

From: Pam Grubaugh-Littig
To: herb@suwa.org
Date: 12/10/2004 9:56:28 AM
Subject: Lila Canyon TA

Herb - For you information, this was sent on November 30 to UtahAmerican Energy, Inc. If you have any questions, please call me. Pam

CC: Mark Mesch; Wayne Hedberg

November 30, 2004

Jay Marshall, Resident Agent
UtahAmerican Energy, Inc.
P.O. Box 986
Price, Utah 84501

Re: Letter of Deficiency – Lila Canyon Extension, UtahAmerican Energy, Inc.,
Horse Canyon Mine, C/007/0013, Task ID #2055, Outgoing File

Dear Mr. Marshall:

Enclosed is the latest Technical Analysis for the Lila Canyon Extension of the Horse Canyon Mine. The deficiencies identified do not include concerns raised by the Southern Utah Wilderness Alliance (SUWA) at the July 7, 2004 Informal Conference.

I encourage you to respond to issues raised by SUWA on your own. A future Division review will take SUWA issues into account. In order for us to continue to process your application, please respond to these deficiencies by March 1, 2005.

If you have any questions, please call me at (801) 538-5268 or Dana Dean at (801) 538-5320 or Wayne Western at (801) 538-5263.

Sincerely,

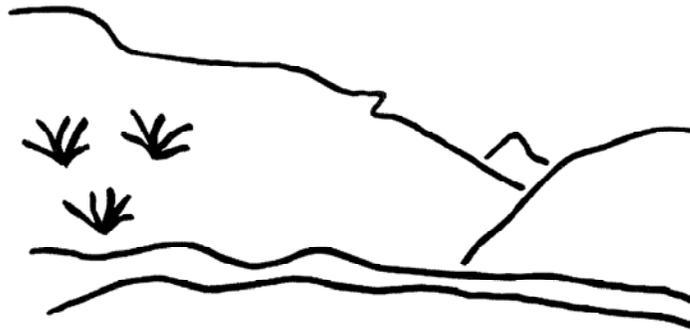
Pamela Grubaugh-Littig
Permit Supervisor

Enclosure

cc: Price Field Office

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State of Utah



Utah Oil Gas and Mining

Coal Regulatory Program

Horse Canyon Mine
Lila Canyon Extension
C/007/0013, Task #2055
November 29, 2004

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TECHNICAL ANALYSIS DESCRIPTION

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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.

When review of an application results in findings of noncompliance with the R645-Coal Mining Rules, the Division discusses the deficiencies in the analysis sections and cites regulatory references for the deficiencies in the findings sections of the Draft TA. The regulatory references cited describe the minimum requirements for meeting the R645-Coal Mining Rules and obtaining a permit.

The Draft TA includes a summary list of deficiencies at the beginning of the document. The Applicant/Permittee will receive the summary list of deficiencies and a redline/strikeout version of the Draft TA at the completion of the review. As the Applicant/Permittee resolves the listed deficiencies, the Division modifies the Draft TA, until a Final TA with no deficiencies is written. Approval is based upon the Final TA. The Permittee will receive an electronic version of the Final TA.

The Final TA is the starting point for review of subsequent applications for permit change, renewal, transfer, assignment, or sale of permit right. The Division modifies the analysis and findings in the Final TA to reflect the changes in the application.

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INTRODUCTION**INTRODUCTION**

The Horse Canyon Mine is located in the Book Cliffs coalfield in Emery County, Utah near the towns of East Carbon and Sunnyside. The Division refers to the existing Horse Canyon Mine Mining and Reclamation Plan (MRP) as Part A and to this Lila Canyon Extension application as MRP - Part B. The permit area of Part A is approximately 1,330 acres, and the permit area of Part B is approximately 4,700 acres for a total of 6,030 acres.

The disturbed area associated with Part A is about 74 acres. All but 16.18 acres of that acreage have received Phase II bond release. The Division approved a change in postmining land use to industrial/commercial on the 16.18 acres that have not been reclaimed. The land and structures, including the Horse Canyon well, have been donated by UEI to the College of Eastern Utah (CEU) for use as a science field camp.

UtahAmerican Energy, Inc. (UEI) proposes to develop new surface facilities near the mouth of Lila Canyon in order to mine coal in six federal leases. The federal leases are contained within the "North Block Logical Mining Unit" as approved by the United States Bureau of Land Management (BLM) January 1, 1994.

The Cedar and Lila Point 7.5 Minute Quad maps, produced by the Geological Survey of the U.S. Department of the Interior (USGS, 1985) show the topography of Horse and Lila Canyons. Located on the western slope of the vast, and largely undeveloped, Tavaputs Plateau. The proposed MRP - Part B permit area includes the Turtle Canyon Wilderness Study Area (WSA), not the disturbed area. However, the proposed Lila Canyon portal site lies just five miles from State Highway 6 and is immediately adjacent to an unimproved road (Plate 1-1).

Mention of previously identified wilderness inventory units has been removed from the MRP- Part B, subsequent to the April 2003 "Stipulation and Joint Motion to Enter Order Approving Settlement and To Dismiss the Third Amended And Supplemented Complaint" (2:96CV0870 B) in the United States District Court District of Utah, Central Division.

The permit application is a Significant Permit Revision, so publication of a notice for public comment is required. Because of the long time period between the Division's April 2003 TA and UEI's February 2004 response, the Division considered the permit application to be inactive and required UEI to publish again. Notice was printed in both the Sun Advocate and the Emery County Progress in April 2004.

Unless specifically stated, all references to sections and volumes in this Technical Analysis refer to the MRP-Part B, received February 24, 2004.

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SUMMARY OF DEFICIENCIES

The Technical analysis of the proposed permit changes cannot be completed at this time. Additional information is requested of UEI to address deficiencies in the proposal. A summary of deficiencies is provided below. Additional comments and concerns may also be found within the analysis and findings made in this Draft Technical Analysis. Upon finalization of this review, any deficiencies will be evaluated for compliance with the regulatory requirements. Such deficiencies may be conditioned to the requirements of the permit issued by the division, result in denial of the proposed permit changes, or may result in other executive or enforcement action and deemed necessary by the Division at that time to achieve compliance with the Utah Coal Regulatory Program.

Accordingly, UEI must address those deficiencies as found within this Draft Technical Analysis and provide the following, prior to approval, in accordance with the requirements of:

Regulations

R645-300-124.330, Place all information concerning the nature and location of archeological resources on public land in the Confidential File. 34

R645-301-112, UEI must update the ownership and control information, including a statement from the Secretary of the corporation that the information is current. 17

R645-301-113.300, UEI must provide violation information for the three-year period preceding the application date. 18

R645-301-117.200, UEI must provide the Division with an affidavit of publication for each public notice necessary to satisfy the public notice requirements. 20

R645-301-121, The Permittee describes boreholes used to measure water levels (IPA-1, IPA-2 and IPA-3) as piezometers in some parts of Chapter 7, and as wells in other parts. The Permittee must decide if the boreholes are wells or piezometers and describe them consistently throughout the MRP - Part B. 67

R645-301-121, The Permittee describes the surface water resources in Chapter 7 as intermittent, and describes the same channels as ephemeral in Appendix 7-7. The Permittee must decide

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- what stream types really exist on the permit area, ephemeral or intermittent and describe them consistently throughout the MRP - Part B. 67
- R645-301-121.100**, UEI must be consistent in reference to Plate 1-1. UEI labeled the map as Permit Area Map but in Section 321.100 they refer to the map as Permit and Lease Area Map. 75
- R645-301-121.200**, • The disturbed acreage of 42.6 acres must be consistently stated in the MRP- Part B. For Example, Section 411.110 indicates 40.77 acres and the Available Soil Resources Table Section 232.100 suggests a potential disturbance of 48.23 acres. • Correctly label the legend of Plate 5-2 to indicate the undisturbed areas within the disturbed area..... 105
- R645-301-121.200**, • Update the paragraph in Sec 321.200 with the current productivity results provided by Dean Stacy. • Use wording in Section 322.220 that correlates to the vegetation maps. • Provide a corrected table for Appendix 5 of Appendix 3-1 • Clarify in the legend on Plate 3-2 that the points are water monitoring locations. • Make the map points on Plate 3-2 legible by increasing the font size. • Provide an explanatory letter and place it in App. 3-4, just before the Biological Assessment (August 20 00). (This letter must either make it clear that the reader should disregard the Assessment's references to the May 1999 results for certain species, or that the results of the May 1999 survey will be provided for the listed species). • Eliminate the discrepancy in Appendix 3.4 concerning suitable habitat for San Rafael and Wright fishhook cactus by either removing the 1999 Coonrod letter or including another letter from Mel Coonrod that clarifies his statements. • In Sec. 322.220, clearly state that the elk winter range is not within the proposed disturbed area (vs. permit area). • Specify the area mentioned in the following statement written in Appendix 3-4: "Since the mine site and a 1 mile buffer zone has been determined not to be suitable MSO habitat, therefore, no additional inventories are warranted." (Although the Division assumes "mine site" to refer to the surface facilities area, this sentence is not thoroughly clear.) • Clarify the timing of planting seedlings in Table 3-3. • Be consistent in describing the details of mulch and tackifier in Appendix 5-8 and in Chapter 3 • Make the legend on Map 6-2 legible and include all map symbols. 23
- R645-301-121.200, -731.311**, According to Appendix 5-7, page 3, Refuse Testing, the parameters to be determined for the materials to be placed in the refuse pile are in Table 2, but there is no Table 2 in either Chapter 2 or 5 or Appendix 5-7. The Permittee needs to identify the parameters and update Appendix 5-7 to correctly identify where they are listed in the MRP. 124
- R645-301-121.200**, It states in Section 724.100, p. 17: "The water monitoring wells show water levels above the lower zone containing the coal seam in area of the mine; however, the zones recorded are not connected to the lower ground water zone. As reported in the Castlegate Sandstone section, no springs or water bearing zones were identified in the spring and seep

SUMMARY OF DEFICIENCIES

inventories or in the drilling of the water monitoring wells in the formation. Therefore, indicating that the monitored zones are perched and are isolated from the lower groundwater zone.” This seems to be indicating that the IPA piezometers were either completed in a third saturated zone between the Upper and Lower zones or completed in the Upper zone. The statements in this paragraph need to be clarified. 67

R645-301-121.200, The PHC refers to Table 1 for hydraulic conductivity values; there is no Table 1 in the PHC, nor a table of hydraulic conductivity values anywhere in the MRP - Part B; this apparently refers to a table in some referenced material. The Permittee needs to identify the source of the hydraulic conductivity information, and either include a Table 1 or revise the text of the PHC. 66

R645-301-121.300 and UCA 63-2-304 (26), UEI must move all maps illustrating raptor nest locations from the MRP-Parts A & B to the Confidential File..... 41

R645-301-121.300, • Name the figures in Volumes 6 & 7 in a clear and concise manner, place them in the plan in a logical order, and include all of them in the Table of Contents. • Be consistent when stating the name of the mine (i.e. Horse Canyon Mine) and the extension (i.e. Lila Canyon Extension). The page headings should read, “Horse Canyon Mine - Lila Canyon Extension.”..... 24

R645-301-121.300, UEI must remove all information from Sections 537.200 – 537.250 of the MRP-Part B that do not apply directly to settled and revegetated fill that will be allowed to remain in place at final reclamation..... 141

R645-301-150, UEI must provide the Division with all information required to constitute a technically complete permit by addressing the deficiencies mentioned in this TA..... 27

R645-301-232, -722.200, -742.123, Ditch DD-7 and Culvert DC-7 carry water to the edge of undisturbed area UA-6, but the flow path across this undisturbed area to Ditch DD-12 isn’t indicated on maps or plans. Maps and plans need to show a continuous flow path from Ditch DD-7 and Culvert DC-7 to Ditch DD-12, along with the associated disturbed corridor..... 124

R645-301-232.100, • The plan should indicate that the condition of the slope between the coal pile road and the portal access road (shown on Plates 2-3 and 5-2) must be evaluated after road construction and must be labeled either disturbed or undisturbed, as appropriate, on an As-Built site map. • The vacuuming procedure described in Section 232.710 should be removed from the narrative. 3) UEI must gather enough cryptogamic soil prior to topsoil salvage to have a minimum of 1% by volume to add to the hydrospray of the topsoil stockpile. 4) The concept of rock barriers and incidental rock distribution along the boundaries of undisturbed ground (illustrated on Plate 5-2) should be expanded to provide protection for all undisturbed areas within the permit area. 105

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- R645-301-234.100**, UEI must clarify the apparent discrepancy between the projections in the Mass Balance Table 1 of Appendix 5-4 that indicate approximately 14,000 CY of fill in the topsoil stockpile between cross-sections 4+00 and 6+00, and estimates in Section 232.100 Available Soils Resources Table that project the salvage of 59,000 CY of topsoil. 106
- R645-301-234.230**, Section 231.100 and Section 231.400 must indicate that if seeding does not immediately follow topsoil pile construction, the pile will be roughened again immediately prior to seeding. 105
- R645-301-234.230**, UEI must clarify that the percentage of cryptogamic soil to be added to the hydromulch should be on the order of 1% by volume, rather than 2 ounces as stated in Section 234.230..... 105
- R645-301-242.200 and R645-301.121.200** UEI must submit a consistent plan for the distribution and preparation of all topsoil and growth medium. UEI states that they will rip the topsoil and subsoil in Section 341.200 but they also state in other sections the pocking (gouging) will be used. UEI must also remove from Section 341.200 reference to gouge on the contour. Pocking or gouging must be done in a random pattern to be effective. 132
- R645-301-243**, The MRP-Part B indicate that grab samples will be collected from the topsoil stockpile after its height is reduced to 10 feet at the deepest end (Section 243). Four or five grab samples should be sufficient to determine what the effects of darkness, compaction, and sterility have been on the fertility of the topsoil stockpile..... 143
- R645-301-322.100**, (1) Survey all suitable raptor habitat including Section 26, T.16 S., R. 14 E. (2) Conduct raptor surveys at least two years immediately prior to and one year following facilities construction. (There was no survey conducted in 2004.) (3) Coordinate efforts with the Division and DWR to monitor raptors and Mexican spotted owl two years immediately prior to undermining potential cliff habitat. (4) The MRP- Part B must include a mine map overlaid with potential raptor and Mexican spotted owl cliff habitat, so that the impact of subsidence and subsidence-related events on cliff habitat can be interpreted. 41
- R645-301-322.100, R645-301-322.200**, (1) Remove the second condition concerning overburden for the formal MSO calling survey plan. (2) Include or reference in section 322.210 the information in UEI's MSO summary letter in Appendix 3-4 and reference the action-item list in Section 333. Action-items listed include the commitment to conduct a "formal" MSO calling survey and submit survey results to the Division, UDWR, and USFWS. (3) Conduct a field survey for canyon sweetvetch, Cliff's blazing star and creutzfeldt-flower at least the year construction begins or one year prior to construction.....) 42
- R645-301-323.100**, UEI must provide another plate that details the reference and proposed disturbed areas. For this additional map, UEI must include the location and boundary of the newly assigned reference and proposed disturbed areas. UEI should follow DOGM

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Vegetation Information Guidelines (page 3) and draw this additional map in more detail, such as a scale of 1"=400'.....	75
R645-301-332 , UEI must provide additional information on the impacts of subsidence to snakes in areas with less than 1000 feet of cover in the MRP - Part B.	100
R645-301-332 , UEI provides a brief plan for repairing subsidence cracks near springs, seeps, and drainages. UEI should include repair techniques, but must also state to use the best available techniques available at the time of repair. The plan must also include the possibility for the need to seed the repaired area and that UEI will notify the Division prior to any repair of seeps, springs, or drainages.....	101
R645-301-333 , UEI must include additional details of the EA mitigation plan, including implementation dates, project location, and overseeing agency.....	100
R645-301-333 , UEI must remove the combined application of seed with fertilizers from Section 341.220, page 22 and Appendix 5-8, page 3.....	132
R645-301-333 , UEI provided the mass balance equation- parameters and total expected water loss from mining operations. UEI must also include the volume of water consumed for dust suppression, even though the total consumption value may not change drastically. An incorrect value for coal moisture must also be corrected.	101
R645-301-341.210; R353; R356.210; R356.231 , UEI must provide a tentative list of species and ratios for the transplants and submit in Chapter 3 of the MRP-Part B as requested during the previous TA.	148
R645-301-342.230; R353.120 , UEI must modify the mix to increase diversity and reduce the seed rate.	148
R645-301-357 , UEI must include some information in the MRP – Part B narrative for the following coal rules: R645-301-357.302, -357.303, and -357.304.....	148
R645-301-358.510 , UEI must submit the power pole design plan for the proposed disturbed site for inclusion in the MRP - Part B.	100
R645-301-411.140, R645-301-411.141 , Include site 42EM1342 in the narrative and on Plate 4-3.	34
R645-301-411.141 , UEI must include 42EM1342 on Plate 4-3. (see Historical Resource Information for details).	75

