor Determination

Applicability of Statutory Exclusions

Findings:

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

Findings:

GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

Analysis:

Regional geology is described in the Geology and Hydrology sections and again in the Probable Hydrologic Consequences Report prepared by Mayo and Associates, LLC, Appendix B to the Hydrology section. Geologic information in the Hydrology section describes the relationship between the stratigraphy and structure and the movement, quantity and quality of water. [03292005, JDS]

A description of the regional geology, including stratigraphy and structure is presented in Volume 8, with additional information for the Rilda Canyon facilities in Volume 11 and for the Mill Fork Extension in Volume 12. Appendix B of Volume 12 contains a list of boreholes for the Mill Fork tract and one representative lithologic log is presented in Appendix B. A generalized cross-sectional map, Drawing MFU 1829D, shows cross-sections of strata from north to south and east to west in the Mill Fork lease. [03292005, JDS]

Tables in Appendix C of Volume 12 include chemical analyses of roof, floor and coal seam for acid and toxic forming minerals. Samples were collected from the roof, floor and coal in the Blind Canyon and Hiawatha coal seams during a drilling program in the Mill Fork lease. Other roof floor, and coal samples were collected from the Blind Canyon and Hiawatha coal seam in the Deer Creek Mine. The analyses show low sulfate and normal range for pH, calcium, boron, and selenium levels. [03292005, JDS]

The permittee discussed subsidence and subsidence control measures under Section R645-301-525, Volume 12 submittal. Pre-mining resources for the Mill Fork lease are identified on Drawing MFS 1839D. The Permittee also addresses the potential of impacts to the resources. Subsidence monitoring results are in the Annual Reports. [03292005, JDS]

Findings:

The Permittee has submitted sufficient information to address the minimum Geologic Resources Information requirements of the Coal Mining Rules. [03292005, JDS]

ENVIRONMENTAL RESOURCES INFORMATION

HYDROLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

Analysis:

Water Replacement

As defined in R645-301-100 of the Coal Mining Rules,

“Water Supply”, “State-appropriated Water”, and “State-appropriated Water Supply” are all synonymous terms and mean, for the purposes of the R645 Rules, state appropriated water rights that are recognized by the Utah Constitution or Utah Code.

Under rule R645-301-525.400, if the Division determines that subsidence could adversely affect state-appropriated water supplies through damage, diminution in value or foreseeable use; or that contamination, diminution, or interruption could occur, the application must include a subsidence control plan that contains information in accordance with R645-301-525.400, 521-500, and 731.530. [03292005, JDS]

The probability of subsidence causing such impacts or adverse affects in and adjacent to the Mill Fork Lease is small (Volume 12, Section R645-301-728, E.; and R645-301-728, I. 2.), but because a possibility exists, the water replacement rules apply. [03292005, JDS]

Because possible impacts to Little Bear Spring exist, areas within the Mill Fork tract are “renewable resource land” under the Coal Mining Rules and subject to specific regulations and protection. There are also other State-appropriated water supplies in and adjacent to the Mill Fork Lease, identified in R645-301-600, Appendix C of Volume 12, covered by the same water replacement regulations. Replacement of State-appropriated water supplies is discussed briefly in Section 731.530 in Volume 12, which refers to Table MFHT-2. Table MFHT-2 lists:

- Surface- and ground-water rights within and adjacent to the Mill Fork Lease;
- The name associated with the spring or stream/drainage;
- The location of the water right;
- What development has been done;
- Ownership;
- The amount of water claimed in the water right;
- The amount of water documented by the Permittee with baseline data;
- Water-rights shares owned by PacifiCorp that could be used for water replacement;
- Specific steps listed under Mitigation Review that will be followed as part of the process to determine if remediation is needed, including annual consultation with the water-right owners; and

- Specific steps listed under Mitigation Alternatives that will be implemented if replacement becomes necessary:
 - Rehabilitate the spring source using BTCA;
 - Transfer water rights to adjacent ground-water sources (refer to Map MFS1832D for locations of water rights);
 - Establish permanent ground-water collection and distribution systems, i.e., Guzzlers; and
 - For Little Bear Spring, negotiate a mitigation agreement.

These constitute a plan sufficient to satisfy the water replacement requirements in the Coal Mining Rules. [03292005, JDS]

Sampling and Analysis

Water-quality sampling and analyses of samples will be done according to the "Standard Methods for the Examination of Water and Wastewater" (Volume 11, Section 723). Volume 9, Appendix A has sample documentation and analytical methods and detection limits. [03292005, JDS]

Baseline Information

Baseline and operational hydrology information is in Volume 9, Volume 12, Annual Reports, and the Division's database. [03292005, JDS]

Although the Blackhawk and Star Point strata are sometimes described as a regional aquifer, water intercepted in the Deer Creek and Cottonwood/Wilberg Mine workings is usually perched water from tabular or stream-channel sandstones that have moderate porosity but low permeability and poor interconnectivity. A potentiometric surface can be mapped in the Spring Canyon Member of the Star Point Sandstone in the Mill Fork tract (Volume 12, Figure MFHF-6), but as with other units of the Star Point, this unit generally has low permeability and produces water only where permeability has been enhanced by fracturing, erosion, or weathering (Volume 12, Section R645-301-721, A. 3. f.). [03292005, JDS]

The North Horn and Price River Formations contain localized, perched water tables or saturated zones (Volume 12, Section R645-301-721, A. 3.), although the Price River Formation is generally devoid of water because of a lack of recharge (Volume 12, Section R645-301-721, A. 3. c.).

The locations of known seeps and springs within the Mill Fork Lease area are shown on the Pre-Subsidence Survey Map (MFS1839D). Ground-water rights are described in some detail

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at R645-301-721, A. 15 of Volume 12. No wells with water rights are mentioned, and the Division has no knowledge of water wells or ground-water resources other than seeps and springs in this area. Ground-water resources in and adjacent to Rilda Canyon, including water rights and water use, are documented and discussed in Volumes 9 and 11. [03292005, JDS]

Reports covering field parameters go back to 1980 for a few springs. A summary of historic water-quality data for the area, mainly collected for the NEPA analysis process prior to leasing of the coal, is in Appendix C of Section R645-301-700 of Volume 12.

In the past, PacifiCorp collected water-monitoring data at high-flow (May or June) and low-flow (August, September, or October). Under existing mine permits, operational ground-water samples at springs are collected during July and October. [03292005, JDS]

According to the table in Section R645-731-200 A. 1. of Volume 12, there are water rights on 8 of the 20 springs that are to be monitored in the Mill Fork lease area. [03292005, JDS]

Water rights for springs on East Mountain are summarized in Table HT-4 in Volume 9. All springs with water rights that are located within the Mill Fork lease and adjacent area have at least one flow measurement, and most have pH and TDS or electric conductivity measurements. For the Mill Fork lease, usage is given in the water-rights printouts in Appendix C of Volume 12, and locations of the water rights are shown on Drawing MFS1832D - Water Rights of Volume 12. These provide the information on quality and quantity for the pre-subsidence survey. This water-rights information will determine the quality and quantity to be replaced under Water Replacement Rules unless the Permittee collects baseline data at the water-right points of diversion: baseline data collected for water quantity should be correlated to variations in precipitation, if possible. [03292005, JDS]

Some springs that have water rights are not being monitored (see Table TM-2 below). Information on why some springs in the Mill Fork lease do not have baseline and why they will not be monitored was included in the cover-letter sent April 18, 2002: the springs with water rights that are not being monitored are either outside both the permit area and the area where the Permittee expects impacts (JV-26, JV-36, and JV-43), or within the permit area but outside the area where the Permittee expects impacts (RR-14A, UJV-204, UJV-207, UJV-209A, UJV-213, and UJV-214). Criteria used to select these springs for monitoring is tabulated in Section R645-301-731.200 A. of Volume 12. Water users and the USFS were also consulted on the selection, and Grants Spring was added to the monitoring program at the request of the USFS. [03292005, JDS]

Genwal conducted a baseline spring and seep survey in 1994, 1995, and 1996 in the Mill Fork LBA tract to meet NEPA requirements (the northern portion of the tract had been surveyed in 1989 and 1990). The connection between these data and the pre-lease hydrology evaluation

for the USFS by Genwal is briefly explained in Section R645-301-721, A. 4 of Volume 12. The USFS determined these Genwal data met Data Adequacy Standards. These data, along with other data from 1980, 1981, 1982, 1991, 1992, and 1993 are presented in Appendix C and Table MFHT-2 of Volume 12. Appendix C and Table MFHT-2 do not adequately identify when these data were collected or who collected the data, and although these data provide useful information, they do not meet the requirements of determining seasonal variations of quality and quantity for the purposes of the Coal Mining Rules.