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R645-301-411.142 , Provide the permit number for the 1991 Miller Report before the Division can consult with SHPO.	34
R645-301-411.143 , UEI must include information of the data recovery plan for 42EM2517 in Chapter 4 - include expected implementation date and overseeing agency.	81
R645-301-420, (1) In accordance with the approved Air Quality Order DAQE-702-99 General Conditions # 10 – 17, the MRP-Part B should indicate that the haul road will be paved and that all unpaved roads and pad areas used by mobile equipment will be treated with water or dust suppressant and that open stockpiles will be watered as conditions warrant.	84
R645-301-512.250 , UEI must have all the plans, maps, cross sections, and profiles for each primary road certified by a registered professional engineer.....	110
R645-301-521.120 and R645-301-121.200 , The information on Plate 5-1A, Pre Mining Contours is not consistent with the information in the text. UEI shows a 48” and a 24” culvert on Plate 5-1A and in Section 521.120 but refers to only one 36” culvert in Section 526.110. UEI must clearly state the number, size, and type of culverts in the Lila Canyon Extension disturbed area boundaries. In addition, UEI states in Section 526.110 that Little Park Road can be found on Plate 5-1. UEI did not label Little Park Road on Plate 5-1, nor did they show the line type for a road in the legend. UEI must also properly label the Little Park Road on Plate 5-1 and label it as a pre-existing structure. In Section 120.120 UEI must state the Little Park Road is also an existing structure.	75
R645-301-521.141 and R645-301-121.200 , • UEI must be consistent when describing the life-of-mine and the affected area boundaries in Plate 5-5, Table 3-3, and Sec 116.100. • UEI must state that the life-of-mine is 14 years or discuss the location of additional reserves.	31
R645-301-521.141 and R645-301-121.200 , UEI must not refer to Plate 5-2 as an affected area boundary map in Section 521.141 of the MRP-MRP - PART B. UEI stated that Plate 5-2 shows the affected area boundaries. Plate 5-2 does not show the potential affected area boundaries, rather it shows the disturbed area boundaries.	74
R645-301-522 , UEI must discuss the potential for expanding the mine. Rules require future mining plans. It is understood that UEI has submitted a lease by application to the BLM for additional leases in the area.	85
R645-301-525.110 and R645-301-121.200 , UEI must 1) either draw the maximum subsidence boundaries on Plate 5-3 and Plate 5-5 at a constant 21.5 degree angle-of-draw, or state why the angle-of-draw varies, and 2) show in the legends what the different line types represent, particularly the symbols for roads and stream channels.	94

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R645-301-525.130, UEI must demonstrate in the MRP-Part B that all property owners in, and around, the Lila Canyon Extension received copies of the water rights survey. 94

R645-301-525.300, R645-301-525.490, UEI must describe how they will mitigate subsidence fractures and other impacts to the surface water channels, even those that act ephemerally. Information should include a monitoring plan to identify cracks and other effects on channels, as well as what type of equipment and methods they plan to use in mitigation. The Division recommends that BTCA at the time be used 75

R645-301-525.430, In Section 525.120 of the MRP-Part B, UEI stated that the depth of cover ranges from 1,500 feet to approximately 2,000 feet . Plate 5-5 shows that the minimum cover is 500 feet. UEI must clearly state the depth of cover in the subsidence section of the MRP-Part B. 93

R645-301-525.440, UEI must submit a subsidence monitoring plan that includes a ground survey for panels no earlier than six months after mining was completed and not later than twelve months after mining was completed. 94

R645-301-526.115.4 and R645-301-526.116.1 , Regarding the culvert under the county road; UEI must show: 1) What section of the culvert Emery County will install and what part UEI will install, 2) What work will be done by Emery County regarding modification of the culvert during reclamation, and 3) How the culvert north of the sediment pond will be modified when Emery County modifies the road. The Division assumes that when the undisturbed bypass culvert is removed, modifications to the culvert will include a fluted inlet and riprap placement on the surrounding slope..... 80

R645-301-526.222, To protect islands of undisturbed areas within the permit area, UEI must include in the MRP-MRP - PART B a commitment to visually monitor undisturbed ground within the permit area for coal fine deposition. If monitoring reveals coal fine deposition, then water sprays on the open stockpile will be warranted as per August 27, 1999 Approval Order (DAQE-702-99) General Condition #16. 127

R645-301-527.200 and R645-301-527.210, UEI must show 1) The location of each culvert and ditch on Plate 5-2, 2) Show the flow path for all culverts and ditches on Plate 7-5, and 3) Show each ditch on the cross-sections in Appendix 5-4..... 110

R645-301-527.210, R645-301-527.220 and R645-301-527.230, UEI must submit detailed maps and cross-sections that show how the South Fork of the Lila Wash will be protected from mining activities, especially from the Main Facility Road, which is located 20 feet from the drainage..... 110

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- R645-301-534.140**, UEI must clarify the remarks in Section 542.600 that references part of the Emery County Road being left after final reclamation. The Emery County Road is outside of the disturbed/permit area and UEI has no jurisdiction over the road. 109
- R645-301-542**, UEI must delineate the same disturbed area boundaries on Plate 5-6 as they do on all other maps..... 151
- R645-301-542**, UEI must submit reclamation maps that show the postmining contours at the topsoil storage site and at the sediment pond. In addition, UEI must submit cross-sections that show final reclamation of the sediment pond. The topography on Plates 5-1A and 5-6 are the same for the topsoil storage area and the sediment pond. Plate 5-6 shows the sediment pond will be removed at final reclamation, but cross section 4+00 on Plate 5-7A-2 shows the pond will remain. 151
- R645-301-542.100 and R645-301-553**, UEI must submit a detailed reclamation plan for the fan portal site. The plan must show how UEI will reclaim the 17-foot highwall. If UEI plans to bring the equipment in and out of the portal, they must develop a plan to reclaim the highwall without sealing off the portal. In addition, UEI must describe the type of equipment that they will use given the limitations of the mine. If UEI plans to airlift the equipment in and out, they must also describe the type of equipment that will be used..... 137
- R645-301-542.200**, UEI must submit reclamation maps that show the reclaimed contours at the topsoil stockpile area, and at the sediment pond. The pre-mining topography on Plate 5-1A and the postmining topography shown on Plate 5-6 are the same. Restoring the site to the exact original contours is all but impossible. In addition, the postmining contours on Plate 5-6 are not consistent with cross sections 4+00 on Plate 5-7A-2. On the map, UEI showed that they would remove the sediment pond while on the cross section UEI showed that the sediment pond would remain after final reclamation. UEI must correct this deficiency. 138
- R645-301-553.130 and R645-301-121.200**, UEI must show that all reclaimed areas and cut slopes will be in soil only or they must do safety factor calculations with a bedrock/soil interface. The profiles in Appendix 5-5 show that the slopes consist only of soil. The Division saw that the slopes in Lila Canyon consist of bedrock with a few feet of soil cover. While circular failure is unlikely in bedrock, noncircular failure can occur along the bedrock/soil interface. Therefore, UEI must submit additional failure analysis based on noncircular failures. 140
- R645-301-553.130 and R645-301-122**, UEI must show how the interior friction angle and the cohesion for the soils were determined from the direct shear test results or reference the source for the soil properties. 140
- R645-301-624.100, -721**, The Stinky Seeps are at an elevation of approximately 6,000 ft, close to the elevation of the potentiometric surface (Plate 7-1), so the source for the water flowing

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- from these seeps could be connected to the saturated zone that will be intercepted by the proposed mine. In Appendix 7-3 (p. 10), the Permittee states, "...being 500 to 600 ft below the coal seam, there is no potential for Lila Canyon Mine to negatively impact this spring or recharge sources." Because they are below the coal seam, subsidence should not impact these springs, but recharge or flow to these seeps could be impacted more directly by mine operations. The Permittee needs to more fully evaluate the hydrogeology of these seeps, whether their source is regional, intermediate, or local in extent, and what impacts the proposed coal mining might have on them. 67
- R645-301-624.100**, Reference is made in Section 724.100 (p. 19) to Appendix 7-7 for information on the relationship of the Stinky Seeps to faulting, but Appendix 7-7 contains no discussion of this subject. The Permittee needs to either clarify the reference in Section 724.100 (p. 19) or include in Appendix 7-7 information on the relationship of these seeps to faulting. 66
- R645-301-722**, The applicant must submit a map identifying the characterization of stream reaches showing where mining will take place within 100 feet (horizontal) of a stream channel. 75
- R645-301-722.100**, The condition of Horse Canyon Well is briefly described in the supplemental information accompanying the December 6, 2002 submittal, but the Permittee needs to include this information in the description of the well in the MRP. 66
- R645-301-722.300, 731.700**, The Permittee must show all Lila Canyon Mine surface- and ground-water monitoring points on Plate 7-1A to make Plate 7-1A accurate and consistent with statements in the MRP and with the legend on the plate itself. 75
- R645-301-724.100, 724.200**, UEI must show water rights 91-4959 (Redden Spring), 91-183 (Horse Canyon Creek), and 91-185 (MDC) on Plate 7-3. 75
- R645-301-724.100**, The Permittee must update the Lila Canyon Extension MRP to include the postmining land use change, including the future transfer of the Horse Canyon Well to CEU. 66
- R645-301-724.100**, The Permittee must update the MRP – Part B, Lila Canyon Extension to include the approved postmining land use change. 134
- R645-301-728**, (1) UEI must recheck the angle of draw on the east side of the proposed permit area. If changes to the potential subsidence result, UEI must make specific findings for the PHC, which identify potential impacts to all ground water sources. UEI shall use this information to summarize the potential for mitigation and hydrologic impacts on and off the permit area in the PHC. The PHC must describe all probable hydrologic consequences from subsidence, and other impacts to springs. (2) UEI must discuss in the PHC what impacts will

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take place from increased salinity to the Colorado River by discharging water from the mine.
..... 68

R645-301-728.333, Sediment-control devices will retain sediment on site. Reducing the amount of sediment, while the sediment carrying capacity remains the same, can result in increased streambed and stream bank erosion. This needs to be discussed in the MRP. 66

R645-301-728.334, In the estimates of water consumption in the PHC, the Permittee must consider the amount of water that will be needed for dust control on coal piles, conveyors, and roads and for other operational uses. The application must be updated to include this information..... 66

R645-301-731.200, The MRP - Part B states (Section 731.211) that there are 13 ground-water monitoring sites proposed for the Lila Canyon Extension, but that number includes sites L-6-G and L-10-G that have been abandoned since the Lila Canyon Extension MRP was first written. There are currently only 11 sites proposed for operational monitoring (Table 7-3). The Permittee must update the MRP to indicate the correct number of ground-water sites to be monitored. 124

R645-301-741 The Permittee must clarify drainage and sediment control designs for undisturbed drainage UA-5. This drainage is not shown in either Table 4 or Table 5 of Appendix 7-4, and it isn't clear whether it will report to the sedimentation pond or directly to the Right Fork of Lila Canyon..... 66

R645-301-742.333, The Permittee must to clarify what precipitation events are used in the designing of diversions. Section 742.333 states peak runoff of a 2 year - 6-hour precipitation event was used; designs in Appendix 7-4 are based on a 10-yr, 6-hr event. The designs in Appendix 7-4, are therefore, more robust than indicated in Section 742.333, but the discrepancy in the text of Chapter 7 (and anywhere else in the MRP - Part B a similar statement appears) must be corrected. 124

R645-301-751, The Permittee needs to clarify the following statement in the PHC: "The TDS standard for class 4 water is 1,200 mg/l. Hence, if discharges occur from the Lila Canyon Extension to the Right Fork of Lila Canyon, the data indicate that the TDS concentration of these discharges will not exceed the applicable water-quality standard." Expected TDS concentration in the discharge is 2,000 mg/L ; why does this not exceed a standard of 1,200 mg/L? 67

R645-301-830.140, UEI must either include the cost of disposing asphalt off site or modify the MRP-Part B by including an on-site asphalt disposal site..... 153

R645-301-830.140, UEI must either include the cost of disposing asphalt off-site or modify the MRP-Part B by including an on-site asphalt disposal site..... 143

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R645-301-830.140, UEI must have documentation showing th at they are properly insured before the Division will approve the Lila Canyon Extension. 153

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IDENTIFICATION OF INTERESTS

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

Analysis:

The MRP-Part B includes ownership information required by R645-301-112. However, the information remains unchanged from previous submittals and the Division is uncertain if the corporate structure is current. UEI must update the information and/or provide a notarized statement from the Secretary of the corporation indicating that all information is current.

UEI is a corporation qualified to do business in the State of Utah. UEI supplied all required information regarding names, addresses, telephone numbers, and employer identification numbers, however the Division must have assurance that the information is current.

Findings:

The information found in the MRP- Part B is inadequate. Before approval, UEI must provide the following in accordance with:

R645-301-112, UEI must update the ownership and control information, including a statement from the Secretary of the corporation that the information is current.

VIOLATION INFORMATION

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

Analysis:

The MRP-Part B contains violation information for UEI and affiliated coal companies for the period February 1999 to February 2002. The violation information needs to include the last 3 years; therefore, UEI must provide updated violation information for the three years that precede the next submittal.

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Findings:

The information found in the MRP- Part B is inadequate. Before approval, UEI must provide the following in accordance with:

R645-301-113.300, UEI must provide violation information for the three-year period preceding the application date.

RIGHT OF ENTRY

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

Analysis:

The BLM signed the decision of record for the Lila Canyon Project on November 27, 2000 which was appealed by SUWA. The BLM decided to grant a right-of-way to UEI for the construction and operation of the Lila Canyon Project facilities. The Interior Bureau of Land Appeals (IBLA) affirmed the BLM position on September 22, 2004. The BLM is prepared to grant the right-of-way (see letter dated Jan 4, 2001 in Appendix 1-6).

Findings:

Information provided in the MRP- Part B meets the minimum requirements of the Right of Entry section of the regulations.

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:

The MRP- Part B included a proper legal description and maps indicating where the permit area is to be located as well as the status of adjacent lands.

The permit area does not include any lands within an area *designated* as unsuitable for mining, or under study for designation as unsuitable for mining.

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The Turtle Canyon Wilderness Study Area juts into the permit area, but the only effect underground mining may have on the WSA would be subsidence, subsequent to the June 2003 United States Court of Appeals, District of Columbia Circuit, Decision No. 02-5136.

Since the BLM leased the coal in a legal and valid process, UEI has valid and existing rights to mine the coal in the areas currently under lease.

Findings:

Information provided in the MRP- Part B meets the minimum requirements of the Legal Description and Status of Unsuitability Claims section of the R645 Rules.

PERMIT TERM

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

Analysis:

The MRP- Part B includes anticipated starting and termination dates for the life of the mine in Section 116.

UEI will most likely need to adjust these dates, depending on when the Division approves the application. However, the information indicates that construction will begin as soon as the Division issues a permit. Construction will take approximately 6 months, and mining will last approximately 24 years.

Findings:

Information provided in the MRP- Part B meets the minimum requirements of the Permit Term section of the R645 Rules.

PUBLIC NOTICE AND COMMENT

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

Analysis:

UEI published public notices in the Sun Advocate, and the Emery County Progress in April 2004, however they did not provide the Division with an affidavit of publication. UEI

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should have submitted the affidavit of publication no later than four weeks after the last date of publication.

Findings:

The information found in the MRP-Part B is inadequate. Before approval, UEI must provide the following in accordance with:

R645-301-117.200, UEI must provide the Division with an affidavit of publication for each public notice necessary to satisfy the public notice requirements.

FILING FEE

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

Analysis:

UEI paid the filing fee as required by the R645 Rules.

Findings:

UEI has met the minimum requirements of the Filing Fee section of the R645 Rules.

PERMIT APPLICATION FORMAT AND CONTENTS

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

Analysis:

Naming Convention - Item 1

UEI, and others, refer to the proposed expansion as MRP - Part B, the Lila Canyon Mine, the Lila Canyon Extension of the Horse Canyon Mine, the Lila Canyon Extension or Lila Extension. The application is titled the Horse Canyon Mine – MRP - Part B – Lila Canyon Mine. UEI has incorrectly used the following page heading in the application: “ **Lila** Canyon Mine - **Horse** Canyon Extension.” To be correct, the header should state the name of the mine that is permitted under C/007/013 (i.e. the **Horse** Canyon Mine) followed by the application to amend the permit (i.e. **Lila** Canyon Extension).

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The Division has chosen to refer to the Horse Canyon Mine - Lila Canyon Extension proposal as MRP - Part B. **Unless specifically stated, all references to sections and volumes in this Technical Analysis refer to the MRP- Part B.**

The MRP - Part B amendment is an addition to the existing C/007/0013 permit. Although MRP - Part B is largely a stand-alone document, there are baseline data and current legal/financial information in the Horse Canyon Mine MRP (hereafter referred to as Part A) that are relevant to MRP - Part B. There are two separate water-monitoring plans, one in Part A and one in MRP - Part B. There are two Probable Hydrologic Consequence (PHC) discussions, one in Part A and another in MRP - Part B, which utilizes data from Part A.

Assuming approval of the Lila Canyon amendment and eventual bond release at the Horse Canyon Mine, MRP - Part B will eventually become the bulk of the MRP. It would make the permit more usable now if UEI were to unify Parts A & B, eliminating the need to refer to separate Lila Canyon and Horse Canyon Mine binders.

Naming Convention -Item 2

Various terms for coal mine waste used in MRP - Part B are confusing. By the definitions found in the R645 Rules (R645-100-200), coal-processing waste and underground-development waste - which is excavated rock from underground mine workings - are coal mine waste. Coal mine waste deposited on the surface forms a refuse pile.

MRP - Part B distinguishes a sub-category of coal mine waste: slope-rock waste, or "rock-slope material/ mine development waste," which is the coal mine waste to be produced by construction of the entry slopes. This material will be basically free of coal, segregated from other waste in the refuse pile, and used as a base for construction of a shop-warehouse pad. UEI explains the terminology in Section 536 and in Appendix 5-7 of MRP- Part B. UEI has replaced the term "rock-slope material" with "rock-slope material/mine development waste" in some sections of MRP- Part B.

Clear and Concise Issues

There are two figures named Figure 7-1: one in Volume 6, and another in Volume 7. An unnamed figure, presumably Figure 7-2, follows the Figure 7-1 in Volume 6. The Figure 7-1 in Volume 7 comes after Chapter 8 and it is easy to overlook, since it is not in the Table of Contents. UEI needs to name these figures in a clear and concise manner, place them in the plan so they are easy to find, and include a list of them in the Table of Contents.

In Section 321.200, UEI must provide current information in the paragraph discussing range productivity, where the evaluation by George Cook, Range Conservationist for Soil Conservation Service, is mentioned, but not the more recent evaluation by Dean Stacy, Natural

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Resource Conservation Service (NRCS) Biologist. (See Environmental Description - Vegetation Information section for details).

The reference on page 5, Section 322.220 does not match community types represented in Plate 3-2 or Appendix 3-1. UEI must clarify the wording in Section 322.220 to correlate to the vegetation maps (See Environmental Description - Vegetation Information section for details).

Appendix 5 of Dr. King's vegetation report (Appendix 3-1) shows a similarity table that appears to be missing rows, since the species do not line up on page 23 of the report. UEI must provide a corrected table.

UEI must clarify the legend on Plate 3-2 to refer to the points as water monitoring locations and increase the font size for map points that show water-monitoring locations, so they are easier to read. (See Environmental Description - Vegetation Information section for details).

UEI must provide an explanatory letter and place it in Appendix 3-4, just before the Biological Assessment (August 2000). This letter must either make it clear that the reader should disregard the Assessment's references to the May 1999 results for certain species, or that the results of the May 1999 survey will be provided for the listed species. (See Environmental Description - Wildlife Information section for details).

UEI must clarify the discrepancy concerning suitable habitat for San Rafael and Wright fishhook cactus by either removing the 1999 Coonrod letter from Appendix 3-4 of the MRP - Part B (highly suggested), or including another letter from Mel Coonrod that clarifies his statements. (See Environmental Description - Wildlife Information section for details). Note: Ben Franklin (DWR-Utah Heritage Program) mentioned that there is very little chance of either of these threatened, endangered, or sensitive (TES) species occurring near the proposed Lila Canyon portal area.

The reference concerning elk on page 6, Section 322.220 of the MRP - Part B is unclear. Plate 3-1 shows elk winter habitat within the permit area, yet the narrative suggests otherwise. UEI must state that the elk winter range is not within the proposed disturbed area (vs. permit area).

Table 3-1 in MRP - Part B mentions information about the Mexican spotted owl (MSO). The reference to "Appendix 3-5" is no longer current. UEI must reference the correct location of the MSO information.

In Appendix 3-4 UEI states, "Since the mine site and a 1 mile buffer zone has been determined not to be suitable habitat (MSO), therefore, no additional inventories are warranted."

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Although the Division assumes “mine site” to refer to the surface facilities area, UEI must clarify this sentence (See Environmental Description – Wildlife Information section for details).

UEI must clarify the timing of planting seedlings (See Reclamation Plan - Revegetation: Mulching section for further discussion).

UEI must be consistent in outlining the details concerning mulching and tackifying in Appendix 5-8 and in Chapter 3. (See Reclamation Plan - Revegetation: Mulching section for details).

Findings:

The information found in MRP - Part B is inadequate. Before approval, UEI must provide the following in accordance with:

R645-301-121.200, • Update the paragraph in Sec 321.200 with the current productivity results provided by Dean Stacy. • Use wording in Section 322.220 that correlates to the vegetation maps. • Provide a corrected table for Appendix 5 of Appendix 3-1 • Clarify in the legend on Plate 3-2 that the points are water monitoring locations. • Make the map points on Plate 3-2 legible by increasing the font size. • Provide an explanatory letter and place it in App. 3-4, just before the Biological Assessment (August 2000). (This letter must either make it clear that the reader should disregard the Assessment’s references to the May 1999 results for certain species, or that the results of the May 1999 survey will be provided for the listed species). • Eliminate the discrepancy in Appendix 3.4 concerning suitable habitat for San Rafael and Wright fishhook cacti by either removing the 1999 Coonrod letter or including another letter from Mel Coonrod that clarifies his statements. • In Sec. 322.220, clearly state that the elk winter range is not within the proposed disturbed area (vs. permit area). • Specify the area mentioned in the following statement written in Appendix 3-4: “Since the mine site and a 1 mile buffer zone has been determined not to be suitable MSO habitat, therefore, no additional inventories are warranted.” (Although the Division assumes “mine site” to refer to the surface facilities area, this sentence is not thoroughly clear.) • Clarify the timing of planting seedlings in Table 3-3. • Be consistent in describing the details of mulch and tackifier in Appendix 5-8 and in Chapter 3 • Make the legend on Map 6-2 legible and include all map symbols.

R645-301-121.300, • Name the figures in Volumes 6 & 7 in a clear and concise manner, place them in the plan in a logical order, and include all of them in the Table of Contents. • Be consistent when stating the name of the mine (i.e. Horse Canyon

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Mine) and the extension (i.e. Lila Canyon Extension). The page headings should read, "Horse Canyon Mine - Lila Canyon Extension."

REPORTING OF TECHNICAL DATA

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

Analysis:

Resource maps, plans, and site-specific information MRP - Part B are based on, among other sources, the application for the Kaiser South Lease, which was submitted to the Division, but never approved. UEI has provided a CD with the text of the Kaiser South Lease to the Division for use in preparing this TA and CHIA. However, UEI does not intend to append the Kaiser South Lease to the Lila Canyon Extension (as stated by UEI in the letter that accompanied the February 24, 2004 submittal.)

Dan Larsen, Soil Scientist, Environmental Industrial Services, Inc., Helper, Utah conducted an Order I Soil Survey of the proposed Lila Canyon extension disturbed area in August 1998. Appendix 1-5 details the extensive experience and qualifications of Mr. Larsen to perform this survey.

The table below provides the names and qualifications of those participating in Biological and Cultural Resource data collection, inventory, and analysis (Appendices 3-1 through 3-7; Appendix 4-1).

SURVEY	DATE	RESPONSIBLE PERSONS (ORGANIZATIONS)
Appendix 3-1: Lila Canyon Vegetation Survey (30 pgs. + raw data sheets).	2004	Mike King (College of Eastern Utah, CEU)
Appendix 3-2: Productivity.	August 2003	Dean Stacy (NRCS)
Appendix 3-3: USFWS Correspondence.	April 30, 2003	Diana Whittington
App 3-4: Threatened and Endangered Species (TE) Inventories. 1. Plant and animal inventory	May 1999	Mel Coonrod (Environmental Industrial Services - EIS)

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2. Plant and animal biological assessment of 1999 inventory.	August 2000	David Steed (EIS)
3. Plant inventory	April 2002	Mel Coonrod (EIS)
4. Plant follow-up inventory	May 2002	Mel Coonrod (EIS) and representative from BLM
5. Plant inventory	Sept. 2002	Susan White (DOGM)
6. Mexican spotted owl (MSO)	October 2002	David Willey "Final Report" 2002
7. Mexican spotted owl	No date	Jay Marshall
App 3-5: Raptor Surveys.	1999 - 2003	Chris Colt (DWR)
App 3-6: UDWR Wildlife Report.	Not provided	DWR
App 3-7: Productivity Within And Around The Permit Area.	June 25, 1998	G. Cook (Range Conservation) Mel Coonrod (EIS)
Appendix 4-1 (confidential file)		
1. Cultural resource inventory of the soil testing area for the Lila Canyon coal project (5 pgs.).	1998	Keith Montgomery (Montgomery Archaeological Consultants)
2. Cultural resource information, Appendix X1 in BLM report (pgs. 783-3 through 783-5ii).	1980	BLM
3. An archaeological/historical inventory of the Kaiser Steel Corporation (54 pgs.).	1986	Don Southworth and Asa Nielson (BYU)
4. *Environmental Assessment #UT-066-93-28 Readjustment of Federal Coal Lease. Price river resource area, File #3451 (8 pgs.).	Not provided	Not provided

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5. Cultural resource inventory of the Kaiser Steel Corporation south lease mine property and a test excavation (42EM1343) in Emery County (199 pgs.).	1981	Rebecca Rauch, Richard Holmer (Principal Investigator)
6. Cultural resource inventory of transportation corridors and power line route for the Lila Canyon Extension (11 pgs.)	1999	Keith Montgomery (Montgomery Archaeological Consultants)
7. No title. <i>*Not applicable to cultural matters for the Lila Canyon Extension.</i>	August 20, 1991	Blaine Miller (BLM)

UEI provided all available names, organizations, and dates of participants or leads that conducted surveys related to biological and cultural matters.

Findings:

Information provided in the MRP- Part B meets the minimum requirements of the Reporting of Technical Data section of the regulations.

MAPS AND PLANS

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

Analysis:

All maps and plans that UEI submitted with MRP - Part B comply with the scale requirements of the regulations. Plate 5-1 shows the areas mined before, and after August 3, 1977. There is no surface disturbance in the Lila Canyon Extension area.

Findings:

Information provided in MRP - Part B meets the minimum requirements of the Maps and Plans section of the regulations.

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COMPLETENESS

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

Analysis:

The Division received MRP - Part B, an amendment to the existing C/007/013 permit, from UEI on February 24, 2004. The Division determined MRP - Part B to be *administratively* complete on March 26, 2004. The *technical* adequacy of MRP - Part B is the subject of this Technical Analysis (TA).

Findings:

The information found in MRP - Part B is inadequate. Before approval, UEI must provide the following in accordance with:

R645-301-150, UEI must provide the Division with all information required to constitute a technically complete permit by addressing the deficiencies mentioned in this TA.

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ENVIRONMENTAL RESOURCE INFORMATION

ENVIRONMENTAL RESOURCE INFORMATION

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

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

Analysis:

The Permittee met the minimum requirements for providing a general description of the existing, pre-mining environmental resources within the proposed permit area and adjacent areas in MRP - Part B as follows:

- The lands subject to surface coal mining operations and the size, sequence, and timing of mining (See Section 521 and Plate 1-1 and Plate 1-2)
- The nature of cultural historic and archeological resources listed or eligible for listing on the National Register of Historic Places and known archeological sites within the proposed permit and adjacent areas. (Section 411.140)
- A description of the existing, pre-mining hydrologic resources within the permit area and adjacent areas. (Section 720)

The Division comments on the resource information presented in the MRP- Part B under specific Environmental Resource Section headings of this TA.

The Horse Canyon Mine is in the Book Cliffs coalfield in Emery County near East Carbon and Sunnyside, Utah, on the western slope of the Tropic Plateau. The 7.5 Minute Quadrangle maps that cover the permit area are Cedar and Lila Point, produced by the Geological Survey of the U.S. Department of the Interior. The proposed Lila Canyon Project facilities site is five miles east of State Highway 6.

Findings:

Information provided in the application meets the minimum General Environmental Resource Information requirements of the Regulations.

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PERMIT AREA

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

Analysis:

The permit area is divided in two parts: the Horse Canyon Mine (Part A) and the Lila Canyon Extension (MRP - Part B). Total acreage for the two parts is 5,992.07 acres. The permit area for Part A, is 1,327.75 acres and the area for MRP - Part B, is 4,664.32 acres. UEI shows the permit boundary on several maps including Plate 1-1, Permit Area Map, and other maps in the MRP-MRP - Part B.

Table 1-1 shows federal coal leases encompass 5,544.01 acres. The permit area (5,992 acres) is not the same as the federal lease boundaries. Table 4- 2 breaks out the acreage of private, state and federal ownership within Parts A and B of the permit area. Table 4-2A breaks out the private, state and federal acres of coal ownership within Parts A and B of the permit area.

UEI did not adequately address the requirements for describing the proposed permit area for the Horse Canyon Mine. Although UEI applied for a lease-by-application with the BLM for areas south of the Lila Canyon Extension, they did not show those areas of possible future expansion.

Plate 5-5, Mine Map, shows mining of reserves from 2005 to 2019, a 14-year life-of-mine. However, Table 3-3, Reclamation Schedule, indicates reclamation will not begin until 2024. Thus the anticipated life-of-mine is 19 years. UEI needs to be consistent about the life-of-mine. Either UEI must indicate that reclamation will begin in the year 2019 or discuss where they could obtain additional reserves to extend the life-of-mine to 19 years.

The surface facilities for MRP - Part B Lila Canyon will be located in SE $\frac{1}{4}$ SW $\frac{1}{4}$, Sec 15, T.16 S., R.14 E. The area is located upon an alluvial/colluvial bench at an elevation of 5,800 to 6,500 ft., where the two forks of Lila Canyon converge. The perimeter of the disturbed area contains approximately 42.6 acres. The actual disturbance for construction of pads, silos, coal processing structures, and parking will take approximately 25.3 acres, leaving 17.3 acres of undisturbed islands within the disturbed area. UEI illustrates the disturbed area boundary on several maps including Plate 1-2, Disturbed Area Map.

Findings:

The information in this section of the MRP - Part B is not adequate to meet the requirements of this section of the Regulations. Before approval, UEI must provide the following in accordance with:

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R645-301-521.141 and R645-301-121.200, • UEI must be consistent when describing the life-of-mine and the affected area boundaries in Plate 5- 5, Table 3-3, and Sec 116.100. • UEI must state that the life- of-mine is 14 years or discuss the location of additional reserves.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

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

Analysis:

UEI did not comply with the requirements of R645-301-411, because information is missing from the narrative and maps (including the SHPO permit number for the Blaine Miller survey). UEI did not comply with R645-300-12 4.300, because they did not identify and separate confidential information from the MRP- Part B. The Division cannot completely assess whether mining operations may have an impact on historic properties until UEI addresses all related deficiencies.

Summary of appendices relating to historic properties:

UEI submitted historic resource reports in Appendix 4-1 (Confidential Files) that include the following:

- 1) Keith Montgomery 1998 Cultural resource inventory of the soil testing area for the Lila Canyon coal project. Permit number is U-98- MQ-0399b. Study location was in T16S R14E.
 - Recommendation: No historic properties effected.
 - SHPO (State Historic Preservation Officer) communication: No records provided.
 - Division comment: Report does not include field notes and the map is unclear.
- 2) BLM 1980 "Appendix X1" - Cultural resource information. No permit number provided. Study location was in T16S R14E and T15S R14E including Lila permit area.
 - Recommendation: 42EM1222 is eligible for listing to National Register of Historic Places (NRHP).
 - SHPO communications: Submitted by BLM.
 - Division comment: 42EM1222 is within the Horse Canyon Mine permit area, but approximately 7000' (1.33 miles) from the disturbed area boundary of Lila Mine.
- 3) Don Southworth and Asa Nielson (BYU) 1986: An archeological/historical inventory of the Kaiser Steel Corporation. No permit number provided. This report does not include information on historic properties within the Lila permit area.

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- 4) Environmental Assessment (E A) #UT-066-93-28 Readjustment of Federal Coal Lease. Price river resource area, File #3451 (8 pgs.). EA #U T-066-93-28 - Price river resource area File #3451. This report does not include information on historic properties within the Lila permit area.

UEI must remove the unrelated reports (Southworth and Nielson; EA #UT-066-93-28) from the Lila Expansion MRP- Part B.

- 5) Rebecca Rauch 1981 Cultural resource inventory of the Kaiser Steel Corporation South Lease mine property and a test excavation in Emery County. Permit number is 81-UT-044. Study location was in T16S R14E with a linear survey of the facilities disturbance area.
- Recommendation/comments: 42EM1342 is eligible for listing to NRHP and 42EM1343 was test excavated during survey.
 - SHPO communications: Submitted by BLM.
 - Division comments:
The report is missing Plate V-1.