The Permittee initiated a re-evaluation of ground-water resources in 2000, but found inconsistencies between their field observations and the older data. Because of this, the Permittee has placed little confidence in information from the previous surveys. Springs and seep locations were resurveyed, and new baseline data were collected in 2000 through 2002 and correlated with the older data where possible. [03292005, JDS]

The 2000 and 2001 data tabulated in Tables MFHT-3 and MFHT-4 of Volume 12 indicate that the response of the Mill Fork seeps and springs to seasonal and climatic changes is similar to that of the other seeps and springs on East Mountain, which have been monitored by the Permittee for more than twenty years.

Water-quality descriptions include those parameters required by the Coal Mining Rules: total dissolved solids (TDS) or specific conductance corrected to 25°C, pH, total iron, and total manganese. In addition, baseline and operational parameters listed in Appendix A of Volume 9 have been determined for the samples submitted for laboratory analysis. Monitoring parameters include approximate rates of discharge from the seeps and springs. [03292005, JDS]

The Permittee states that extensive research has established that the surface- and ground-water systems are not hydraulically connected, so no impacts to surface waters are anticipated from dewatering of perched systems in the coal seams and adjacent strata (Volume 12, Section R645-301-624). Much of the information from this research is summarized in *Surface-water and ground-water investigation of the Mill Fork Lease area, Emery County, Utah*, by Mayo and Associates, October 24, 2001 (Volume 12, Section R645-301-700, Appendix B). This lack of interconnectivity does not apply to impacts to surface or ground water due to subsidence, nor where fractures link the surface and subsurface systems. [03292005, JDS]

Little Bear Spring

Little Bear Spring in Little Bear Canyon, east of the Mill Fork Lease, is an important source of water for the Castle Valley Special Services District (CVSSD), supplying 65 percent of the culinary water to the residents of Huntington, Cleveland, and Elmo. The only treatment required before use is chlorination. It is the largest and most consistently flowing spring in the region.

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Little Bear Spring flows from the bounding fault zone on the west side of the Mill Fork Graben. Isotope analyses, geophysical investigations, dye-tracer tests, and comparisons of flow in Mill Fork with other Huntington Creek tributaries indicate that the ultimate recharge area for Little Bear Spring is upper Mill Fork Canyon, although some recharge may also come from the north and west along faults. Precipitation runoff, snowmelt, and discharge from numerous springs collect in both the channel and alluvium of Mill Fork, and the water is diverted to Little Bear Spring through the Mill Fork Graben (Volume 12, Section R645-301-721, A. 15. b. (1)). An additional stream-monitoring point has been added upstream of the Mill Fork Graben at the request of the USFS. The location is shown on Map MFS1851D. [03292005, JDS]

The Permittee has not collected baseline data at Little Bear Spring, but CVSSD has measured flow since 1982 and documented quality for a number of years. Flow varies seasonally, one indication of a shallowly circulating ground-water system, but minimum flows have not dropped below approximately 200 gpm, indicating there is also storage capacity in the ground-water system. Average flow has been approximately 340 gpm. Isotopes indicate modern water, and quality is similar to surface waters in Huntington and Little Bear Creeks (Volume 12, Section R645-301-721, A. 15. b.). Baseline water-quality and -quantity data from CVSSD for Little Bear Spring have been included in Volume 12 Appendix C, and Little Bear Spring has been added to the monitoring plan. [03292005, JDS]

Joes Valley Fault

Three samples of water associated with the fault were collected in the Crandall Canyon Mine, and radiocarbon age and tritium content were measured (Volume 12, Section R645-301-700, Appendix B, page 78). Mining within 200 to 300 feet of the Joes Valley Fault could intercept modern water, recharged from the surface, but the “active” zone near the fault may include deeper, older water. A stipulation in the coal lease does not allow full extraction mining within a 22 degree angle-of-draw of the fault (Volume 12, Section R645-301-728, I. 4. a. (2); and Appendix B, page 126). [03292005, JDS]

Surface Water Information

Crandall Canyon, Rilda Canyon, Mill Fork, Little Bear, and Indian Creek are the main surface drainages in and adjacent to the Mill Fork Lease. A number of small, unnamed tributaries to Indian Creek flow from the west side of East Mountain. Crandall, Little Bear, and Indian Creeks are perennial, but Little Bear Canyon has a small surface area and is perennial mainly because of Little Bear Spring. Crandall, Rilda, Little Bear, and Mill Fork are tributary to Huntington Creek; Indian Creek is tributary to Cottonwood Creek by way of Lowry Water. [03292005, JDS]

Crandall Creek has been monitored for a number of years by Genwal Resources. The Permittee will not monitor this stream unless Genwal terminates monitoring (Volume 12, Section R645-301-721, B. 1. b. 1. (b)). [03292005, JDS]

Rilda Canyon has been monitored since 1989. Baseline quality analysis monitoring was done in 1989-1990, and is to be repeated every five years (Volume 12, Section R645-301-721, B. 1. b. 1. (d)). [03292005, JDS]

Streamflow in Little Bear Canyon is not monitored, but Little Bear Spring is closely monitored by CVSSD. This spring has been added to the monitoring plan in Appendix A of Volume 9.

Baseline and operational data have been collected since 1997 at MFA01 and MFB02 in Mill Fork. Locations are shown on Map MFS1851D – Hydrologic Monitoring Map. Data for Mill Fork have been submitted with Energy West's quarterly reports since 1997. Flows have been monitored monthly since January 1997. Laboratory reports for 1997 through 2001 are in Appendix C of Volume 12, and information on flow, pH, conductivity, and dissolved oxygen is summarized. Based on a request from the USFS, an additional monitoring site, MFU-03, was added upstream of the Mill Fork Graben in 2002; the location is on Map MFS1851D. [03292005, JDS]

Indian Creek was monitored for baseline parameters in 2000 and 2001. Flow and water-quality parameters will be measured during base-flow conditions at ICA, ICB, ICF, and ICD (Volume 12, Section R645-301-721, B. 1. b. 2. (b)). These sites are marked on Map MFS1851D. Water-quality data for October 2000 and 2001 are in Appendix C of Section R645-301-600 of Volume 12. Genwal has monitored flow and water-quality at ICF since 1996, and the data have been incorporated into the Permittee's hydrologic database. The Permittee will continue with operational monitoring during base-flow only at ICA, ICB, and ICD, but Genwal is currently committed to continue monitoring at site ICF. [03292005, JDS]

There are no known water-supply intakes for current users of surface waters flowing into, out of, and within the Mill Fork lease hydrologic area. The water supply system in Rilda Canyon is shown on Map 700-1 and on other maps and drawings in Volume 9. Locations for Deer Creek Mine UPDES discharge points are shown on maps in the existing MRP. [03292005, JDS]

Names and locations of surface water bodies within the Mill Fork Lease permit and adjacent areas are shown on several maps in Volume 12, including Plate 1 by Mayo and Assoc.; Drawing MFS1830D – Hydrologic Map; and Drawing MFS1839D - Pre-subsidence Survey Map. Surface-water bodies are described in Section R645-301-721, B. [03292005, JDS]

Information from ICA, ICB, and ICD in Volume 12, when combined with data from ICF, is sufficient to demonstrate seasonal variations of flow and water quality. Water-quality

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descriptions include baseline information on total suspended solids, total dissolved solids or specific conductance corrected to 25° C, pH, total iron, and total manganese. The Permittee has included information on baseline acidity and alkalinity in the ground-water quality analyses. [03292005, JDS]

Baseline Cumulative Impact Area Information

A CHIA for East Mountain was prepared by the Division in 1994. It has been updated several times. The main hydrologic impact will continue to be removal of water from storage in the Blackhawk Formation and Star Point Sandstone, which is not expected to impact the hydrologic balance outside the CIA. The quantity of discharges from the mine to surface waters should continue at rates similar to those from other recent mine operations, and water quality of the discharges should also be similar, so surface water will not be further impacted or materially damaged. [03292005, JDS]