The MRP-Part B does not mention 42EM1342 (pgs. 4-10 through 4-14) or illustrate it on Plate 4-3. It is difficult for the Division to determine the degree of impact to this site without details. UEI must include this site in the narrative and on Plate 4-3 (R645-301-411.140, R645-301-411.141). Include similar descriptions as those provided on pages 4-10 through 4-14 if this site is within or adjacent to the permit area. The Division will include 42EM1342 in the SHPO correspondence process before final MRP- Part B approval.

The Permittee states that 42EM1343 does not meet the National Register criteria. The consultant conducted a data recovery program for this site. In the conclusion section of the Rauch report, there was no mention of the final decision that the site no longer meets the Nation Register criteria. The Division will include 42EM1343 in the SHPO correspondence process before final MRP-Part B approval.

- 6) Keith Montgomery 1999 Cultural resource inventory of transportation corridors and power line route for the Lila Canyon Extension. Permit number is U-98-MQ-0739b. Study location included T16S R14E.
- Recommendation: 42EM2517 is eligible for listing to NRHP under Criterion (d) of 36CFR60.4. The consultant states that this site is susceptible to damage caused by secondary mining operations and recommends moving the transportation route to protect the site and conducting a data recovery project.
 - SHPO communications: BLM provided (Blain Miller, May 18, 2004) record of communications that UEI will include in the confidential file.

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- Division comments:
The data recovery project will begin following approval of the mine plan (Blaine Miller).

BLM submitted the data recovery plan drafted by Montgomery (case number 98-0929) to SHPO. A stipulation of the plan is that BLM will enter a Programmatic Agreement with SHPO. This agreement must be signed and approved before the right-of-way is authorized (EA#UT-070-99-22 page 58; July 2000). The Division received a faxed copy of correspondence from SHPO to BLM concerning the data recovery plan for EM2517 (May 2004).
- 7) Blaine Miller 1991 No complete report on file. No Permit number included. Study location included T16S R14E.
- Recommendation: 42EM2255 and 42EM2256 are eligible for listing to NRHP.
 - SHPO communications: No records provided.
 - Division comments:
Currently, the MRP-Part B does not include a complete report. BLM does not have the report on file. UEI must provide the permit number for the 1991 Miller report (R645-301-411.142).

Sites 42EM2255 and 42EM2256 are not near the proposed surface disturbance, but are within the 21.5-degree angle of draw for subsidence. The Division will finalize the SHPO process for 42EM2255 and 42EM2256 before final MRP-Part B approval.

Additional information relating to historic properties:

Comments were received that UEI must perform cultural surveys for all areas subject to subsidence. The MRP-Part B includes a subsidence control map (Plate 5-3) and "Confidential Files" include a cultural map (Plate 4-3) and results from cultural and historic evaluations that focus on the Lila Canyon Extension area. These evaluations contain narratives and maps that describe and show locations of known cultural or historical resources listed or eligible for listing in the NRHP within and adjacent to the proposed area. Once UEI provides missing pieces of information from Appendix 4-1, the Division will determine if UEI must submit a protection/mitigation plan for any of the potentially eligible sites at that time.

There are no cemeteries in or within 100 feet of the Lila Canyon Extension permit area, and it contains no units of the National System of Trails or Wild and Scenic Rivers system.

Chapter 4 summarizes the results of the Appendix 4-1 reports and provides details of historic properties within the Lila permit area (pp. 11-15). UEI must move this information to the Confidential File (R645-300-124.330). The Division recommends placing this summary at

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the beginning of the reports in the Confidential Files. In addition, UEI must move Appendix X-1 and X-2 from the MRP- Part A Volume IV to the Confidential File.

It is important that UEI employees avoid all historic properties during the life of the project. In the event that construction or operations uncover historic properties, Section 106 of the National Historic Preservation Act and 36 CFR 800.13 require that the Permittee stop all work in the vicinity and notify the Division. The Permittee, Division, and other appropriate parties will develop a strategy to avoid the site or mitigate the impacts at that time.

Findings:

Information provided in the plan does not meet the minimum Environmental - Historic and Archeological Resource Information requirements of the R645 Rules. Prior to approval, the Permittee must act in accordance with the following:

R645-301-411.140, R645-301-411.141, Include site 42EM1342 in the narrative and on Plate 4-3.

R645-301-411.142, Provide the permit number for the 1991 Miller Report before the Division can consult with SHPO.

R645-300-124.330, Place all information concerning the nature and location of archeological resources on public land in the Confidential File.

CLIMATOLOGICAL RESOURCE INFORMATION

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

Analysis:

The Permittee complied with R645-301-724.400 by providing all required information regarding climatological factors that are representative of the proposed permit area. The data comes from the National Weather Service's cooperative weather station located in Sunnyside, Utah for the period 1971 to 2000. The information is found in Section 724.410 of the MRP-MRP - PART B and includes:

Average seasonal precipitation

The average annual precipitation is 14.74 inches. Average seasonal precipitation values are: winter 1.04 in./mo., spring 1.10 in./mo, summer 1.59 in./mo, and fall 1.20 in./mo. This is an area of low precipitation, with somewhat more occurring

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in the summer and fall than winter and spring.

The average direction and velocity of prevailing winds

The major trend of prevailing winds is from west to east with an average velocity of 2.74 knots.

Seasonal temperature ranges

The average annual high temperature in the area is 56.8° F. The average annual low temperature is 32.8° F. Average seasonal temperature ranges are: winter 17.7° F – 38.7° F, spring 38.5° F – 64.6° F, summer 50.2° F - 72° F, and fall 24.2° F – 45.3° F.

Findings:

Information provided in the MRP- Part B meets the minimum requirements of the Climatological Resource Information section of the regulations.

VEGETATION RESOURCE INFORMATION

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

UEI complied with R645-301-321 by providing descriptions of plant communities within the permit and adjacent areas as well as providing pre-mining productivity values.

Appendices for Chapter 3 include the following reports from vegetation resource surveys:

- Appendix 3-1: Mike King (CEU; 2004) Lila Canyon Vegetation Survey.
- Appendix 3-2: Dean Stacy (NRCS, 2003) Ocular estimations by NRCS.

The Division received comments about a lack of current data for the entire permit area. The King (2004) report includes quantitative and qualitative details of vegetation resources for the proposed Lila disturbed and reference areas (Appendix 3-1). Dr. King surveyed for cover, cover by species, shrub density, and similarity of composition for reference and proposed disturbance areas. Another comment received was the lack of evaluations for biological crust. Dr. King included cryptobiotic soils in the baseline evaluation of the proposed disturbed and reference areas. The Division considers the vegetation resource baseline information in the application to be adequate.

In 2003, the Division, Dr. King, and Permittee established a new reference area a few hundred feet south of the original reference area in response to concern over the proximity of the

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previous reference area to the facilities. Dean Stacy (NRCS) evaluated productivity levels for the proposed disturbed site and the newly assigned reference area in 2003. The similarity results show that the species composition of the reference area is similar to the proposed disturbance area. However, Section 321.200 does not refer to the 2003 evaluation conducted by Dean Stacy.

Rather, section 321.200 refers to the productivity evaluation conducted by Cook and Coonrod (1999). The values cited in Section 321.200 are no longer valid because the reference area location has changed and the proposed disturbed site now has two vegetation types rather than just one. Section 321.200 must be updated with current information (see deficiency written under R645-301-121.200).

The vegetation community map in Appendix 3-1 shows pinyon-juniper and grass-shrub communities dominate the proposed disturbed area. Plate 3-2 also shows pinyon-juniper, mixed conifer, spruce-fir, grass, and sagebrush-grass community types surrounding the proposed disturbed area. In contrast, section 322.220 (p.5) states, "the vegetation within the area is associated with the Greasewood-Shadscale desert shrub community. This statement does not match community types represented in Plate 3-2 or Appendix 3-1. Section 322.220 must provide current and accurate information as presented on vegetation maps (see deficiency written under R645-301-121.200).

The Division received comments that the MRP- Part B should identify important plant communities such as riparian areas. Appendix 7-7 and Chapter 3 provide information on the springs and drainages including a brief description of plant communities associated with springs. Chapter 3 also mentions these plant communities.

The Division considers the information in Appendix 7-7 to be sufficient. Appendix 7-7 describes all drainages within the permit area as intermittent or ephemeral. There is one 75 ft. section described as intermittent/perennial that is located off the permit area - near Stinky Springs Wash (Reach 9C). Within the permit area, no drainages are described as riparian or wetlands. There are greater numbers of spring observations in the NW, NE, and SE corners of the permit area than in all other areas of the permit (Plate 7-1A). Most springs are not within the 21.5-degree angle of draw (Plate 5-3, Plate 7-1A).

The vegetation map (Plate 3-2) shows plant communities including communities associated with the spring and drainage locations. The map legend, however, is misleading by stating that map points [e.g., 2 L-15-G] refer to "spring vegetation key and spring number." Not all these associated map points are locations of springs and the map does not show all the springs within the boundaries of the map (compare to Plate 7-1A). The legend on Plate 3-2 must clearly refer to the points as monitoring locations and the font size used for map points must be increased so as to be legible (see deficiency written under R645-301-121.200).

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Findings:

Information provided in the MRP- Part B meets the minimum Environmental - Vegetation Resource Information requirements of the R645 Rules.

FISH AND WILDLIFE RESOURCE INFORMATION

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

Analysis:

UEI did not comply with R645-300-124.300, because they did not identify and separate confidential information from the MRP- Part B. UEI did not comply with R645-301-322 because:

- information needed to plan for the protection of raptors before and during mining operations was not included.
- information is missing from the Mexican Spotted Owl (MSO) survey.
- survey conditions during the MSO survey were not authorized.
- supplemental information to develop BLM sensitive species protection plans was not included.

General Wildlife

The MRP- Part B includes wildlife information in Section 322.220 and the wildlife map (Plate 3-1). Plate 3-1 shows habitat within the Lila permit area for Rocky Mountain bighorn sheep, elk, and mule deer. Plate 3-1 also shows habitat within the proposed surface facilities area for Rocky Mountain bighorn sheep and yearlong habitat for mule deer. A large area west and southwest of the permit boundary is yearlong habitat for pronghorn. The plan states that birds, small rodents, and reptiles also inhabit the area.

Information from the DWR shows that water sources in Lila Canyon are heavily used by chukars. DWR mentioned that mining operations near the mouth of the canyon will affect these birds. DWR, USFWS, and BLM developed a mitigation plan to offset impacts to bighorn sheep as well as mule deer, elk, and chukars (see details in Operations).

The Division received comments that the MRP-Part B does not contain site-specific resource information, fails to address high value wildlife habitats, and lacks sufficient information to design the protection plan. The Division consulted with DWR and BLM (June 6, 2002) to determine the level of detail required for wildlife information. The agencies declined to

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require additional monitoring of the wildlife species. However, the agencies were in agreement that the MRP- Part B should include:

- surveys of all seeps and springs (including descriptions of riparian habitat, seep and spring vegetation, and amphibians),
- monitoring of south canyon water source(s), i.e. Stinky Springs
- calculation of consumed water and replacement.

The PHC (Appendix 7-7) mentions that UEI has not observed amphibians while water monitoring. The Division may reassess the need to monitor wildlife species during mining operations as conditions change or new information becomes available.

Ungulates

There are big horn sheep in Lila Canyon and in an unnamed canyon located in the southwest corner of the permit area. The seeps in the unnamed canyon are significant water sources for the sheep. UEI agreed to monitor two of the springs (L-16-G and L-17-G) on a quarterly basis beginning the second quarter of 2002. The hydrology database provide data for these springs. UEI also moved the permit boundary further north to avoid these springs.

Game Birds, Migratory Birds, and Raptors

In accordance with R645-301-121.300 and UCA 63-2-304 (26), UEI must move all maps illustrating raptor nest locations from the MRP-Parts A & B to the Confidential File.

Sections 23 and 26, T.16 S., R.14 E. may be potential habitat for cliff-dwelling raptors. However, the 2003 DWR survey concentrated within Sections 9, 10, 15, 22, and marginally in Sections 11, 14, and 23, T.16 S., R.14 E. The survey did not include Section 26. UEI must ensure that subsequent surveys include all suitable raptor habitat within the permit area, including Section 26, T.16 S., R.14 E.

UEI's commitment to conduct raptor surveys is not clear. In the 2004 "list of responses to deficiencies," UEI mentions, "The operator is only required to complete raptor surveys two years prior to potential disturbance and not on an annual basis." However, MRP- Part B Sections 323.300 and 333.200 state, "Raptor surveys will be conducted 1-year prior to all purposed new construction or potentially disruptive mining activity."

After consultation with the DWR (June 8, 2004), the Division will require UEI to conduct raptor surveys at least two years immediately prior to and one year following facilities construction. (There was no survey conducted in 2004.)

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In addition, UEI must coordinate efforts with the Division and DWR to monitor raptors two years immediately prior to und ermining potential cliff habita t. The MRP- Part B must include a mine map overlaid with potential cliff ha bitat, so that the impact of subsidence and subsidence-related events on cliff habitat can be interpreted. The raptor surveys, in conjunction with the requested map, will provide sufficien t data to update the raptor protection and enhancement plan as operations progress.

Five Golden eagle nests are within the 0.5-mile (2640') buffer zone for the surface facility area. Raptor surveys over the course of five years, beginning in 1998, show that eagles have not used or tended the se five nests since 1999.

Threatened, Endangered, and Sensiti ve Animal/Plant Species (TES)

Appendices for Chapter 3 include the fo llowing wildlife and TES-related resource surveys:

- Appendix 3-3: Diana Whittington (USF WS, April 2003) TES correspondence.
- Appendix 3-4: Nine separate Threatened and Endangered Species (TES) entries (1999 - 2002).
- Appendix 3-5: DWR 2003 Raptor survey.
- Appendix 3-6: 'Fauna of southeastern Utah a nd life requisites regarding their ecosystems' (reference only).

The MRP-Part B includes a current TES list as well as an overview of habitat and occurrence data for all the TES species in Emery County (Appendix 3-3). The list also mentions that the Colorado River cutthroat trout is a Conservation species. Reports in Appendix 3.3 show that TES species are not known to occur within th e permit area, but there may be suitable habitat for certain species.

Mr. Coonrod surveyed for many TES species (May 1999, August 2000, April 2002, May 2002) and surmised that there were no known individua ls within the proposed facilities site and that the proposed mining operations would, th erefore, have no effect on TES species.

TES- Mexican Spotted Owl (MSO)

Appendix 3-4 includes a letter summarizing the Willey report (2002) and provides an action plan for MSO. The Willey study incl udes evaluation of the 1997 and 2000 MSO models and an overflight survey of four project areas including the Li la Canyon permit area. The study shows there is suitable MSO hab itat within the Lila Canyon permit area. In the action plan, UEI agrees to conduct "formal" MSO calling surveys of specific areas described by three conditions:

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1) the areas are identified by the 2000 model and supported by the Willey flyover results, 2) the areas have less than 1000 ft. of overburden, and 3) the areas are classified as subsidence zones.

Neither the Division, nor the USFWS (consulted on May 26, 2004) supports the idea of limiting the survey to those areas with less than 1000 ft. overburden. Surveys should be based on subsidence angle of draw. In accordance with R645-301-322.100 and R645-301-322.200, the Division directs UEI to remove the second condition (concerning overburden) from the formal MSO calling survey plan.

Sections 322.210 and section 333 of the MRP- Part B must include a reference to the commitments outlined in the MSO summary letter in Appendix 3-4. The action-item list should also be re-stated in Section 333 of the MRP. Action-items listed include the commitment to conduct a "formal" MSO calling survey and submit survey results to the Division, UDWR, and USFWS. Inclusion of wording from the letter into the narrative will meet the Division's previous request (2003 TA) for additional information concerning suitable habitat.

The Operations section of this TA provides a list of requirements for the MSO surveys and reports.

The ground-truthing survey for MSO habitat is normally recommended prior to the calling survey for birds. Nevertheless, the DWR (May 27, 2004, June 9, 2004) considers the Willey flyover as an adequate substitute for a ground-truthing survey for habitat. UEI is responsible for conducting the calling survey two years prior to the subsidence zone or surface disturbance reaching potential MSO habitat. Consequently, UEI and the Division must be aware of mine progression in relationship to MSO habitat locations. UEI should create a mine map overlain with potential MSO habitat.

TES-Plants

The Biological Assessment (Aug 2000) references the May 1999 submittal of field results for Barneby reed-mustard, Jones cycladenia, Last Chance townsendia, Maguire daisy, Winkler cactus, and Wright fishhook cactus. However, The May 1999 submittal does not include results for these species. UEI must provide clarification about the missing species in Appendix 3-4 (in front of the 2000 Biological Assessment, see deficiency written under R645-301-121.200).

Information concerning suitable habitat for San Rafael (Despain footcactus), Winkler cactus, and Wright fishhook cactus within the Lila Canyon permit area is contradictory. Mr. Coonrod (1999 letter) states that it is highly unlikely for these species to exist within the permit area. Later, Mr. Coonrod (2000 Biological Assessment) states that there is suitable habitat within the proposed site. UEI must clarify this discrepancy by either removing the 1999 Coonrod letter (highly suggested) or including another letter from Mr. Coonrod that clarifies his statements in Appendix 3-4 (see deficiency written under R645-301-121.200). Note, that the

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Utah Heritage Program (June 3, 2004) considers that there is very little chance that any of these three TE species will occur near the Lila mine. The Division does not impose further requirement at this time to conduct field surveys for these species.

The Division coordinated with DWR and BLM (June 2004) and both agencies agreed that the Lila Extension area has potential habitat for the Cliff's blazing star, canyon sweetvetch, and creutzfeldt-flower (all BLM candidate and sensitive species). The areas with most potential for Cliff's blazing star and creutzfeldt-flower include the proposed surface facilities area and north of the pediment (Section 15). These areas should be surveyed. The optimum months to survey Cliff's blazing star and creutzfeldt-flower are late June to middle August and late April to June, respectively. If the results are positive for these species, UEI must immediately submit a protection/mitigation plan to be incorporated into Section 333. UEI must implement the plan prior to disturbance.

Mr. Coonrod (1999) recommends monitoring for canyon sweetvetch. The best time to identify this species is in middle June to early July (depending on drought conditions). The areas to survey canyon sweetvetch include the proposed surface facilities area and south of the pediment (Section 21).

In accordance with R645-301-322.100 and R645-301-322.200, the Division has determined that UEI must conduct a field survey for canyon sweetvetch, Cliff's blazing star and creutzfeldt-flower at least the year construction begins or one year prior to construction.

Findings:

Information provided in the plan does not meet the minimum Environmental - Fish and Wildlife Resource Information requirements of the R645 Rules. Prior to approval, the Permittee must act in accordance with the following:

R645-301-121.300 and UCA 63-2-304 (26), UEI must move all maps illustrating raptor nest locations from the MRP-Parts A & B to the Confidential File.

R645-301-322.100, (1) Survey all suitable raptor habitat including Section 26, T.16 S., R. 14 E. (2) Conduct raptor surveys at least two years immediately prior to and one year following facilities construction. (There was no survey conducted in 2004.) (3) Coordinate efforts with the Division and DWR to monitor raptors and Mexican spotted owl two years immediately prior to undermining potential cliff habitat. (4) The MRP- Part B must include a mine map overlaid with potential raptor and Mexican spotted owl cliff habitat, so that the impact of subsidence and subsidence-related events on cliff habitat can be interpreted.

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R645-301-322.100, R645-301-322.200, (1) Remove the second condition concerning overburden for the formal MSO calling survey plan. (2) Include or reference in section 322.210 the information in UEI's MSO summary letter in Appendix 3-4 and reference the action-item list in Section 333. Action-items listed include the commitment to conduct a "formal" MSO calling survey and submit survey results to the Division, UDWR, and USFWS. (3) Conduct a field survey for canyon sweetvetch, Cliff's blazing star and creutzfeldt-flower at least the year construction begins or one year prior to construction.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

The MRP- Part B meets the requirements for soil survey and characterization. UEI discusses soil resources within the Lila Canyon Extension in Chapter 2, Sections 210 through 224 of the MRP-MRP - PART B.

D a n i e l List with Environmental Industrial Services e n , (E.I.S.) conducted an Order I soil survey of the disturbed area in August of 1998. The Soil Survey is found in Section 3.2 of Appendix 2-3. The survey contains soil descriptions, soil pedon descriptions, a soil-salvage suitability analysis, laboratory soil testing data, field soil profile-descriptions, soil and landscape photographs, a soil map, and a salvageable-soils map. Mr. Larsen performed all mapping and soil survey work according to the standards of the NRCS's National Cooperative Soil Survey.

Soil Identification and Description, and Productivity

The predominant soil classification is Strych fine sandy loam. From the soil description sheets in Appendix 2-3 and Plate 2-2, Detailed Soils Map of the Mine Facilities Site, the Division notes that the canyon bench holds deep colluvial soils, stabilized from wind erosion by a surface layer of biological soil crusts, dried plant litter, boulders and live plant cover. The topsoil (A-horizon layer) varies from three to 26 inches deep due to position on the slope. The B-horizon stretches from 31 – 60 inches in the profile and is a zone of carbonate accumulation. Sandstone bedrock underlies the soils, except at the location of the fan portal where shale and burned coal cover the sandstone rock layer. Surface soils are subject to extremes of temperature (Sec 3.2, Appendix 2-3).

The disturbed area vegetation is primarily pinyon-juniper and grass-shrub communities (Plate 3-2). In good years, the grass-shrub can be expected to produce 600 – 800 lbs/acre.

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However, recent estimations place the disturbed area productivity at 350 lbs/acre and the grass/shrub reference area at 450 lbs/ac due to drought (see Appendix 3-2 letters dated 1998 and 2003).

Soil Characterization

Mr. Larsen recorded soil pedon descriptions on standard NRCS forms - provided in Appendix D within Appendix 2-3. He sampled the soil horizons and analyzed them according to Division guidelines for topsoil and overburden. Table 3.21 in Appendix 2-3 provides generalized soil properties, including percent surface stones and boulders. Soil sampling locations are shown on Plate 2-2, Detailed Soils Map of the Mine Facilities Site. Soil samples were analyzed by Intermountain Laboratories, Inc. Laboratory data sheets are found in Appendix C of Appendix 2-3.

Appendix 2-3 contains soil macronutrient status information analyzed by BYU Soil and Plant Analysis Laboratory May 1, 2003. This information will be referred to at final reclamation as a comparison with the nutrient content of the redistributed topsoil.

Since the A horizon is less than six inches deep, the topsoil recovered will be a mix of both the A and B horizon soils, in accordance with R645-301-232.200. Depths of salvage range from 6 to 18 inches over the site (see Available Soil Resources table in Section 232.100). A calcic horizon was verified in soil pedons LC1, LC 5 and LC6 which will provide a marker for soil salvage depth. The percent rock content within the proposed facilities area is high according to the 1988 Division guidelines, however it is not a deterrent to soil salvage. Large stones, 36 inches or less, are considered part of the soil layer and are included in the topsoil volume estimates.

Findings:

The information provided meets the environmental soils resource information requirements of the R645- Coal Rules.

LAND-USE RESOURCE INFORMATION

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

Analysis:

The information provided in the MRP Parts A and B fulfills the land use resource information requirements.

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Pre-mining land uses include wildlife habitat, grazing, recreation and mining (section 410 and 411). Grazing allotments are listed in Table 4-3 and allotment boundaries are shown on Plate 4-2. Water rights (including those for stock watering) are tabulated in Table 7-2 and illustrated on Plate 7-3.

Lila Canyon is zoned M & G – 1 for mining and grazing (section 411.130). In March 1999, the Emery County Board of Commissioners approved a “Large Scale Industrial Site Plan for the Lila Canyon Operation” (Appendix 4-2 letter dated June 4, 1999).

The BLM owns and manages 4,256.37 acres within the permit area. State and private holdings account for 289.06 and 1,446.64 acres, respectively. Lila Canyon is within an area identified by the BLM as the Range Valley Mountain Habitat Management Plan Area (Chapter 4). A habitat management plan was adopted in 1991 to provide management of wildlife and for access management. The Habitat Management Plan Area and wildlife habitat are shown on Plate 3-1.

Plate 4-4 indicates that the permit area boundary overlaps areas of Turtle Canyon Wilderness Study Area (WSA). All previously identified wilderness inventory units have been removed from Plate 4-4, subsequent to the April 2003 “Stipulation and Joint Motion to Enter Order Approving Settlement and To Dismiss the Third Amended And Supplemented Complaint” (2:96CV0870 B) in the United States District Court, District of Utah, Central Division.

Lease readjustment for U-0126942 restricts surface occupancy in Turtle Canyon. The lease readjustment can be modified if it interferes with the lessee’s right to explore, access, and extract the coal resource, because the lease is a valid existing right.

Exploration and mining activity has previously occurred in Lila Canyon (Section 411.200). County Road 126 into Lila Canyon was built in the 1950’s to provide access for coal exploration. Plate 5-1 shows existing roads and trails, which are also described in Appendix 5-4. Plate 6-2 shows existing borehole disturbances. Pre-existing surface disturbances within the Lila Canyon Extension have been limited to these drill holes and associated access roads.

Within the Horse Canyon permit area “A”, two sealed breakouts, located in the Left Fork of Lila Canyon, were used post-SMCRA for ventilation of the Horse Canyon Mine. These reclaimed breakouts are on Plate II-2, MRP Part A.

Underground areas mined previously are shown on Plate 5-1.

Findings:

Information provided in the application meets the requirements of the R645-Coal Rules.

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ALLUVIAL VALLEY FLOORS

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

Analysis:**Alluvial Valley Floor Determination**

The information provided in the plan was adequate for the Division to determine that there is no probable existence of an alluvial valley floor.

This section summarizes the land use, soil, plants, geology, surface- and ground-water information reviewed by the Division in making the findings required under R645-302-320.

The Lila Canyon Extension is in the western Book Cliffs escarpment. Numerous small seeps and springs exist within and adjacent to the permit area (Section 731.220). Steeply dipping joints transmit ground water from the surface (Section 6.5.3.5) as illustrated in Figure VI-5. The surface expressions of the faulting are grabens and draws. The general strike of the beds in the permit area "B" is N22°W dipping at 11% to greater than 16% towards the East (Figure VI-3 and Plate 7-1-B and Section 6.4.2, Section 6.5.3.3).

Water inflow from the Geneva Tunnels is anticipated (Section 6.6.1). Water inflow associated with fault or fracture systems are possible, but not expected to be significant. The Sunnyside sandstone member of the Blackhawk formation contains the two coal seams of interest: Upper Sunnyside and Lower Sunnyside Seams. The sandstone beneath the Lower Sunnyside coal seam is considered to be a zone of groundwater accumulation (Section 6.4.1). Historical records for the Geneva Mine (now known as the Horse Canyon Mine) indicate that the mine was dry until the Sunnyside Fault was intercepted. This suggests that as mining progresses down dip, "substantial" water may be encountered, but this water will be isolated from the surface recharge zone (Section 6.6.3.1) and indications are that the Sunnyside Fault will not be encountered within the Lila Canyon Extension (Section 6.5.3.3).

The Mancos Shale forms the slopes below the base of the Book Cliffs, overlain in places by pediment deposits (Section 6.4.1 and Plate 6-1). In the permit area, drainages flow in response to snow melt and precipitation events (Section 731.220 and Plate 7-1). Coleman Wash receives the Lila Canyon drainage. Grassy Wash and Marsh Flat Wash collect the flow from the Mancos slopes further south. Little Park Wash channels the flow on the plateau above. There is no valley holding a perennial stream in the permit area (Section 724.700).

Order III soil survey (Plate 2-1) indicates that the soils on the plateau in Little Park Wash are Neto Fine Sandy Loam (Section 220.200). This soil is comparable to the Glenberg soil

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described in the published Carbon County Soil Survey, according to Leland Sasser, Soil Scientist and Survey Project Leader with the NRCS, Price Field Office, Utah (consultation June 5, 2001). Plate 3-2, Vegetation indicates that the dominant species growing on the plateau in the vicinity of Little Park Wash are Atriplex, Artemesia and Elymus, none of which are wetland species.

Little Park Wash falls within the Little Park grazing allotment (Plate 4-2). The land use is unimproved rangeland and wildlife habitat. There is no farming activity upstream or downstream of the permit area, therefore, the proposed operations will not interrupt, discontinue, or preclude farming on an alluvial valley floor. Based on the information provided in the plan, in accordance with R645-302-321.100, the Division determines that there is no probable existence of an alluvial valley floor.

Findings:

Based on the information provided in the plan, in accordance with R645-302-321.100, the Division determines that there is no probable existence of an alluvial valley floor.

PRIME FARMLAND

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

Analysis:

The Natural Resources Conservation Service (NRCS) determined in 1998 that there are no Prime Farmlands at the proposed disturbed site (see Appendix 2-1).

Findings:

The Division concurs with the NRCS determination made in 1998 that there are no Prime Farmlands at the proposed disturbed site.

GEOLOGIC RESOURCE INFORMATION

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

Analysis:

The Permittee has complied with the geology requirements of R645-301-600. The geology information is presented in Chap. 6, MRP- Part B. Resource maps and plans and site specific information are based on published geologic information, mine plans from the nearby

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Sunnyside and South Lease areas, and exploration and drilling records of Kaiser Steel, U. S. Steel Corporation, and Intermountain Power Agency (IPA), as identified in the Chapter 6 bibliography.

Stratigraphy is described in Chapter 6. Appendix 6-1 & 6-2 contains geologic logs of boreholes. Plate 6-1 shows surface outcrops of the formations, outcrop measurements, more recent depositional units, fault systems and current water monitoring locations. Plate 6-2 identifies the faults, drill hole sites, coal thickness, depth to coal and drill hole elevation. Plate 6-3 shows coal thickness isopachs. Plate 6-4 illustrates regional overburden thickness. (The legend of Plate 6-4 is not legible; see R645-301-121.200 deficiency written under Permit Application Format and Contents.) Plate 6-5 provides coal section logs. All geological maps have been prepared and certified by Jay Marshall, a registered (#152606) Professional Engineer.

The Horse Canyon Mine was operated in the Lower Sunnyside Seam, which is also the seam that is to be mined in the Lila Canyon Extension. The coal seam crops out at an elevation of approximately 6,500 ft in the vicinity of the rock-slope tunnels (Map 6-1). The general strike of the beds in the Mine Project Area is N 22°W dipping at 11 to 14 percent toward the east (Figure 6-3 and Plate 7-1-B).

Acid- or Toxic-forming Materials

As required by R645-301-624.200, acid- or toxic-forming information has been collected over time from boreholes within and adjacent to the permit area.

The Division received comments that sampling for acid- or toxic-forming materials in the strata above and below the coal seam to be mined was not done. Appendix 6-2 includes analysis of roof, middle and floor material from the Sunnyside Coal Seam. Drill-logs in Appendix 6-1 note the presence of visible pyrite, indicating acid-forming potential in strata above and below the Sunnyside Seam, and pyritic sulfur ranged from 0.07 percent to 0.48 percent (Appendix 6-2). The Division calculates this range to be the equivalent of 2 to 15 tons CaCO₃/1000 tons rock. (Neutralization potential of the sample was not included in the report.)

Also in Appendix 6-2 is the report prepared by ACZ Inc (Steamboat Springs Colorado) for Kaiser Coal Co. in 1983. The strata above and below the Sunnyside Seam were sampled in boreholes S-24 and S-25 (located on Plate 6-2 south of the MRP - Part B permit area). As discussed in the report, samples displayed no acid forming potential based on total sulfur. The report also provides information on total metals extracted using EP-Toxicity procedures and saturated paste extractions for calculation of SAR. The Division concludes from this report that the key parameters to monitor in the rock slope development waste will be hot water soluble boron and SAR.

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As explained in Section 6.5.5.1 and Appendix 5-7, the Lila Canyon Extension refuse pile differs from that at Sunnyside in several ways that will preclude the events that caused acid-drainage at Sunnyside. Infiltration of water into the pile will be minimized through diversion of water around the site, creation of positive drainage and compaction of the fill (Section 731.121, Appendix 5-7). Periodic sampling of the materials placed in the refuse pile will provide monitoring of the coal mine waste characteristics in the pile.

Appendix 6-2 contains a request for exemption from R645-301-626 (letter dated April 22, 2002). This rule allows the Division leeway in requiring the analysis of alkalinity in strata and of pyritic sulfur in the coal seam.

The Division does not require the analysis of pyritic sulfur in the coal seam, unless the maximum potential acidity from total sulfur exceeds safe limits (Division 1988 Soil and Overburden Guidelines). This recommendation remains a valuable tool in assessing the degree of hazard and will not be waived.

Bore Holes

Copies of several borehole logs are in Appendix 6-1. The borehole logs show lithologic characteristics, including physical properties and thickness of each stratum that may be impacted. In addition to the boreholes, coal seams and adjacent strata were measured at 17 outcrop locations in 1974 and 1975. Lithology and thickness of the coal seams and adjacent strata, based on the boreholes and measured outcrop sections, are shown on Plate 6-5. Locations of the boreholes and outcrop measurements are on Plate 6-2.

Appendix 6-1 contains drill logs and water pump tests/sample analysis for S-32. Water level data for piezometers IPA-1, IPA-2, and IPA-3 are tabulated in Appendix 7-1. Locations of the Horse Canyon water-supply well and the Minerals Development Corporation (MDC) Well are on Plate 7-1, and they are discussed in Section 724.100, pp. 6-7. The MDC well has been sealed.