Hydrological Reports

Hydrologic and geologic information for the cumulative impact area have been obtained by the Division from federal or state agencies. Additional information has been included with the Deer Creek Mine Volumes 9 and 12. The Crandall Canyon Mine has provided other information. [03292005, JDS]

Modeling

Modeling techniques have not been included in Volume 11 and Volume 12. [03292005, JDS]

Probable Hydrologic Consequences Determination

Mayo and Associates compiled a Probable Hydrologic Consequences report (Appendix B of Section R645-301-700 of Volume 12) for the Mill Fork lease. The geologic information presented in Volume 12 is sufficient to establish the hydrologic activities and functions for a probable hydrologic consequence determination. [03292005, JDS]

Full-extraction mining will be done beneath the headwaters of Mill Fork, Rilda, and Crandall Canyons, and tributaries to Indian Creek on East Mountain. There will be no full-extraction mining beneath and no subsidence of the perennial stream-reaches in those canyons. Volume 12 discusses the PHC in Section R645-728 and in Appendix B. For the Mill Fork Extension, the PHC determination is in Volume 12, Hydrology Appendix B. [03292005, JDS]

The Permittee has discussed the expected duration of flow of intercepted ground water in the Mill Fork lease and the volume of water expected to be encountered in Section R645-301-728. I. 4. c. Additional information is provided in R645-301-721, A. 9. and R645-301-721, A. 10. Discharge is expected to be similar to that in the Deer Creek Mine and adjacent Crandall Canyon Mine, but discharge per acre mined is not estimated because interception of water varies depending on several factors, and flow from any given area is expected to decline rapidly after the initial encounter and continue to decrease over time. [03292005, JDS]

Groundwater Monitoring Plan

Locations of all ground-water monitoring sites and sampling schedules are in Appendix A of Volume 9 - Hydrologic Section. The detailed Hydrologic Monitoring Program in Volume 9 gives monitoring locations, the monitoring schedule, and water-quality analysis parameter lists. This revision of Volume 11 does not affect the water-monitoring plan. [03292005, JDS]

Surface-Water Monitoring Plan

Locations of all surface monitoring sites and sampling schedules are in Appendix A of Volume 9 - Hydrologic Section. The detailed Hydrologic Monitoring Program in Volume 9 gives monitoring locations, the monitoring schedule, and water-quality analysis parameter lists. This revision of Volume 11 does not affect the water-monitoring plan. [03292005, JDS]

Findings:

Hydrologic Resource Information is considered adequate to meet the requirements of this section. [03292005, JDS]

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Applicable cross sections and maps included in or referenced in Volume 12 have been prepared by, or under the direction of, and certified by a qualified, registered, professional engineer or land surveyor, with assistance from experts in related fields such as hydrology, geology, and biology (Volume 12, Section R645-301-513, p. 5-2).

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Affected Area Boundary Maps

The affected area is usually considered by the Division to be the same as the total life of mine area. Because the total life of mine area is often difficult to predict, the Division usually allows the Permittee to give a best guess estimate.

The Mill Fork lease northern boundary is the Crandall Canyon mine so northern expansion is unlikely. The western boundary is near the Joes Valley Fault so western expansion is also unlikely. To the south is the existing Deer Creek mine. To the east is the South Crandall tract. Therefore, the Division will consider the permit area for the Mill Fork lease to be the same as the affected area.

Archeological Site Maps

Coal Resource and Geologic Information Maps

The Permittee has submitted maps and tables identifying the local geologic and hydrologic features. Map MFU-1823D in Volume 12 shows the locations and elevations on the surface of all exploration drill holes and test wells within the Mill Fork lease area and the coal crop lines for the Hiawatha and Blind Canyon Seams. Map 600-1 (Drawing DS1882D) in Volume 11 shows the surficial geology of Rilda Canyon and includes a general cross section. [03292005, JDS]

Strike and dip of the coal seams are shown by structural contours on the Hiawatha and Blind Canyon Seams, Maps MFU 1827D and MFU 1828D in the Geology section of Volume 12. The strike of the coal seams varies as the coal beds and surrounding strata are folded by the different structures. The dip of the coal beds in this area is usually gentle, with dips rarely exceeding 4 or 5 degrees. Additional coal resource maps and mine workings maps are in Volume 8. [03292005, JDS]

Cultural Resource Maps

Existing Structures and Facilities Maps

No surface structures exist or currently planned for the Mill Fork Lease area. However, the Permittee did make a statement that they are evaluating the possibility of new portals located at Crandall Canyon. This would require a separate permitting action and will not be approved under the C/015/018-PM01I (Mill Fork Lease).

Existing Surface Configuration Maps

Several maps show the existing surface configuration of the Mill Fork lease area, such as Drawing MFS1839D, Deer Creek Mine Mill Fork Lease ML-48258 Pre-Subsidence Survey Map. The map is at a scale of 1" = 1,000' and has 100 foot contours.

Existing surface configuration is portrayed in the Geologic Cross-sections, MFU-1829D and Geologic Formations Map, MFU-1823D. The characteristics of the drainage pattern are a result of the surface configuration on the plateau.

Mine Workings Maps

There has been some historic mining in the canyons east of the lease tract, but no mining has occurred within the Mill Fork Lease boundary. The Permittee has submitted maps showing the underground mine working associated with the Mill Fork Lease. The maps show active, inactive and abandoned underground mine workings of Genwal Coal Company, Skeen Mine, Helco Mine, Huntington #4 Mine, and the Deer Creek Mine.

The Permittee has given mine projection for the Blind Canyon and Hiawatha coal seam in the Mill Fork Lease. Map MFU-1840D gives the mining sequence for nineteen years in the Hiawatha Seam. These maps are projections and can change in the future due to ground condition, roof control, coal quality, mineable reserves and coal market.

Monitoring and Sampling Location Maps

HM-1, the Water Monitoring Location Map, is in Volume 9 - Hydrologic Section. Several maps, including Geologic Formations Map MFU-1823D, identify the locations of boreholes from which geologic information and sampling was conducted. [03292005, JDS]

Permit Area Boundary Maps

The permit area boundary is identified on several maps including maps MFU-1823D, MFU-1824D, MFU-1825D, MFU-1826D, MFU-1827D and MFU-1828D and MFU-1824D.

Subsurface Water Resource Maps

ENVIRONMENTAL RESOURCES INFORMATION

Water intercepted in the Deer Creek and Cottonwood/Wilberg Mine workings is usually perched water from tabular or stream-channel sandstones that have moderate porosity but low permeability and poor interconnectivity. Water is also encountered in open joint-systems in these rocks, in some fault zones - mainly the Roan Canyon fault zone, and the Straight Canyon Syncline (Volume 12, Section R645-301-624). The North Horn and Price River Formations also contain localized, perched aquifers or saturated zones (Volume 12, Section R645-301-624). [03292005, JDS]

A real and vertical distribution of the formations that contain these perched waters are shown on Drawings MFU1823D and MFU1829D in the Geology section of Volume 12. There are no maps or cross-sections of individual aquifers, and the Division does not routinely require such detailed description or mapping of these localized, discontinuous perched ground-water zones. Seasonal differences of head for the Star Point Sandstone for two small areas of the Deer Creek Mine are plotted on Figures HFA-5A and HFA-5B in Volume 9. [03292005, JDS]

Map 700-1 shows the locations of the water-supply intakes for the NEWUSSD. Detailed information on the alluvial aquifer is in Volume 9 - Hydrologic Section of the Deer Creek Mine MRP, along with drawings of the NEWUSSD collection system. [03292005, JDS]

Surface and Subsurface Manmade Features Maps

The Permittee has identified surface and subsurface man made features within, passing through, or passing over the permit area. For the Mill Fork lease see pages 5-20 and 5-21 and Map MFS1839D of Volume 12. [03292005, JDS]

Map MFU1840D shows that Genwal mine facilities are within 1,000 feet of the permit area. The Permittee has identified the buildings that are in or within 1,000 feet of the permit area. The buildings are the Genwal mine facility and are shown on Figure R645-301-500a of Volume 12.