Saturated Strata

The Sunnyside Fault, other faults, the elevation of the Horse Canyon Mine workings, and potentiometric information relevant to understanding the saturated strata of the Blackhawk Formation are discussed in Section 724.100 and shown on Plate 7-1. The lithologic setting creates two separate groundwater zones, an upper perched zone and a deep saturated zone.

Local, perched aquifers in alluvium and the upper Blackhawk, Price River, and undifferentiated North Horn-Flagstaff Formations store and transport the water to small seeps and springs scattered across Little Park Wash and along Patmos Ridge, located mostly in the bottoms of small drainages. Springs in Stinky Spring Wash, issue from near the top of the

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Mancos Shale, at the contact of the Blackhawk Formation with Mancos Shale (Appendix 7-7, Reach #9C Stinky Springs, p. 20; Plate 7-1A; Table 7-3).

A thick section of low-permeability strata separates the perched zones from the deeper saturated zone in the lower Blackhawk Formation. These intervening strata contain approximately 80 percent clays, shales, siltstones, and mudstones. An abundance of swelling clays can seal faults and fractures and inhibit lateral and vertical flow of ground water are abundant (Section 724.100, p. 20). No major spring flows have been identified from the Blackhawk Formation (Section 724.100) in the vicinity of the Lila Extension area portals. No water flows from the strata above or below the coal outcrop (Section 731.520).

The floor of the Horse Canyon Mine did not transmit water into the mine, despite being below the potentiometric surface indicated by piezometers. The dryness indicates that the sandstone units are isolated vertically and laterally by low-permeability siltstones and mudstones and east-west faults further isolated the mine from saturated zones (Section 6.4.1).

Water entered the Horse Canyon Mine in large amounts only when the Sunnyside Fault was intercepted in deeper, down-dip areas (Section 6.4.1). Currently, a large section of the existing Horse Canyon Mine workings, including the Geneva exploration tunnel and the rotary dump, are below the potentiometric surface (Section 724.100, p. 12). The Permittee concludes that water levels haven't changed since mine operations ceased and that 5,870 ft. probably represents the water level in the rest of the mine (Section 724.100, pp. 11-12 and Appendix 7-3, p. 6).

The Lila Canyon Extension will likely be similar to the Horse Canyon Mine with little water inflow. Development was planned so as to avoid the Sunnyside Fault. Inflows of water may occur from the Geneva exploration tunnel, although Plate 5-5 shows no direct connection with the old workings. The rock slope development tunnels described in MRP - Part B will intercept the coal seam at approximately 6,300 ft (Figure 7-1, Volume 7). In the event excess water is encountered, it will be pumped from the mine (Section 6.6.1 and Section 724.100).

Geology and Probable Hydrologic Consequences (PHC)

The Division received comments that there is not sufficient resource information to allow determination of the Probable Hydrologic Consequences (PHC). There was particular concern that there is not sufficient resource information for Range Creek drainage to evaluate the potential for adverse impacts. Plates 7-1A and 7-1 B, geologic map and cross-sections now include Range Creek drainage. The geology of the Range Creek drainage, as it relates to the Lila Canyon Extension, is discussed in Chapter 7 and the PHC (Appendix 7-3). Plate 7-1-B, shows no potential contact between the Sunnyside Coal seam and the stream channel in Range Creek. The PHC concludes that there will be no probable impacts to Range Creek.

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The Division received comments that effects of faults on movement of ground water are ignored, especially in the "regional aquifer." Fault locations are shown on Plates 6-1 and 6-2, based on previous mapping by Kaiser Corporation consultants, drilling, exposures at the outcrop, fault interceptions in the Horse Canyon Mine and Geneva exploration tunnel, and information from drilling. Fault alignments shown on these plates may differ from USGS maps and other published maps (Section 6.4.2, page 10). Section 6.5.3.3, Table 6-5 and Plate 6-2 describe vertical displacements in the area ranging from 15 feet to more than 275 feet, with displacement diminishing toward the east. En-echelon faulting or fracturing near major displacements was common in the Geneva Mine, particularly in the transverse, easterly trending normal-fault systems. Roof falls were abnormally high in these areas, even though the strata indicated competent roof rock (Section 6.5.3.3). Even so, Section 6.6.1 describes dry in-mine conditions for the Geneva, Columbia, and Sunnyside Mines.

Faults may affect flow, direction, and magnitude of both lateral and vertical flows (Section 724.100, p. 20). This is the case with the Sunnyside Fault which is projected to lie east of the Lila Canyon workings (Section 6.5.3.3). Plates 6-1 and 6-2 show the Sunnyside Fault dies out near the northeast corner of the Lila Canyon Extension.

MRP - Part B, Section 728.200 states that subsidence effects are expected to be minimal due to the amount of cover and massive rock strata between the mining level and the surface. Coal seam elevations are determined from boreholes and cover thickness are on Plate 6-4.

Findings:

Geologic Resource information meets the requirements of the R645 Rules and is sufficient to assist in preparing the PHC.

HYDROLOGIC RESOURCE INFORMATION

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

Analysis:

General Information

The Division received comments that surface water quality and quantity information did not demonstrate seasonal variation. The Board directed UEI to collect quantitative and qualitative data for all surface water sources, before the Division can consider issuing a permit. Thus, UEI was required to submit a surface monitoring plan to survey all streams and channels in and adjacent to the permit area to demonstrate seasonal variation and water usage and to provide water quality characteristics such as total suspended solids (TSS), total dissolved solids

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(TDS) or specific conductance (EC), pH, total iron (Fe_{total}) and total manganese (Mn_{total}), following the requirements of R645-301-724.200.

There are specific recommended monitoring frequencies for the different stream types in the Coal Regulatory Program Technical Directive, Tech-004, July 1, 1997: monthly sampling for all perennial sources, monthly sampling during periods of flow for intermittent streams, and quarterly surveys for all ephemeral streams.

Chapter 7 presents surface water information for undisturbed and disturbed drainage areas. The Permittee conducted surveys of the stream channels to characterize channel reaches according to stream type, i.e. perennial, intermittent or ephemeral, and establish the monitoring frequency or demonstrate factors required under Rule R645-301-724.200. Water emanating from a spring, remaining on the surface after some distance was classified as surface flow. Appendix 7-7 presents the stream channel characterizations for the Lila Extension to establish stream type, based on channel composition and biologic (plant and aquatic) communities present, as well as the classifications established in the definitions under R645-301-100. This Appendix includes photographs of stream channel monitoring sites. The information presented demonstrates that stream channels are ephemeral. These same channels are described in Chapter 7 as intermittent.

Table 7-3, Section 731.220 describes quarterly monitoring of the ephemeral channels for water quality in accordance with Coal Regulatory Program Directive, Tech-004. Plate 7-4 and Table 7-3 establish surface water monitoring site locations within the proposed permit area. There are three surface monitoring sites associated with the Lila Canyon Wash identified on Plate 7-4. Appendix 7-1 provides baseline monitoring for these sites (also available online at the Division's Coal Mining Water Quality Database, <http://linux1.ogm.utah.gov/cgi-bin/appx-ogm.cgi>.) Water quality and flow data was collected at most of the sites since 2000, and all of the sites since June 2002.

Zero flow data shows that the channels are dry most of the time, except near springs and except during and immediately after a precipitation event. This zero flow data supports UEI's stream channel study conclusion that channel reaches are ephemeral. Where there are springs in the channels, the flow usually travels down the channel 50 to 200 ft. before it infiltrates into the gravels and sands of the channel. Each flow event in an ephemeral channel is separate and distinct. The amount of flow in the stream is directly proportional to the amount of precipitation or snow-melt runoff, and the water quality varies greatly depending on the amount of flow. There are no specified water uses for the stream flow.

Appendix 7-7 describes Stinky Spring Wash (discussed earlier under Vegetation Resource Information and in this section under "Regional Aquifer"). This area drains southward through the permit area.

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Chapter 7 describes the boreholes IPA-1, IPA-2 and IPA-3 as piezometers and as wells. The Permittee must consistently describe the boreholes as either piezometers (used to measure water levels) or as wells (used to obtain water for sampling).

Sampling and Analysis

Section 723 indicates water quality analysis required by rule will be conducted according to the methodology in the current edition of "Standard Methods for the Examination of Water and Wastewater" or the methodology in 40 CFR Parts 136 and 434. Analysis reports in Appendices 7-2 and 7-6 and the Division's database have met this standard.

Baseline Information

G r o u n d - w a t e r *l*

Plate 7-1 provides names and locations of seeps, springs, wells, and piezometers. Section 724.100 describes baseline water-quantity, seasonal flow rates and usage. Water-rights information is in Table 7-2 and locations are shown on Plate 7-3. Appendices 7-1, 7-2, and 7-6 (and the Division's database) provide available baseline water-quality data: TSS, TDS, EC, pH, Fe_{total}, and Mn_{total}. Depth to the water in the coal seam and adjacent strata is shown on Plate 7-1.

The Division received comments that extrapolation of the potentiometric surface on Plate 7-1 ignored faults, ignored the car rotary dump, ignores the most recent data, and covers an unacceptably large area based on just three closely spaced data points. The Division notes that the potentiometric surface also does not extend to the 1993 BXG measurement in the Horse Canyon Mine. In spite of these limitations, the information provided is sufficient to meet the requirements of R645-301-724.100, because the potentiometric surface and the projected water-coal contact on Plate 7-1 provide a reasonable approximation of the depth to water in the coal seam and in water-bearing strata above and potentially impacted strata below the coal seam.

The Horse Canyon well will be transferred to the College of Eastern Utah (CEU), as a culinary water source. The water quality, quantity, or capability of the Horse Canyon well to serve as a water-supply source is not described in the MRP. There are no plans to transfer any other wells (Section 731.400). The MRP- Part B discusses the Horse Canyon well as though it will remain part of the Horse Canyon Mine. Section 731.400 of the must be updated to include the well transfer information.

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The condition of this well is briefly described in the supplemental information accompanying the December 6, 2002 submittal, but this information needs to be included in the MRP.

Regional Aquifer

The Division received the following comments concerning ground water and the existence of a regional aquifer:

- The regional aquifer is not described;
- There is no information on the discharge area and discharge rates for the regional aquifer; and
- The Permittee has not established that the saturated zone is not an aquifer.

The BLM's July 2000 EA of the Lila Canyon Project labels the "coal formation" of the Blackhawk Formation as a regional aquifer, and mentions springs issuing from the Blackhawk at lower elevations within the canyons. However, the 1985 survey of the Horse Canyon area by JBR and the 1993 - 1995 survey of the area around Lila Canyon by EarthFax did not identify any seeps or springs issuing from strata below the upper Price River Formation (Plate 7-1A).

Previously unknown seeps, which flow near the top of the Mancos Shale, were found in an unnamed intermittent drainage at the southwest corner of the Lila Canyon Extension in 2000. Stinky Springs were monitored beginning in 2002.

Section 724.100, Mancos Shale, p. 19, makes reference to Appendix 7-7 for information on the relationship of the Stinky Springs to faulting, but Appendix 7-7 contains no discussion of this subject. Because Stinky Springs are below the coal seam, subsidence should not impact these springs, but recharge or flow to these seeps could be interrupted. The MRP- Part B must provide more evaluation of the hydrogeology of these seeps: their source (regional, intermediate, or local in extent), and impacts of the proposed coal mining on them.

The IPA piezometers were completed within the first formation with identifiable water above the coal seam, the Price River Formation. The MRP- Part B states in Section 724.100:

The water monitoring wells show water levels above the lower zone containing the coal seam in area of the mine; however, the zones recorded are not connected to the lower groundwater zone. As reported in the Castlegate Sandstone section, no springs or water bearing zones were identified in the spring and seep inventories or in the drilling of the water monitoring wells in the formation. Therefore, indicating that the monitored zones are perched and are isolated from the lower groundwater zone.

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This seems to be indicating that the IPA piezometers were either completed in a third saturated zone between the Upper and Lower zones or completed in the Upper zone. The statements in this paragraph need to be clarified.

Lines' model applied to Range Creek

The Division received comments that the cross-section in Figure 8 in Lines, 1985, "The Ground-Water System and Possible Effects of Underground Coal Mining in the Trail Mountain area, Central Utah," (USGS Water-Supply Paper 2259) is a model for Range Creek and that it clearly supports discharge to Range Creek from a regional aquifer. The study by Lines provides valuable insight into ground-water systems in the Wasatch Plateau, specifically to the Trail Mountain area. Much of the information can be applied to the Book Cliffs coalfield also.

However, the situation presented diagrammatically in the Lines' cross-section differs from the reality of the hydrogeologic environment at Lila Canyon and Range Creek in at least two important aspects discussed in the MRP. 1) Along its entire course, Range Creek has not eroded deeper than the upper Price River Formation, so a thick section of low-permeability rock isolates the creek from the projected saturated zone in the lower Mesa Verde group. 2) The cross-section in Lines has no scale, but proximity of the stream and saturated coal seam is indicated: Range Creek is approximately six miles from the Lila Canyon Extension (Section 724.200, p. 23). In addition, in the reaches nearest Lila Canyon, Range Creek is significantly higher in elevation than the potentiometric surface of the saturated strata, as illustrated on Plate 7-1B.

Mine Inflow

As discussed under Geologic Resource Information – Saturated Strata, a large section of the Horse Canyon Mine is below the potentiometric surface indicated on Plate 7-1. Generally, underground flows into the Horse Canyon Mine were small. In-mine flows were monitored for quantity and quality at several locations, which are shown on Plate 7-1. Only when the mine intercepted the Sunnyside Fault in deeper, down-dip areas was significant water encountered. The estimated average discharge rate was 0.2 cfs, but there was no estimate of in-mine consumption (724.100, p. 11). The Division has specified a maximum discharge rate of 500 gpm (1.1 cfs) to be used in developing the MRP– Part B (724.100, p. 12).

Baseline Data Adequacy

The Division received comments that the MRP– Part B contains numerous water samples from the mined area of the Horse Canyon Mine that do not represent pre-mining conditions; the JBR data are not pre-mining, and the JBR data provide no base line for the permit area. The

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Division considers the JBR and EarthFax data, and other data dating back to at least 1978, as valid pre-disturbance, pre-mining baseline in relation to the Lila Canyon Extension and as an important part of the required description of the existing, pre-mining hydrologic resources of the permit and adjacent areas. The JBR and EarthFax data alone are not sufficient baseline data, but they are useful and valid baseline data.

The Division received comments that there are no baseline ground-water monitoring data on the springs to be monitored and that water-elevation data from the IPA piezometers are sporadic – not adequate baseline information. In addition to data collected between 1978 and 1996, the Permittee submitted at least two years of current quarterly baseline data from the springs, streams, and piezometers, in keeping with the guidelines provided in Division Directive Tech 004. Data from October 2002 and earlier are provided in the permit application. Subsequent data have been submitted directly to the Division's coal database.

The Division received comments that IPA-1, -2, and -3 are the only potential source of information on water quality in the saturated zone. Sampling of water specifically from the IPA piezometers is not necessary to satisfy the requirements of the Coal Mining Rules. There is information on ground-water quality and quantity in the analyses of in-mine flows at the Horse Canyon Mine. There are also data from S-32, located to the south. Water-quality information in the permit application adequately describes the quality of the ground water in the Lower zone in the Lila Canyon Extension of the Horse Canyon Mine.

The Division received comments that the Permittee had not described seasonal variation in ground water – especially with maps or cross sections in compliance with R645 Rules R645-301-722.100. Water levels for the IPA piezometers are tabulated in Appendix 7-1. Water levels have varied through time, but the data do not show distinct seasonal variation. Nevertheless, the Permittee has mapped a set of spring and fall water-level elevation contours on Plate 7-1, which serve to emphasize the minor seasonal effect. Figure 7-2 graphically shows the temporal variations. Seasonal variation in springs is documented in Appendices 7-1, 7-2, and 7-6 and in data submitted to the Division's database: maps and cross sections are not amenable to showing the seasonal variation of these flows.

Monitoring - Inside vs. Outside the Permit Area Boundary

The Division received comments that an insufficient number of seeps and springs are being monitored and that the majority are outside the permit area. The number of springs monitored on one side or the other of the permit area boundary is not relevant: the R645 Rules require baseline and operational monitoring of both the permit area and adjacent areas and protection of hydrologic resources both inside and outside the permit area.

The Division received comments that 14 EarthFax data points are within the permit area, but data were collected for only one. During the EarthFax water monitoring survey of 1993 –

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1995, data were collected for all fourteen seeps and springs located inside the permit boundary (documented in Appendix 7-1), but not every site had flow sufficient to obtain valid water-quality samples. Many of the 14 locations referred to in the comments were no more than wet spots some years, and were dry other years. Where flow was sufficient and consistent, water-quality analyses were done for sites representative of water rights and ground-water discharge.