The Permittee has shown two gas wells in the Mill Fork lease, one of which is proposed. This is illustrated on several of the mine maps, including Drawings MFU1840D and MFU1841D and the Pre-subsidence Survey Map, Drawing MFS1839D. The gas well in Section 23, T. 16 S., R. 6 E. will not be undermined. Longwall mining between the years 2012-2016 will undermine the proposed gas well in Section 14. See map MFU1840D in Volume 12. [03292005, JDS]

Surface and Subsurface Ownership Maps

Maps 1-1 (CE-10522-DR) and 1-2 (CE-10521-DR) show surface and subsurface ownership for the Deer Creek Mine permit area and adjacent areas. Maps 1-1 and 1-2 have been updated to show the 1995 AND 2004 BLM lease relinquishments. [04192005, JDS]

Surface Water Resource Maps

There are no known water-supply intakes for current users of surface waters flowing into, out of, and within the Deer Creek Mine hydrologic area. The water supply system in Rilda Canyon is shown on several maps and drawings in the MRP, particularly in Volumes 9 and 11. No surface waters will receive discharges from affected areas in the Mill Fork lease. Locations for Deer Creek Mine UPDES discharge points are shown on Map HM-1 in Volume 9. [03292005, JDS]

Locations of surface water bodies within the Mill Fork lease and adjacent areas are shown on Plate 1 and Drawings MFS1830D and MFS1839D in Volume 12 and HM-1 in Volume 9. [03292005, JDS]

Vegetation Reference Area Maps

Vegetation map, Drawing #: MFS1821D, designates the vegetation types within the Mill Fork Lease and adjacent area. The Manti-La Sal National Forest provided the vegetation mapping.

Well Maps

Locations of a gas well and a proposed gas well are shown on several maps, including Drawings MFU1840D, MFU1841D, and Drawing MFS1839D in Volume 12. Water monitoring wells at the NEWUSSD system are shown on maps in Volume 9. [03292005, JDS]

Contour Maps

Several maps show the existing contours of the Mill Fork Lease area, such as Drawing MFS1839D, Deer Creek Mine Mill Fork Lease ML-48258 Pre-Subsidence Survey Map in Volume 12. The map is at a scale of 1" = 1,000' and has 100 foot contours. [03292005, JDS]

Findings:

The information provided is adequate to meet the requirements of the Maps, Plans and Cross-Sections of Resource Information section of the Coal Mining Rules.

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MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

Analysis:

General

The Permittee plans to conduct only underground mining within the Mill Fork Lease in the near future. All coal will be shipped out of the mine by conveyor belt to the existing Deer Creek coal handling facilities. Men and some of the material will enter then mine through these facilities, and some of the equipment and material will enter the Deer Creek mine by the portal at Rilda Canyon. The Permittee has mentioned in the proposal that surface facilities may be constructed at Crandall Canyon. This would be a separate action and is not considered in this review.

The Permittee has submitted a local and regional description of the geology, including stratigraphy and structure. A list of boreholes was submitted in Appendix B. One representative lithologic log is presented in Appendix B. The Permittee submitted a generalized cross-sectional map, MFU 1829D, showing a cross-section of strata from north to south and east to west, but no detailed information is shown, like fence diagrams identifying changes in the stratigraphic column or location of ground-water bearing zones between drill sites. The drawing shows the Mill Fork Graben cutting the Blackhawk Formation on the geologic map, but not the Star Point Sandstone and Mancos Shale in the Cross-section.

The Mill Fork Lease encompasses an area of East Mountain. Its extent is shown on several maps in the Mill Fork tract submittal. Drawing MFU 48258 shows the lease in relationship to surface ownership. It lies between Huntington Canyon and Joes Valley. Genwal Resources, Inc. controls leases to the north associated with the Crandall Canyon Mine, and Energy West control leases to the south associated with the Deer Creek Mine. All planned mining activities in the Mill Fork Lease are underground. Coal extraction will take place in the Hiawatha (lower) and Blind Canyon (upper) coal seams. The extracted coal will be transported through mains to the Deer Creek Mine surface facilities.

Type and Method of Mining Operations

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The Permittee will use continuous miners for development of longwall panels and main entry development. Longwall mining will be used to extract the majority of the coal from the Mill Fork Lease (Drawings MFU-1824D through MFU-1828D). This method yields high coal recovery and is safer than other mining methods for heavy ground cover. This is the same method being used at the Deer Creek mine today.

Most of the mining in the Blind Canyon seam will take place in the northwest half of the lease. Drawing MFU-1824D identifies the thickness of the overburden above the Blind Canyon coal seam. Overburden thickness in the area of mining ranges from 0 to 2,600 feet. Most of the overburden thickness is over 1,000 feet. The thinner overburden is in the northeast corner of the lease near a side canyon of Crandall Canyon. Overburden Isopach maps MFU-18245D and MFU-1825D show only a portal access in that area. No full extraction mining will occur in that area. The greater overburden depth should minimize surface impacts.

Facilities and Structures

The Permittee has not proposed any new surface facilities on the Mill Fork Lease.

Findings:

The Permittee has met the minimum requirements of the Mining Operations and Facilities section of the R645 Coal Rules.

EXISTING STRUCTURES:

Regulatory Reference: 30 CFR 784.12; R645-301-526.

Analysis:

The Permittee listed the existing structures in Volume 12 on Page 5-20 and 5-21. The structures listed include one operating gas well and two gas pipelines, two power transmission lines, one radio repeater station and two roads. Additional structures in the Mill Fork Lease area include the USFS road #244 and transmission lines in the southwest corner of the lease.

The information listed in Section R645-301-526 of Volume 12 is for surface structures in existing disturbed areas. The reader is instructed to refer to Volume 5, maps 3-9 and 3-9a for information about other existing structures in the permit area.

Findings:

The information provided in the proposal is considered adequate to meet the requirements of the existing structures section of the regulations.

OPERATION PLAN

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

Regulatory Reference: 30 CFR 784.17; R645-301-411.

Analysis:

Findings:

RELOCATION OR USE OF PUBLIC ROADS

Regulatory Reference: 30 CFR 784.18; R645-301-521, -301-526.

Analysis:

Findings:

AIR POLLUTION CONTROL PLAN

Regulatory Reference: 30 CFR 784.26, 817.95; R645-301-244, -301-420.

Analysis:

Findings:

COAL RECOVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

Analysis:

The Permittee will be using longwall mining for the main extraction of coal in the Mill Fork Lease. Continuous miners will be used for development of longwall panels and main entries. This is the current method of mining at the Deer Creek and in Carbon and Emery Counties. This method of mining yields the highest safety and coal recovery possible for underground coal mining.

The Division relies on SITLA and BLM to evaluate the coal recovery plan. Both agencies have reviewed the coal recovery plan and found that the maximum amount of

economically recoverable coal will be produced. The Division has reviewed the mine plan and concurs with the findings.

Findings:

The information provided in the proposal is considered adequate to meet the requirements of the coal recovery section of the regulations.

SUBSIDENCE CONTROL PLAN

Regulatory Reference: 30 CFR 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

Analysis:

Renewable Resources Survey

The Permittee has identified manmade features and renewable resources in the Mill Fork lease area. The manmade features in the area include unimproved roads, trails, a gas well and pipelines and power transmission lines. However, no non-commercial buildings or occupied residential dwellings and related structures were shown to exist in the area. The renewable resources include springs, water seeps, grazing land, timber and wildlife. State appropriated water rights are part of the renewable resources in the area.

R645-301-525.130 requires that the Permittee to conduct a survey of the quantity and quality of all State-appropriated water supplies that could be contaminated, diminished, or interrupted by subsidence within the permit and adjacent areas. The Permittee conducted the survey by assessing the State of Utah Water Rights database.

In the tables in hydrology section of the MRP, the Permittee list the water rights and owners within the affected area. A detailed print out of water rights is located in Appendix C of the MRP. Unless otherwise stated the Division will assume that the quality and quantity of water associated with each water right is that listed in the printout from Water Rights in Appendix C of the MRP.

The subsidence survey conducted by the Permittee shows renewable resources exists within the Mill Fork affected area. Therefore, the Permittee must provide the Division with a subsidence control plan.

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Subsidence Control Plan

The subsidence control plan must address each of the following elements:

- A description of the method of coal removal. The Permittee will use longwall mining exclusively for production mining. The size of the panels, sequence, and timing are shown on Drawing MFU1840D (Hiawatha Mine Plan) and Drawing MFU1841D (Blind Canyon Mine Plan.) Development mining in the Hiawatha Seem is scheduled to occur in 2003 and terminate in 2021. Development mining in the Blind Canyon seam should begin in 2006 with rock slopes from the Hiawatha seam to the Blind Canyon seam and terminate in 2017. Panel lengths will vary from 600 feet to 1,000 feet.
- A map of underground workings that describes the location and extent of areas in which planned-subsidence mining methods will be used and which includes all areas where measures will be taken to prevent or minimize subsidence and subsidence related damage and where appropriate, to correct subsidence-related material damage. Drawing MFS1866D shows the areas where planned subsidence will occur. The drawing shows two areas, one based on a 15 degree angle-of-draw and the other based on a 0 degree angle-of-draw. The drawing only shows the mine workings for the Hiawatha Seam. See Drawing MFU1841D for the Blind Canyon Mine Plan. The main areas that are protected from subsidence are the gas well and the rock slopes between the seams.

In Section 522 of the MRP, the Permittee states that the western extent of subsidence will be governed by a 22 degree angle-of-draw because of the Joes Valley Fault. This is a USFS requirement. The gas well will be protected by a 15 degree angle-of-draw. In general, the Division assumes that a 15-degree angle-of-draw is adequate for most underground mines.

If the Permittee uses a 15-degree angle-of-draw the only subsidence that is scheduled to occur outside the permit boundary will be along the northern border next to the Genwal mine. The Genwal mine is also conducting longwall mining in the area and the Genwal mine could cause some subsidence in the Mill Fork area. Because all subsidence would be confined to permitted areas the Division will allow each mine to subside outside of their respective permit boundaries.

The Permittee believes that no subsidence will occur outside the permit boundary because the angle-of-draw will be much less than 15 degrees. The Permittee makes these claims based on annual subsidence surveys.

- A description of the physical conditions, such as depth of cover, seam thickness, and lithology, which affect the likelihood or extent of subsidence and subsidence-related damage. That information was given in the geology section of the MRP and is considered adequate.

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- A description of monitoring, if any, needed to determine the commencement and degree of subsidence so that, when appropriate, other measures can be taken to prevent, reduce, or correct material damage. The Permittee committed to monitor subsidence with aerial photography. This method has been effective in the past and is currently being used by the Permittee.
- A detailed description of the subsidence control measures that will be taken to prevent or minimize subsidence and subsidence-related damage, including, but not limited to: backstowing or backfilling of voids; leaving support pillars of coal; leaving areas in which no coal is removed, including a description of the overlying area to be protected by leaving the coal in place; and, taking measures on the surface to prevent material damage or lessening of the value or reasonably foreseeable use of the surface. The main concerns with subsidence damage are the Joes Valley Fault, the gas well and the escarpments. The Joes Valley Fault will be protected with a 22 degree angle-of-draw, the gas well and rock tunnels will be protected with a 15 degree angle-of-draw. The panels will be laid out to minimize damage to the escarpments. In addition, the Permittee will leave a 400-foot barrier between the most northern panel and the permit boundary. This should minimize any adverse effects on the Genwal mine.
- A description of the anticipated effects of planned subsidence, if any. On Figure R645-301-500d the Permittee shows the anticipated subsidence trough. The maximum amount of subsidence is expected to be 5 feet. Drawing MFS1866D shows the areas where subsidence should occur.
- A description of the measures to be taken to mitigate or remedy any subsidence-related material damage to, or diminution in value or reasonably foreseeable use of the land, or structures or facilities to the extent required under State law. In order to restore any land affected by operations to a condition capable of supporting the current and postmining land uses stated herein, the Permittee will replace water (including State Appropriated Water Supplies) determined to have been lost or adversely affected as a result of the Permittee's mining operations if such a loss or adverse impact occurs prior to final bond release. The water will be replaced from an alternative source in sufficient quantity and quality to maintain the current and postmining land uses as stated herein.

In Table MRHT-2 Mill Fork Spring and Seep Survey 2000-2002, the Permittee lists the surface and groundwater rights. In addition the Permittee lists the mitigation alternatives for groundwater as: A) Rehabilitate spring source utilizing BTCA, B) Transfer water rights to adjacent groundwater sources, C) establish permanent groundwater collection and distribution system and D) in the case of disturbance to Little Bear Spring the Permittee will follow a negotiated mitigation agreement. The Permittee reserves the right to use any of the first three methods to replace all groundwater sources. The fourth method will only be used in connection

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with Little Bear Spring. For mitigation of surface water rights the Permittee proposes the following: A) Rehabilitate stream utilizing BTCA, B) Transfer Water Rights to adjacent groundwater sources and C) Establish permanent groundwater collection and distribution systems.

United States Forest Service Comments

The Division reviewed the USFS comments about subsidence issues for the Mill Fork lease. Those issues can be divided into two groups: protecting structures and commitments to repair damage. The USFS wants the Permittee to take action to protect the power line and gas well in the Mill Fork lease.

Protected areas are outlined in R645-301-525.200 of the Coal Mining Rules. Protected areas include:

- Public buildings and facilities.
- Churches, schools and hospitals.
- Impoundments with 20 acre-feet or more capacity.
- Aquifer or body of waters that is a significant source of a public water supply.

The power line and gas well are not considered protected structures. The Division cannot prohibit subsidizing under those structures. The Permittee has shortened one longwall panel to reduce the possibility of impinging on the power line. The mine layout maps show no mining within a 15-degree angle-of-draw of the well. The Permittee commits to coordinating mining activities with Merit Oil Company, operator of well Federal #23-32, and to giving six-months notification prior to conducting mining in or adjacent to the angle-of-draw buffer.

The USFS wants the Permittee to make specific commitments to repair or replace damages to structures. The requirements for repair of subsidence related damage to a structure are in R645-301-525.500. The requirements are that if subsidence causes damage the Permittee will repair the damage. Specific commitments for specific structures are not needed to meet the requirements of the Coal Mining Rules.

Performance Standards For Subsidence Control

The basic performance standard for subsidence control is that the Permittee shall comply with all provisions of the approved subsidence control plan. The Division will monitor the Permittee to insure that all mining is conducted in accordance with the MRP. If subsidence causes material damage the Division will take steps to insure that the land is restored to a condition capable of maintaining the value and reasonably foreseeable uses that it was capable of

supporting before subsidence. Repair of damage includes rehabilitation, restoration, or replacement of damaged structures or resources.

Notification

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

Findings:

The information provided in the subsidence control plan is considered adequate to meet the requirements of this section.

SLIDES AND OTHER DAMAGE

Regulatory Reference: 30 CFR Sec. 817.99; R645-301-515.

Analysis:

There should be no slides occurring in the Mill Fork lease area because all mining activities are underground. If slides would occur, it would most likely be caused by subsidence. The area where slides would most likely occur is along the escarpments. The remedy for these slides would fall under the subsidence mitigation plan.

The Permittee has a plan in place to notify the Division should a slide occur and what action is needed to protect the public.

Findings:

The Permittee has met the minimum requirements of the slides and other damage section of the regulations.

FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

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Analysis:

Protection and Enhancement Plan

Second mining is expected to occur under the Castlegate Sandstone escarpments on the east side of the permit area. This has caused cliff failure and rock falls in other areas mined in the Deer Creek permit area (Section R645-301-525, Subsidence Control Plan). The Pre-Subsidence Survey Map (MFS-1839D) shows the Castlegate Sandstone out crops. Escarpments on the Joes Valley side will be protected from subsidence (page 5-24).