Ground-water Emergence Zones – Groups of Springs and Seeps

The Division received comments that baseline data need to be collected at all springs and seeps, starting immediately. R645 Rules require a description of the ground-water hydrologic resources: location; extent; ownership; seasonal quantity and quality; discharge, depth, or usage; and additional information deemed necessary and required by the Division. Baseline data meeting this description are in Appendices 7-1, 7-2, and 7-6 and in the Division's water quality database.

The data collected by EarthFax during the 1993-1995 survey were representative of the groups of springs and seeps in the respective ground-water discharge zones. Springs selected by the Permittee for operational monitoring typically have baseline water-quantity and -quality data from the EarthFax survey, have been developed for use by the water right holder, and have the greatest or most consistent flow of the group (Section 731.211, p. 38-40). At sites that have been selected for operational monitoring, monitoring was resumed in 2001; data are in the Division's database. Additional, detailed investigation of every aspect of every component of the hydrologic resources is not needed to minimize impacts or to comply with the R645 Rules.

Other comments received by the Division propose that additional baseline data are needed for every single seep or spring identified in earlier surveys, irrespective of use, location, flow, and other existing information about the site and the impact potential. Additional baseline monitoring of every point source would provide marginal information beyond the scope of what is required by the R645 Rules.

The Division received comments that seeps and springs cannot be treated as systems or groups – each source is a separate resource as regards hydrology, wildlife, and vegetation. The survey results from 1993, 1994, and 1995 in Appendix 7-5 document the seasonal, ephemeral nature of individual discharge locations within a ground-water discharge zone or area: discharge appeared at new, previously dry locations and diminished at some older sites during the three years the EarthFax survey was in progress, which is a typical pattern documented throughout the Book Cliffs and Wasatch Plateau coalfields and many other locations.

The Division received comments that L-6-G is adjacent to the Horse Canyon Mine and is not a useful monitoring point. L-6-G has provided pre-disturbance, pre-mining baseline groundwater information in relation to the Lila Canyon Extension and contributes to the required description of the existing, pre-mining hydrologic resources for the permit and adjacent areas.

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Because L-6-G has been frequently dry, L-11-G, located approximately 100 yards upstream of L-6-G and representative of the same ground-water emergence zone, was added to the monitoring plan in 2001, and L-6-G was dropped from the monitoring plan in 2003.

Surface Water Information

Locations and names of streams and seeps and springs are shown on Plate 7-1 and they are described in Section 724.200. Water-rights information is in Table 7-2 and locations are shown on Plate 7-3. The Right Fork of Lila Canyon diversion and the BLM stockwatering pond, (located roughly 2 miles downstream from the disturbed area) are discussed in Appendix 7-9. Locations are shown on Figure 1 in Appendix 7-9. The location of the Right Fork of Lila Canyon is on several maps, notably Plate 7-1. Sediment pond water, including any mine discharge, will enter the Right Fork. There are no lakes or impoundments, other than cattle-watering troughs associated with water rights, in the permit or adjacent areas.

Baseline water-quality data in Appendices 7-1, 7-2, and 7-6 and in the Division's water quality database include information on total suspended solids, total dissolved solids or specific conductance corrected to 25 °C, pH, total iron, total manganese, and alkalinity, although some parameters may be missing for specific samples. Limited acidity information is found in Appendix 7-2 and the database, but acid drainage is not anticipated as a problem. Baseline water-quantity descriptions include information on seasonal flow rates.

The Division received comments that seasonal variation of Lila Canyon and Little Park Wash must be shown, and that remote samplers and crest-stage gauges should be used to monitor the intermittent channels.

Channels that drain more than one square mile, but that have ephemeral flow, are included in the intermittent stream definition, because the potential flood volumes necessitate application of the stream channel diversion criteria of the coal mining rules (See Fed. Reg., vol. 44, no. 50, p. 14932 for clarification). Classification of ephemeral streams is to be made at the time of permit application, based on collected data and probable conditions, which help eliminate skewing by data from unusually wet or dry periods. No facilities or diversions are planned for intermittent drainages at the Lila Canyon Extension. Because of the ephemeral nature of these drainages, the probable condition is dry with occasional flow during spring snowmelt and summer thundershowers. Detailed information on water quality and time and magnitude of flow in these drainages is not needed to design, operate, or reclaim the mine, minimize disturbance to the hydrologic balance, or meet other requirements of the R645 Rules. The sedimentation pond and bypass culvert are to be built in the Right Fork of Lila Wash, and the section of the Right Fork above these structures is, by definition and function, an ephemeral drainage.

It is the conclusion of the Division that using remote samplers and crest-stage gauges in the Lila Canyon Extension would not provide information relevant to meeting the requirements

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of the R645 Rules preventing off-site impacts, facilitating reclamation, or otherwise protecting the hydrologic balance and environment.

Supplemental Information

The Division has at several times required the Permittee to provide supplemental information to evaluate hydrologic consequences and to plan possible remedial and reclamation activities. If ongoing technical analyses indicate the need for further supplemental information, the Division will require the Permittee to provide it.

**Baseline Cumulative Impact Area Information **

The Division has received comments in the past that there are insufficient data to prepare the CHIA. Information needed to meet the regulatory requirements of R645-301-725 is available from federal, state, and a number of sources. The Permittee is not required to provide data specifically for the CHIA determination but may gather and submit such information if none is available from other sources. The Division is not limited to information in the MRP in preparing the CHIA; however, the Division anticipates that data in the Lila Canyon Extension MRP will be used along with other information in preparation of the CHIA.

Probable Hydrologic Consequences Determination

The Lila Canyon Extension required an update of the Horse Canyon Mine PHC determination, which is in Appendix 7-3 and discussed in Section 728. The PHC determination is based on baseline hydrologic, geologic information collected for the permit extension application, baseline and operational information from the Horse Canyon Mine, and similar information from other mines in the area, including information on quality and quantity of surface and ground water under seasonal flow conditions. Hydrologic resources that might be impacted at the Lila Canyon Extension are identified. The springs and stream channels being monitored in the Lila Canyon Extension area are discussed in the MRP. In preparing the PHC, the Permittee used information from the Columbia and Horse Canyon Mines along with baseline data collected for the Lila Canyon Extension.

Comments received by the Division expressed concerns that baseline data are inadequate to prepare the PHC and that potential adverse impacts to a regional aquifer and Range Creek have not been addressed in the PHC.

Section R645-301-728.300 of the R645 Rules requires that the MRP contain specific findings. The Lila Canyon Extension PHC determination includes findings on:

728.310. Whether adverse impacts may occur to the hydrologic balance;

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Information on geology and hydrology is adequate to prepare the PHC. Maps and cross-sections that include the Range Creek drainage have been added to the MRP, and a discussion of the Range Creek drainage has been added to Section 724.200 (p. 23) and Appendix 7-3 (pp. 9-10) to help clarify in the public record why regional impacts, particularly adverse impacts to Range Creek drainage, are not expected.

Based on available data and expected mining conditions, the Permittee has concluded that the proposed mining and reclamation operation is not expected to proximately result in contamination, diminution or interruption of an underground or surface source of water, within the proposed permit or adjacent areas, which is used for domestic, agricultural, industrial, wildlife or other legitimate purpose (Appendix 7-3, p. 14).

728.320. Whether acid-forming or toxic-forming materials are present that could result in the contamination of surface- or ground-water supplies;

Rocks of the Mesaverde Group are carbonaceous and persistence of acids and related toxins is unlikely. The refuse pile is designed to handle potentially acid- or toxic-forming materials brought to the surface and minimize the formation of acid- or toxic-forming drainage. Based on the hydrology, geology, and climate of the area and the design of the refuse pile, acid or toxic impacts from materials removed from the mine or from mine water discharge are unlikely (Appendix 7-3, p. 2).

728.330. What impact the proposed coal mining and reclamation operation will have on:

728.331. Sediment yield from the disturbed area;

Sediment controls and a sediment pond will be constructed at the new mine site to minimize impacts, as indicated in the Sediment Control Plan, Appendix 7-4. Drainage ditches and sediment control structures will be constructed according to methodologies and specifications in Appendix 7-4. All construction and upgrading activities will be undertaken during periods of dry weather, commencing in late spring and lasting through fall. For both the mining and reclamation periods, it is expected that construction, upgrading, or regrading activities could cause an increase in sediment load to the stream. Temporary sediment controls will be used whenever possible to lessen the impact of construction activities (Appendix 7-3, p. 2).

728.332. Acidity, total suspended and dissolved solids and other important water quality parameters of local impact;

Surface waters will be protected by sedimentation ponds and other sedimentation control devices (Appendix 7-3, p. 4). Water will be sampled prior to discharge to ensure compliance with UPDES standards (Section 728.333).

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Calcite and dolomite will be used as rock dust, so the chemistry of the receiving stream should not be altered. TDS concentrations in Horse Canyon Creek measured at 1,200 to 1,500 mg/L, and TDS in water discharged into the Horse Canyon Mine from the Blackhawk Formation was 2,000 mg/L. Similar concentrations are anticipated for the Lila Canyon Extension and Right Fork of Lila Canyon, so TDS concentrations in the Right Fork of Lila Canyon can be expected to increase by a factor of 1.5 (Appendix 7-3, p. 3). On page 4 of Appendix 7-3 is the statement,

... The TDS standard for Class 4 water is 1,200 mg/l. If a discharge occurs from the Lila Canyon Mine to the Right Fork of Lila Canyon, the data indicate that the TDS concentration of these discharges will not exceed the applicable water-quality standard.

This statement needs clarification: if expected TDS concentration in the discharge is 2,000 mg/L, why does this not exceed a standard of 1,200 mg/L? ...Is this based on the receiving stream already containing 1,200 to 1,500 mg/L TDS?

In the event of an accident that spills coal from the trucks, possible impacts to the surface water are increased total suspended solids and turbidity from fine coal particulates that are washed or blown into the channels (Appendix 7-3, p. 12).

The major usable water resources that could potentially be affected in the area are springs that are used by wildlife and livestock. Most of these springs are located upstream of the permit area, or are in areas where subsidence resulting from post-1977 mining is not documented nor expected from operations in the Lila Canyon Extension. The PHC states that, although pre-mining data are not available for the Horse Canyon Mine, available data (Appendices 7-1 and 7-2) indicate there has been no depletion of quantity or quality of surveyed springs in the Horse Canyon permit area, and none is expected in the Lila Canyon Extension (Appendix 7-3, p. 10).

728.333. Flooding or streamflow alteration;

The sedimentation pond is certified to be geotechnically stable, minimizing the potential for breaches that could cause downstream flooding. Flow routing through the sedimentation pond and other sediment-control devices will reduce peak flows from the disturbed areas, decreasing the potential for flooding in downstream areas. By retaining sediment on site in the sediment-control devices, the stream bottom elevations of the Right Fork of Lila Canyon downstream from the disturbed area will not be artificially raised and the hydraulic capacity of the stream channel will not be altered (Appendix 7-3, pp. 4-5).

Flooding from mine discharge

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Streamflow will increase in the Right Fork of Lila Canyon if water is discharged from the mine into the drainage (by way of the sedimentation pond). Potential impacts include the displacement of fines on the channel bottom and widening of the channel. Steady mine-water discharge would most likely result in a more vigorous streambank vegetation, which would reduce the potential for channel widening (Appendix 7-3, p. 5). Because of infiltration, diversion to a stockwatering pond, and evapotranspiration, mine water discharge is expected to flow less than 4 miles down the channel (Appendix 7-9).

Flooding in the downstream channel is unlikely because the maximum expected mine discharge of 500 gpm (1.1 cfs) is significantly below the anticipated 2-year flood of 37 cfs (Appendix 7-9). The design standard for protection against flooding for a permanent diversion is the peak runoff from a 10-yr, 6-hour event. The calculated value for the 10-yr, 6-hr peak flow, based on information in Appendix 7-4, is 29.11 cfs, so expected discharge is well below expected flood levels.

Flooding from runoff

Flow routing through the sedimentation pond and other sediment-control devices will reduce peak flows from the disturbed areas, decreasing the potential for flooding in downstream areas (Appendix 7-4). Both the principal and emergency spillways discharge directly into the bypass culvert. The outlet of the bypass culvert has been designed to minimize erosion.

The Permittee needs to clarify drainage and sediment control designs for undisturbed drainage UA-5. This drainage is not shown in either Table 4 or Table 5 of Appendix 7-4, and it isn't clear whether it will report to the sedimentation pond or directly to the Right Fork of Lila Canyon.

The sedimentation pond will discharge to the Right Fork of Lila Canyon. Discharge can include water pumped from the proposed Lila Canyon mine. The MRP contains a commitment to evaluate morphology parameters and erosion impacts before water is discharged and at least quarterly during pumping to determine if any stream channel alteration will occur (Section 728.333, pp. 33-34). Appendix 7-7 includes a characterization of the Right Fork of Lila Canyon that is based on determination of water table elevations in the alluvium and descriptions of biologic communities. Photographs provide a visual record of pre-disturbance conditions. The PHC states on page 11 that it is expected that downstream impacts from pumping water from the mine will be very similar to those experienced in the adjacent Horse Canyon Mine, although pre-mining data are not available for Horse Canyon (Appendix 7-3, p. 10).

By retaining sediment on site in sediment-control devices, the bottom elevations of the Right Fork of Lila Canyon downstream from the disturbed area will not be artificially raised and the hydraulic capacity of the stream channel will not be altered. Interim sediment-control

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measures and maintenance of the reclaimed areas during the postmining period will preclude deposition of significant amounts of sediment downstream (Appendix 7-3, p. 5). On the other hand, reducing the amount of sediment, while the sediment carrying capacity remains the same, can result in increased streambed and stream bank erosion: this is not discussed in the MRP- Part B.

There are no diversions planned for perennial or intermittent streams (742.320, p. 65). All temporary diversions of miscellaneous flows are designed to safely pass the peak runoff of a 2-year, 6-hour precipitation event. Reclamation channels have been designed to safely pass the peak flow from a 10-year, 6-hour or 100-year, 6-hour precipitation event, as appropriate for temporary or permanent diversions (Appendix 7-3, p. 5); this meets the standard for diversion of perennial or intermittent streams in the R645 Rules. Methods, parameters, and calculations are detailed in Appendix 7-4, which was prepared by a registered professional engineer.

There should be no natural discharge of ground water from any portal, active or reclaimed, of either the Horse Canyon or Lila Canyon Mine. The lowest portal is about 400 to 500 ft higher than the approximate water level in the Horse Canyon Mine. As a precaution, the Permittee will incorporate standpipes into the grading plans for the portals at the Lila Canyon Extension so that water levels can be checked annually (Appendix 7-3, pp. 7-8; Figure 7-1, Volume 7).

728.334. Ground-water and surface-water availability;

Water rights are identified in Section 645-301-727 and Table 7-2. The MRP includes information on water rights in and within one mile of the permit area. The locations of those rights are shown on Plate 7-3. The Permittee commits to repair or replace any state-appropriated water supply damaged by mining operations (Section 727, p. 27). The preferable method of replacement will be sealing of surface fractures affecting the water supply, but piping and trucking water are also possibilities. As a last resort the Permittee will replace the water by transferring water rights or constructing wells. Water rights 91-4959 (Redden Spring), 91-183 (Horse Canyon Creek), and 91-185 (MDC well), are all held by the Permittee, but are not shown on Plate 7-3. This information should be submitted.

The PHC states that it is unlikely that alternative water supplies will be needed, as contamination, diminution, or interruption of water resources would not likely occur within the mine permit area. Surface waters flow only a limited part of year and will be provided protection by use of sediment controls. The major water resources that could potentially be affected are the springs that are currently used by wildlife and livestock. Most of these springs are located upstream of the permit area or are in areas where subsidence resulting from post-1977 mining is not documented or expected. No known depletion of flow and quality of surveyed springs exists in the Horse Canyon mine permit area and none is expected in the Lila Canyon Extension area (Appendix 7-3, p.10).

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The springs and stream channels being monitored in the Lila Canyon Extension area are discussed in the PHC and current data have been evaluated in determining the PHC. Water monitoring data for the Horse Canyon Mine - Lila Canyon Extension are in Appendices 7-1, 7-2, and 7-6 of the MRP and Appendix VII-1 of the Horse Canyon Mine MRP; more recent data have been submitted directly to the Division's database.

Perched ground-water systems in the Colton and undifferentiated Flagstaff - North Horn Formations are unlikely to be affected because of the thick section of low-permeability rock, rich in plastic clays that can seal fractures, that lies between them and the coal seam. These perched zones are not extensive or interconnected, so if a fracture does drain one, there will be little or no impact on adjacent zones (Appendix 7-3, p. 9). These perched zones are also typically outside the areas most likely to be subsided.