The application states (page 3-14) that experience from the existing PacifiCorp permit areas has shown that the effects of subsidence on grazing and grazing lands, timber resources (not identified as a land use) or access to timber resources, and wildlife resources are minimal. Bob Thompson (Forest Botanist, USFS) and Rod Player (USFS) opinions are that subsidence impacts will be negligible to vegetation and wildlife within the Mill Fork Lease (p. 3-19; 4th ¶). The MRP states that infrared color photographs will be used to record vegetation data changes until permit area reduction. When the Division has asked for vegetation information prior to permit area reduction, PacifiCorp has refused to provide such data and again states that their experience indicates no effects. The MRP contains a commitment to continue to analyze vegetation changes every five years using infrared technology. The mine operator will cease analysis once the Division approves a permit area reduction (pg 3-19; 4th ¶). In a letter to the Division (December 4, 2002; RE: Response to the deficiencies to the Mill For Lease Application Round 2...), the mine operator agrees to provide the annual reports on vegetation changes at the time of permit reduction (letter, pg 9).

Endangered and Threatened Species

The only threatened or endangered species possibly present in the permit area is the Mexican spotted owl (although recognized as highly unlikely). The MRP states the potential surface impacts due to second mining have shown land surface disturbance is minimal to non-existent (page 3-9).

The USFWS have identified that water consumption by underground coal mining operations could jeopardize the continued existence of or adversely modify the critical habitat of the Colorado River endangered fish species. The MRP addresses adverse effects to the four Colorado River endangered fish species: the Colorado pikeminnow, the humpback chub, the bonytail chub, and the razorback sucker. Possible effects are addressed by determining the amount of water consumption by the mine. Consumption estimates include evaporation from ventilation; coal preparation; sediment pond evaporation; subsidence effects on springs; alluvial aquifer abstractions into mines; postmining inflow to workings; coal moisture loss; and direct

diversions. Mitigation is required if the loss is estimated to be greater than 100 acre-feet per year.

The mine operator provided derivations and values of consumption and addition of water to the Colorado River. The net total is estimated to be a net gain of 2,453 acre-feet. The USFWS reviewed a summary of the Division's memo on the possible effect of mining operations on the Colorado River Basin fishes. USFWS agrees with the Division that because calculations suggest no depletion of water to the Basin will occur, mining operations are "not likely to adversely affect" the endangered fishes of the Colorado River Basin (letter, February 11, 2003).

Bald and Golden Eagles

Page 5-22 of the application states that cliff escarpment failure could occur in section 1 where an eagle nest is located. Mining plans change and a specific protection plan given at this time will likely be obsolete when mining actually occurs. Annual raptor monitoring will continue and prior to mining PacifiCorp will consult with the Division to discuss avoidance, mitigation, and impacts (page 3-7). PacifiCorp should recognize that it is the Division's and not their responsibility to consult with DWR and USFWS.

Wetlands and Habitats of Unusually High Value for Fish and Wildlife

Findings:

The information provided meets the minimum "Fish and Wildlife Resource Information" section of the regulations.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Topsoil Removal and Storage

Findings:

VEGETATION

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Regulatory Reference: R645-301-330, -301-331, -301-332.

Analysis:

Specific information concerning the effects of underground coal mining operations on rare and sensitive plant species if found under the Fish and Wildlife Information section.

In order to mitigate any impacts to vegetation from subsidence the impacts must be located, measured and quantified. Color infrared photographs at five-year intervals will be used as a method to monitor potential vegetation change over time.

Findings:

Information provided is considered adequate to meet the minimum Vegetation section of the regulations.

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

Analysis:

Road Classification System

No roads will be built for the Mill Fork lease. All access to the Mill Fork Lease will be from underground. Ventilation portals may be built in Crandall Canyon but that would be handled by a separate amendment. [03292005, JDS]

Plans and Drawings

Performance Standards

Primary Road Certification

Other Transportation Facilities

Findings:

The Permittee has met the minimum requirements of the road system and other transportation facilities section of the regulations.

SPOIL AND WASTE MATERIALS

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Disposal Of Noncoal Mine Wastes

Disposal of noncoal waste will not change because there will be no breakout in the Mill Fork Lease. Noncoal waste materials will be removed either from the Deer Creek's mine portals or from the Rilda Canyon portal.

Coal Mine Waste

Coal mine waste will be removed as stated in the approved MRP. The coal mine waste will either be placed underground or shipped to the waste rock disposal site (refuse pile).

Refuse Piles

No new refuse piles will be associated with the Mill Fork Lease.

Impounding Structures

No additional impoundment structures will be associated with the Mill Fork Lease.

Burning And Burned Waste Utilization

Return of Coal Processing Waste to Abandoned Underground Workings

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Excess Spoil:

No excess spoil will be generated from mining activities. Underground development waste generated from the Mill Fork lease will not be classified as excess spoil.

Findings:

The Permittee has met the minimum requirements of the spoil and waste materials section of the regulations.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

General

Appendix B of Volume 12 is a report by Mayo and Associates, *Surface-water and ground-water investigation of the Mill Fork Lease area, Emery County, Utah*, for the Mill Fork Lease, which includes a PHC determination. [03292005, JDS]

Appendix C to Volume 12 has been submitted with information on springs and seeps in the Mill Fork Lease; photos and descriptions of the sites; details on location and elevation, geology and stratigraphic position, and water rights and development information; relationships to other springs; and a determination of the probable recharge area. This appendix also contains data report sheets for select seeps and springs – including isotope data for select springs, and water rights in the Mill Fork Lease area. [03292005, JDS]

Groundwater Monitoring

The ground-water monitoring plan is Appendix A of Volume 9 - Hydrology. Monitoring of the described ground-water resources will proceed through mining and continue during reclamation until bond release. Equipment and structures used in conjunction with monitoring the quality and quantity of ground water on- and off-site will be properly installed, maintained, operated, and will be removed by PacifiCorp when approved by the Division. Monitoring submittals will include analytical results from each sample taken during the quarter. When the analysis of any groundwater sample indicates noncompliance with the permit conditions,

PacifiCorp will promptly notify the Division and immediately take actions provided for in R645-300-145 and R645-301-731 (Volume 11, Section 731.200). Appendix A of Volume 9 lists sampling sites and a monitoring schedule. [03292005, JDS]

Surface Water Monitoring

Parameters analyzed, locations of all surface-monitoring sites, and sampling schedules can be found in Appendix A of Volume 9 - Hydrologic Section. Surface water will be monitored quarterly. Monitoring equipment and structures will be properly installed, maintained, operated, and will be removed by the Permittee when approved by the Division. Monitoring data will be submitted in an electronic format to the Division's database. Data will include analytical results from each sample taken during the quarter. When the analysis of any surface water sample indicates noncompliance with the permit conditions, the Permittee will promptly notify the Division and immediately take actions provided for in R645-300-145 and R645-301-731. For point source discharges, monitoring will be conducted in accordance with 40 CRF Parts 122 and 123, R645-301-751 and as required by the Utah Division of Environmental Health for NPDES permit (Volume 11, Section 731.200). [03292005, JDS]

Monitoring will continue until the release of the reclamation bond or until an earlier date to be determined after appropriate consultation with local, state, and federal agencies (Volume 11, Section 726, Hydrologic Balance-Surface Water System, F, Surface Monitoring Plan). [03292005, JDS]

Acid- and Toxic-Forming Materials and Underground Development Waste

Extensive testing of overburden strata, coal, and surrounding rocks has shown that there are no potentially acid- and toxic-forming materials (Volume 12, Section R645-301-623.100). Details of yearly analyses (1993 to 1999) of coal, floor, and roof are in Section R645-301-600-Geology - Appendix C of Volume 12. Analyses of overburden material are presented in Table G-1 in Volume 8, and summarized in Appendix A of Volume 12. [03292005, JDS]

Transfer of Wells

Volume 12 contains no information on transfer of wells; however, there are no water-monitoring wells, piezometers, or unplugged exploration holes in the Mill Fork Lease area. In Volume 11, Section 731.400, the Permittee commits that wells will be transferred to another party for further use only with the prior approval of the Division, and the conditions of such transfer will comply with Utah and local laws. The Permittee will remain responsible for the

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proper management of the well until bond release in accordance with R645-301-529 R645-301-551, R645-301-631, R645-301-738, and R645-301-765. [03292005, JDS]

Discharges Into An Underground Mine

There are no mine openings in the Mill Fork Lease. The only potential mine opening associated with this permit extension is possible ventilation breakout in Crandall Canyon, upstream of the existing Crandall Canyon Mine. The need for these portals will be evaluated and the design will be made based on future coal exploration. If these portals are needed, they will be permitted in a separate application. All currently planned coal mine operations in the Mill Fork Lease will be underground.

Gravity Discharges From Underground Mines

There are no mine openings in the Mill Fork Lease. [03292005, JDS]

Water-Quality Standards And Effluent Limitations

Discharges of water from areas disturbed by coal mining and reclamation operations will be made in compliance with all Utah and federal water quality laws and regulations and with effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency set forth in 40 CFR Part 434 (Section 751 in both Volume 11 and Volume 12.). [03292005, JDS]

Diversions: General

No diversions are planned for coal mining operations the Mill Fork Lease Coal mining operations in the Mill Fork Lease should have no impact on existing diversions in the permit and adjacent areas.

Diversions: Perennial and Intermittent Streams

Diversions: Miscellaneous Flows

Stream Buffer Zones

The Permittee states that no mining related activities will occur within 100 feet of a perennial or intermittent stream without approval from the Division (Volume 11 and Volume 12, Section R645-301-731.600). [03292005, JDS]

Wellhead protection for the NEWUSSD springs is covered in Volume 11, Section R645-301-728, Hydrologic Balance-Groundwater, B and in Volume 9. [03292005, JDS]

Sediment Control Measures

Sediment control facilities at the Deer Creek Mine are discussed in Volume 2, Part 3 of the Deer Creek MRP. No surface facilities, sediment control, or other disturbance is planned in the Mill Fork Lease area.

Siltation Structures: General

No siltation structures are planned for coal mining operations the Mill Fork Lease. Coal mining operations in the Mill Fork Lease should not impact existing siltation structures in the permit and adjacent areas.

Siltation Structures: Sedimentation Ponds

No sedimentation pond is planned for coal mining operations the Mill Fork Lease Coal mining operations in the Mill Fork Lease should not impact existing sedimentation ponds in the permit and adjacent areas.

The permittee has met the minimum requirements of the R645 Coal Rules by supplying designs for the siltation catch basin (sediment trap) at the Deer Creek sediment pond. See Deer Creek Mine design called "Dumpable Sediment Box/Retaining Wall". [06102005, SJD]

Siltation Structures: Other Treatment Facilities

No other treatment facilities are planned for coal mining operations the Mill Fork Lease Coal mining operations in the Mill Fork Lease should have no impact on existing treatment structures in the permit and adjacent areas. [03292005, JDS]

Siltation Structures: Exemptions

OPERATION PLAN

There is no request for exemption for siltation structures. No siltation structures are planned for coal mining operations the Mill Fork Lease Coal mining operations in the Mill Fork Lease should have no impact on existing siltation structures in the permit and adjacent areas.

Discharge Structures

No discharge structures are planned for coal mining operations the Mill Fork Lease Coal mining operations in the Mill Fork Lease should have no impact on existing discharge structures in the permit and adjacent areas.

Impoundments

No impoundments are planned for the Mill Fork Lease area. Coal mining operations in the Mill Fork Lease should have no impact on existing structures in the permit and adjacent areas.

Ponds, Impoundments, Banks, Dams, and Embankments

No ponds, impoundments, banks, dams, or embankments are planned for the Mill Fork Lease area. Coal mining operations in the Mill Fork Lease should have no impact on existing structures in the permit and adjacent areas.

Water Replacement

The Permittee commits to promptly replace any State-appropriated water supply that is contaminated, diminished or interrupted by Underground Coal Mining And Reclamation Activities conducted after October 24, 1992, if the affected water supply was in existence before the date the Division received the permit application for the activities causing the loss, contamination or interruption. The baseline hydrologic and geologic information required in R645-301-700 will be used to determine the impact of mining activities upon the water supply (Section 731.530). [03292005, JDS]

Casing and Sealing of Wells

Each coal exploration borehole will be plugged by filling it from total depth to the surface with type II Portland cement, or if that is not feasible, with bentonite chips to within 5 feet of the surface with cement plug in the top of the hole. A brass marker with the hole number and year will be placed on top of the cement, 2 feet below surface grade. This method has been approved by the BLM and the Division and has been used in the past to prevent acid and toxic

drainage from entering water resources, minimize disturbance to fish, livestock, and wildlife, machinery in the permit and adjacent area. If an exploration borehole is converted to a water-monitoring well, Utah water well regulations and the provisions of R645-301-731 of the Coal Mining Rules will be followed (Volume 12, sections R645-301-631 and -642, p. 6-23 and 6-24, 6-25 and 6-26).

Findings:

The Permittee has submitted sufficient information to address the minimum Hydrologic Information requirements for this section. [03292005, JDS]

SUPPORT FACILITIES AND UTILITY INSTALLATIONS

Regulatory Reference: 30 CFR Sec. 784.30, 817.180, 817.181; R645-301-526.

Analysis:

No new surface support facilities or utility installations will occur because of the Mill Fork lease.

Findings:

The Permittee met the minimum requirements for the support facilities and utility installations section of the regulations.

SIGNS AND MARKERS

Regulatory Reference: 30 CFR Sec. 817.11; R645-301-521.

Analysis:

No new signs or markers will be needed because of the Mill Fork lease.

Findings:

The Permittee met the minimum requirements for signs and markers section of the regulations.

OPERATION PLAN

USE OF EXPLOSIVES

Regulatory Reference: 30 CFR Sec. 817.61, 817.62, 817.64, 817.66, 817.67, 817.68; R645-301-524.

Analysis:

General Requirements

No explosives will be used on the surface as part of the Mill Fork lease.

Preblasting Survey

General Performance Standards

Blasting Signs, Warnings, And Access Control

Control of Adverse Effects

Records of Blasting Operations

Findings:

The Permittee met the minimum requirements of the use of explosive section of the regulations.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Applicable cross sections and maps included in or referenced in Volume 12 have been prepared by, or under the direction of, and certified by a qualified, registered, professional engineer or land surveyor, with assistance from experts in related fields such as hydrology, geology, and biology (Volume 12, Section R645-301-513, p. 5-2).

There are no impounding structures associated with the Mill Fork Lease.

Affected Area Maps

The Division usually considers the affected area to be equivalent to the permit boundary. Several maps show the permit boundaries including Drawing MFU1840D, Deer Creek Mine Mill Fork Lease ML-48258 Hiawatha Mine Plan.

Mining Facilities Maps

There were no changes to the support facilities map for the Mill Fork lease because all associated mining activities are to be underground using existing facilities. [03292005, JDS]

The only potential surface facility associated with this permit extension is the possible ventilation breakout in Crandall Canyon, upstream of the existing Crandall Canyon Mine. The location for these portals is shown on Drawing MFU1841D in Section 500 of Volume 12. These locations are preliminary, and the need for the portals will be evaluated and the design will be made based on future coal exploration. If these portals are needed, they will be permitted in a separate application (Volume 12, section 623.200). [03292005, JDS]

The surface facilities map (Drawing DS202E) of the Deer Creek mine has been updated as of June 10, 2005. [06102005, SJD]

Mine Workings Maps

The Permittee has submitted maps showing the underground mine working associated within the Mill Fork Lease. The maps show active, inactive and abandon underground mine workings of Genwal Coal Company, Skeen Mine, Helco Mine, Huntington #4 Mine, and the Deer Creek Mine.

The Permittee has given mine projection for the Blind Canyon and Hiawatha coal seam in the Mill Fork Lease. Maps MFU-1840D and MFU1841D give the mining sequence for nineteen years in the Hiawatha Seam. These map are projected and can change in the future due to ground condition, roof control, coal quality, mineable reserves, and coal market. Maps are PE certified.

Map HM-11 has been removed from the plan because all information is now included on Map HM-10. Maps HM-9 and HM-10 have been updated to show more recent mine workings in the North Rilda tract and the entries from North Rilda to Mill Fork. [03292005, JDS]

OPERATION PLAN

Monitoring and Sampling Location Maps

HM-1, the Water Monitoring Location Map, is in Volume 9. Map HM-9 shows the five shallow Rilda Canyon wells surrounding the spring collection system. There is no new monitoring for the Rilda Canyon facilities. For the Mill Fork lease, elevations and locations of monitoring stations used to gather data on water quality and quantity are on Plate 1 by Mayo and Assoc. and Drawings MFS1830D and MFS1839D. [03292005, JDS]

Certification Requirements

All maps and cross-sections that are required to be certified have been certified.

Findings:

The Permittee has met the minimum regulatory requirement for supplying the Division with operations maps, cross-sections, and plans. [03292005, JDS]

RECLAMATION PLAN

RECLAMATION PLAN

GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

There will be no reclamation needed on the Mill Fork Lease because all mining activities will be underground. Subsidence mitigation is not considered as a reclamation requirement.

Findings:

The Permittee has met the minimum requirements of this section.

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

Findings:

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

Analysis:

Findings:

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

Because no surface disturbance is planned for the Mill Fork area, the Permittee does not have to address the AOC section for the Mill Fork amendment.

Findings:

The Permittee met the minimum requirements of the approximate original contour section of the regulations.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

Because no surface disturbance is planned for the Mill Fork area, the Permittee does not have to address the backfilling and grading section for the Mill Fork amendment.

Previously Mined Areas

Backfilling and Grading On Steep Slopes

Special Provisions for Steep Slope Mining

Findings:

The Permittee met the minimum requirements of the backfilling and grading section of the regulations.

RECLAMATION PLAN

MINE OPENINGS

Regulatory Reference: 30 CFR Sec. 817.13, 817.14, 817.15; R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

Analysis:

The Permittee has not proposed any new mine opening on the Mill Fork Lease or a change in the mine opening closure plan.

Findings:

The Permittee met the minimum requirements of the mine opening section of the regulations.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Redistribution

Findings:

ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 701.5, 784.24, 817.150, 817.151; R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Analysis:

No new roads or road reclamation plans are associated with the Mill Fork Lease.

Reclamation

Retention

Findings:

The Permittee met the minimum requirements of the road systems and other transportation facilities section of the regulations.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

Hydrologic Reclamation Plan

There is no planned surface disturbance in the Mill Fork Lease area. There will be no need for postmining removal, reclaiming, or rehabilitation of structures, sedimentation ponds, diversions, impoundments, and treatment facilities within the Mill Fork Lease area. [03292005, JDS]

Casing and sealing of wells

All wells will be managed to comply with R645-301-748 and R645-301-765 (Volume 11, Section 755). Plans to backfill or seal exploration holes or boreholes are described in Volume 11, Section 631). [03292005, JDS]

Water Monitoring

Appendix A of Volume 9 lists sampling sites and the monitoring schedule. Monitoring equipment and structures will be removed when approved by the Division (Volume 11, Section 731.200). [03292005, JDS]

Diversions

There are no diversions in the Mill Fork Lease. [03292005, JDS]

Findings:

The Permittee has submitted sufficient information to address the minimum Hydrologic Information requirements for this section. [03292005, JDS]

RECLAMATION PLAN

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

General

Findings:

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Revegetation: General Requirements

Revegetation: Timing

Revegetation: Mulching and Other Soil Stabilizing Practices

Revegetation: Standards For Success

Findings:

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

Findings:

CESSATION OF OPERATIONS

Regulatory Reference: 30 CFR Sec. 817.131, 817.132; R645-301-515, -301-541.

Analysis:

Findings:

MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

Analysis:

Affected Area Boundary Maps

The Division usually considers the affected area to be equivalent to the permit boundary. Several maps show the permit boundaries including Drawing MFU1840D, Deer Creek Mine Mill Fork Lease ML-48258 Hiawatha Mine Plan.

Bonded Area Map

The bonded area is usually the same as the disturbed area. Because no new surface disturbance is planned for the Mill Fork Lease area, the bonded area map will not change.

Reclamation Backfilling And Grading Maps

Because no new surface disturbance will occur with the Mill Fork Lease no backfilling or grading on the Mill Fork Lease will be needed.

Reclamation Facilities Maps

No new surface facilities will be associated with the Mill Fork Lease.

Final Surface Configuration Maps

RECLAMATION PLAN

No surface structures or facilities will be developed for the Mill Fork Lease. Therefore, no new disturbed areas will be created. Because subsidence will take place, the final surface elevations will be shorter. The Division usually is not concerned with the surface configuration after subsidence has taken place.

Reclamation Monitoring And Sampling Location Maps

Elevations and locations of monitoring stations used to gather data on water quality and quantity are on Plate 1; Drawing MFS1830D – Hydrologic Map; and Drawing MFS1839D - Pre-subsidence Survey Map.

Reclamation Surface And Subsurface Manmade Features Maps

Reclamation Treatments Maps

Certification Requirements.

Findings:

Maps, plans, and cross sections of reclamation operations for the Mill Fork Lease are considered adequate to meet the requirements of the Coal Mining Rules.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

General

No additional bonding will be required because the Mill Fork Lease will be only underground mining. No surface disturbance has been proposed in the Mill Fork Lease.

Bonding has been reviewed and updated with amendment #2258. [06102005, WHW]

The Deer Creek mine has liability insurance and will provide coverage for the Mill Fork Lease.

Form of Bond

Determination of Bond Amount

Terms and Conditions for Liability Insurance

The Deer Creek mine has liability insurance sufficient to meet the requirements of the R645 Coal Rules. Copies of Insurance Certificates (for the period 04/01/2005 to 04/01/2006) are in Appendix E of the Legal and Financial Volume. [04192005, JDS]

Findings:

The Permittee has met the minimum requirements of the bonding and insurance section of the regulations. [04192005, JDS]

SPECIAL CATEGORIES

REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

INTRODUCTION

Regulatory Reference: 30 CFR Sec. 785; R645-302, et seq.

Analysis:

Findings:

EXPERIMENTAL PRACTICES MINING

Regulatory Reference: 30 CFR Sec. 785.13; R645-302-210, -302-211, -302-212, -302-213, -302-214, -302-215, -302-216, -302-217, -302-218.

Analysis:

Findings:

MOUNTAINTOP REMOVAL MINING

Regulatory Reference: 30 CFR Sec. 785.14, 824; R645-302-220, et. seq.

Analysis:

Special Permanent Program Performance Standards--Mountaintop Removal

Findings:

STEEP SLOPE MINING

Regulatory Reference: 30 CFR Sec. 785.15; R645-302-230 et. seq.

Analysis:

Findings:

PRIME FARMLAND

Regulatory Reference: 30 CFR Sec. 785.16, 823; R645-301-221, -302-300 et seq.

Analysis:

Prime Farmland Application Contents

Consultation with Secretary of Agriculture

Issuance of Permit

Soil Removal and Stockpiling

Soil Replacement

Revegetation and Restoration of Soil Productivity

Findings:

**COAL PREPARATION PLANTS NOT LOCATED WITHIN THE PERMIT
AREA OF A MINE**

Regulatory Reference: 30 CFR Sec. 785.21, 827; R645-302-260, et seq.

Analysis:

Findings:

OPERATIONS IN ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR Sec. 822; R645-302-324.

SPECIAL CATEGORIES

Analysis:

Essential Hydrologic Functions

Protection of Agricultural Activities

Monitoring

Findings:

IN SITU PROCESSING

Regulatory Reference: 30 CFR Sec. 828; R645-302-254.

Analysis:

Findings:

AUGER MINING

Regulatory Reference: 30 CFR Sec. 785.20, 819; R645-302-240 et. seq.

Analysis:

Findings:

SPECIAL CATEGORIES

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)

Regulatory Reference: 30 CFR Sec. 784.14; R645-301-730.

Analysis:

The Division is updating the CHIA to include the South Crandall Lease, Crandall Canyon IBC, and Rilda Canyon portal facilities. [03292005, JDS]

Findings:

The Division is updating the CHIA to include the South Crandall Lease, Crandall Canyon IBC, and Rilda Canyon portal facilities. [03292005, JDS]

APPENDICES

APPENDICES

SUMMARY OF COMMITMENTS

SUMMARY OF COMMITMENTS

The summary below presents a list of commitments stated within the mining and reclamation plan (MRP). This list provides the following information for each commitment, when applicable:

- Title.
- Objective.
- Frequency.
- Status.
- Reports.
- Citation.

BEGIN COMMITMENT LIST BELOW

SUMMARY OF COMMITMENTS

PERMIT INFORMATION TABLE

PERMIT INFORMATION TABLE

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