L-16-G and L-17-G, in Stinky Spring Wash, issue from near the top of the Mancos Shale, at the Mancos - Blackhawk contact (Plate 7-1A; Table 7-3; Appendix 7-7, Reach #9C Stinky Springs, p. 20). They are outside the permit area, outside the limit of subsidence, separated from the proposed mine workings by a fault, and lie several hundred feet below the coal seam (at the nearest outcrop). At an elevation of approximately 6,000 ft, they are above the water levels measured in the IPA piezometers (Chapter 7, Figure 7-1). The PHC concludes that there is no potential for Lila Canyon Extension to impact these springs or their recharge sources (Appendix 7-3, p. 10).

Although some drainages are intermittent under the definitions in the R645 Rules, flow in the channels of Lila Canyon Wash, Little Park Wash, Right Fork of Lila Canyon, and Stinky Spring Wash has been determined to be ephemeral and occurs only in response to precipitation runoff or snowmelt (Section 731.220, p. 41). The Permittee has monitored the ephemeral washes above the permit area randomly since 1988 when access has allowed the sites to be monitored, other than during spring runoff and rain storms. This data is reported in Appendix 7-1 and the Division's coal database and without exception they have been found to be dry (Division's database).

Range Creek is the perennial stream closest to the Horse Canyon Mine - Lila Canyon Extension. Subsidence is projected to remain within the permit boundary, making it improbable that subsidence would affect any part of the Range Creek drainage. Due to the distance of several miles between the proposed permit area and Range Creek, and the roughly 1,000-ft of low permeability strata between the coal seam and Range Creek, Lila Canyon Extension does not present any Probable Hydrologic Consequences to Range Creek (Appendix 7-3, pp. 9-10).

According to the USFWS, water consumption by underground coal mining operations could adversely modify critical habitat and jeopardize the continued existence of several endangered fish species in the Colorado River Basin. The USFWS considers consumption to

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include evaporation from ventilation, coal preparation, sediment pond evaporation, subsidence on springs, alluvial aquifer abstractions into mines, postmining inflow to workings, coal moisture loss, and direct diversions.

- Evaporation from Ventilation - evaporation rates, dependent on temperature and relative humidity, has been estimated at 2.5 gallons per million cubic feet of ventilated air. The Permittee projects the ventilation rate at 473,040 million cf/yr of air, so water consumption for evaporation would be approximately 1,183,000 gallons/year or 3.63 acre ft/year.
- Coal Preparation – The Permittee does not anticipate any coal preparation that would result in water usage. Table 2 of the PHC includes consumption of 1,260,000 gal/year (3.87 acre-ft) in the bathhouse and office. The Permittee needs to include the amount of water that will be needed for dust control on coal piles, conveyors, and roads and for other operational uses.
- Sediment Pond Evaporation - Holding time for water in the sedimentation pond is planned to be short, therefore, no significant evaporation loss is expected.
- Subsidence of Springs - Springs will not be adversely effected by subsidence because either springs are located off the permit area and outside the projected zone of subsidence, or are protected by 1,000 ft or more of cover.
- Alluvial Aquifer Abstractions into Mines - There will be no water infiltrations from alluvial systems into the mine.
- Postmining Inflow to Workings - The proposed mine openings for Lila Canyon are at an elevation where no surface inflow is possible. Coupled with the sealing plan for the portals, postmining inflows are virtually impossible.
- Coal Moisture Loss – Coal moisture loss or usage is estimated at 4.5 gallons per ton of coal mined. Based on estimated production of 4 million tons/year, water consumption would be 18 million gal/year (55.2 acre ft). Due to low hydraulic conductivities, this water is relatively immobile and it is very unlikely consumption of water by mine operations will impact the recovery of endangered fishes in the Colorado River Basin. (The PHC refers to Table 1 for hydraulic conductivity values; there is no Table 1 in the PHC, nor a table of hydraulic conductivity values anywhere in the MRP; this apparently refers to a table in some referenced material. The Permittee needs to identify the source of the hydraulic conductivity information, and either include a Table 1 or revise the text of the PHC).

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- Direct Diversions - no consumption.

Projected losses (not including the amount of water that will be consumed by dust control on coal piles, conveyors, and roads and for other operational uses) total 62.71 acre-ft/year, which is below the USFWS mitigation level of 100 acre-ft/year, so the Permittee concludes that water consumption by the Lila Canyon underground coal mining operation will not jeopardize the existence of or adversely modify the critical habitat of the Colorado River endangered fish species (Appendix 7-3, pp. 12-14).

728.335. Other characteristics as required by the Division;

Comments have been received that the impacts of increased salinity from the solution of salts from the Mancos Shale are not evaluated. Appendix 7-9 includes a calculation of how far mine discharge of 500 gpm would be expected to flow. Because of infiltration, evapotranspiration, and diversion to a stock pond, the mine discharge is not expected to reach the Price River. (The Division requested the evaluation be done for 500 gpm of flow, which is considerably larger than expected flows).

728.340. NA

728.350. Whether the UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES conducted after October 24, 1992 may result in contamination, diminution or interruption of State-appropriated Water in existence within the proposed permit or adjacent areas at the time the application is submitted.

State appropriated water in and adjacent to the proposed permit area is identified in Table 7-2. The PHC states that it is unlikely contamination, diminution or interruption of any water resources will occur within the permit or adjacent areas (Appendix 7-3, p. 10). Surface water flows only part of the year, but this flow will be protected by use of sediment controls. Springs, which are used by wildlife and livestock, are the major water resources potentially affected. To date, no known depletion of flow and quality has occurred at springs in the Horse Canyon Mine permit area. Most springs are located upgradient of the permit area or in areas where subsidence resulting from post-1977 mining is not expected. Pre-mining data are not available for Horse Canyon, but depletion problems from subsidence are not indicated by sampling results in Appendices 7-1 and 7-2.

The Permittee feels it is unlikely an alternative water supply will be needed, but commits to replace or repair, as soon as practical, any state-appropriated water supply damaged by mining operations. This may include sealing surface fractures, piping, trucking water, or construction of wells. The Permittee has rights to 1.50 cfs of water in this area and is prepared to replace water by transferring water rights (Section 727, pp. 27-28).

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Findings:

The information found in the MRP - Part B is inadequate. Before approval, the Permittee must provide the following in accordance with:

R645-301-724.100, The Permittee must update the Lila Canyon Extension MRP to include the postmining land use change, including the future transfer of the Horse Canyon Well to CEU.

R645-301-121.200, The PHC refers to Table 1 for hydraulic conductivity values; there is no Table 1 in the PHC, nor a table of hydraulic conductivity values anywhere in the MRP - Part B; this apparently refers to a table in some referenced material. The Permittee needs to identify the source of the hydraulic conductivity information, and either include a Table 1 or revise the text of the PHC.

R645-301-728.334, In the estimates of water consumption in the PHC, the Permittee must consider the amount of water that will be needed for dust control on coal piles, conveyors, and roads and for other operational uses. The application must be updated to include this information.

R645-301-728.333, Sediment-control devices will retain sediment on site. Reducing the amount of sediment, while the sediment carrying capacity remains the same, can result in increased streambed and stream bank erosion. This needs to be discussed in the MRP.

R645-301-722.100, The condition of Horse Canyon Well is briefly described in the supplemental information accompanying the December 6, 2002 submittal, but the Permittee needs to include this information in the description of the well in the MRP.

R645-301-741 The Permittee must clarify drainage and sediment control designs for undisturbed drainage UA-5. This drainage is not shown in either Table 4 or Table 5 of Appendix 7-4, and it isn't clear whether it will report to the sedimentation pond or directly to the Right Fork of Lila Canyon.

R645-301-624.100, Reference is made in Section 724.100 (p. 19) to Appendix 7-7 for information on the relationship of the Sinky Seeps to faulting, but Appendix 7-7 contains no discussion of this subject. The Permittee needs to either clarify the reference in Section 724.100 (p. 19) or include in Appendix 7-7 information on the relationship of these seeps to faulting.

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- R645-301-624.100, -721,** The Stinky Seeps are at an elevation of approximately 6,000 ft, close to the elevation of the potentiometric surface (Plate 7-1), so the source for the water flowing from these seeps could be connected to the saturated zone that will be intercepted by the proposed mine. In Appendix 7-3 (p. 10), the Permittee states, "...being 500 to 600 ft below the coal seam, there is no potential for Lila Canyon Mine to negatively impact this spring or recharge sources." Because they are below the coal seam, subsidence should not impact these springs, but recharge or flow to these seeps could be impacted more directly by mine operations. The Permittee needs to more fully evaluate the hydrogeology of these seeps, whether their source is regional, intermediate, or local in extent, and what impacts the proposed coal mining might have on them.
- R645-301-751,** The Permittee needs to clarify the following statement in the PHC: "The TDS standard for class 4 water is 1,200 mg/l. Hence, if discharges occur from the Lila Canyon Extension to the Right Fork of Lila Canyon, the data indicate that the TDS concentration of these discharges will not exceed the applicable water-quality standard." Expected TDS concentration in the discharge is 2,000 mg/L; why does this not exceed a standard of 1,200 mg/L?
- R645-301-121,** The Permittee describes the surface water resources in Chapter 7 as intermittent, and describes the same channels as ephemeral in Appendix 7-7. The Permittee must decide what stream types really exist on the permit area, ephemeral or intermittent and describe them consistently throughout the MRP - Part B.
- R645-301-121.200,** It states in Section 724.100, p. 17: "The water monitoring wells show water levels above the lower zone containing the coal seam in area of the mine; however, the zones recorded are not connected to the lower groundwater zone. As reported in the Castlegate Sandstone section, no springs or water bearing zones were identified in the spring and seep inventories or in the drilling of the water monitoring wells in the formation. Therefore, indicating that the monitored zones are perched and are isolated from the lower groundwater zone." This seems to be indicating that the IPA piezometers were either completed in a third saturated zone between the Upper and Lower zones or completed in the Upper zone. The statements in this paragraph need to be clarified.
- R645-301-121,** The Permittee describes boreholes used to measure water levels (IPA-1, IPA-2 and IPA-3) as piezometers in some parts of Chapter 7, and as wells in other parts. The Permittee must decide if the boreholes are wells or piezometers and describe them consistently throughout the MRP - Part B.

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R645-301-728, (1) UEI must recheck the angle of draw on the east side of the proposed permit area. If changes to the potential subsidence result, UEI must make specific findings for the PHC, which identify potential impacts to all ground water sources. UEI shall use this information to summarize the potential for mitigation and hydrologic impacts on and off the permit area in the PHC. The PHC must describe all probable hydrologic consequences from subsidence, and other impacts to springs. (2) UEI must discuss in the PHC what impacts will take place from increased salinity to the Colorado River by discharging water from the mine.

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:

Affected Area Boundary Maps

UEI did not include adequate affected area boundary maps. UEI must include a map that shows all areas they propose to affect over the estimated total life of the coal mining and reclamation operations, with a description of size, sequence, and timing of the mining of subareas for which they anticipate that additional permits will be sought.

UEI shows on Plate 5-5, Mine Map, that they plan to mine all recoverable reserves in the Lila Canyon Extension between 2005 and 2019. The life of mine shown on Plate 5-5 is 14 years. However, in Table 3-3 UEI states that mining will continue until 2024, which means the life-of-mine is 19 years, and Section 116.100 shows that it is 24 years. The Division also addresses this issue in the Permit Area section of the TA.

Coal Resource and Geologic Information Maps

Depth to the Sunnyside Seam, the seam to be mined, is shown on the Cover and Structure Map on Plate 6-4. Thickness of the Sunnyside Seam is shown on the Coal Thickness Isopach map on Plate 6-3. Thickness and nature of the Sunnyside Seam, of coal or rider seams above the Sunnyside Seam, and of the stratum immediately below the Sunnyside Seam are shown on the Coal Sections on Plate 6-5. Elevation contours on the Sunnyside Seam as determined from the outcrop and bore holes are on Plate 6-4.

Plate 6-1 shows surface geology, including coal crop lines, within the proposed permit area and adjacent area. Strike and dip of the Hiawatha Coal Seam are indicated by structural contour lines on Plates 7-1 and 6-4.

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Plate 7-1A shows the geology of a larger area, including the Range Creek drainage, along with location of surface- and ground-water monitoring points in and adjacent to the Horse Canyon Mine and Lila Canyon Extension permit area. The cross section on Figure 7-1 (Volume 7) shows the rock tunnels, the dip of the strata, stratigraphy, and expected ground-water elevation. Plate 7-1B shows the geologic cross section extending from Lila Canyon to Range Creek, including a projection of the water level indicated in the IP A piezometers. Figures VI-1 and VI-2 portray the general stratigraphy of the permit and adjacent areas.

Fault locations and offsets are shown on Plate 6-1 and discussed in the text. Fault traces are not always visible at the surface, and fault locations on Plates 6-1 and 6-2 are also based on exposures at the outcrop, faults encountered in the Geneva Mine, and information from drilling (Section 6.5.3.3, p. 24). Interpretations of fault alignments, which are based on detailed mapping by Kaiser Corporation consultants, differ slightly from those on maps published by the others (Section 6.4.2, p. 10), including the USGS. Aside from differences in detail, these sources agree on general location, extent, and magnitude of the faults.

The Sunnyside Fault, shown on Plates 6-1 and 6-2 of the Lila Canyon MRP and Plate II-2 of the current MRP, limited mining to the east in the Horse Canyon Mine. The Permittee believes it lies east of the proposed Lila Canyon Extension (Section 6.5.3.3, p. 24). Plates 6-1 and 6-2 indicate the Sunnyside Fault dies out near the northeast corner of the Lila Canyon Extension.

Most maps and cross sections in the MRP extend as far as Patmos Ridge but include only a small portion of the Range Creek drainage. Plates 7-1A and 7-1B, geologic maps and cross sections that extend from the Book Cliffs to the Range Creek drainage, have been added to the MRP. Water rights have been added for the portion of Range Creek on Plate 7-3.

Cultural Resource Maps

Cultural site 42EM1342 is part of railroad history and has significant potential for the National Register. This site is not shown on Plate 4-3. UEI must include this site on Plate 4-3 (R645-301-411.141).

Existing Structures and Facilities Maps

UEI did not meet the minimum requirements for showing the existing structures and facilities on maps because UEI was not consistent about the existing structures and facilities that exist in the Lila Canyon Mine area.

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In Section 526.110 UEI states:

Only two existing structures, a 36" CMP culvert located near the new proposed sediment pond, and the County road on top of Little Park, can be found within the Lila Canyon Permit. The existing culvert is shown on plate 5-1A. The existing road on Little Park can be found on Plate 5- 1 as well as most other plates showing the surface area of the Lila Canyon Permit.

In Section 521.120 UEI states:

Only two existing structures , a 48" and a 24" CMP culvert located near the new proposed sediment pond, can be found at the Lila Canyon Mine. The existing culverts are shown on plate 5-1A.

On Plate 5-1A, Pre Mining Contours, UEI show a 24" and a 48" culvert. UEI did not label Little Park Road on Plate 5-1 or show the line type for roads in the legend. UEI must be consistent about the existing structures at the Lila Canyon Mine site. In addition, UEI must reference the correct maps.

In Section 521.100, UEI stated that the only existing structures were a 24" and a 48" culvert. However, UEI states in Section 521.123 that Little Park Road is also an existing structure.

Note that existing structures in the environmental resource section of the TA refer to structures on which construction began before January 21, 1981.

Existing Surface Configuration Maps

UEI met the minimum requirements for supplying the Division with existing surface topographic maps and cross sections. Plate 5-1A shows the existing surface configuration for the Lila Canyon disturbed area. The map is at a scale of 1-inch equals 100 feet and the contour lines are on 5-foot intervals. The contour lines extend more than 100 feet beyond the disturbed area boundaries.

UEI gave the Division a series of cross sections and profiles that show the pre-disturbed topography at the Lila Canyon Mine site. The series consists of Plate 5-7-A-1 through 5-7-A-4, Plate 5-7-B-1 through 5-7-B-3 and Plate 5-7C. These cross-sections and profiles show 5-foot evaluation intervals.

Plate 5-3, Subsidence Control Map, shows the existing topography of the Lila Canyon Extension area. The contour lines appear to be taken off a USGS topographic map. The

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Division considers the contours on Plate 5-3 adequate to show the pre-mining topography in the Lila Canyon Extension.

Mine Workings Maps

UEI met the minimum requirements for showing previously mined areas in and around the proposed permit boundaries at the Horse Canyon Mine. Plate 5-1, Previously Mined Areas, shows the location of the known mine workings in the Horse Canyon permit area. The old mine workings include the Horse Canyon project and the old Book Cliffs Mine. UEI shows the approximate dates when each of the subareas of the Horse Canyon Mine and adjacent areas were worked. The area had mining activities from the 1940s to the 1980s.

In section 521.111 UEI gives a narrative of mining activity that occurred in the area. The Book Cliff Mine engulfed many small mines. The exact location of the small mines is not known so UEI showed previously mined area associated with the Book Cliff Mine, so the exact location of each prospect was not shown.

On Plate I, a exploration entries in permit area "B," Lila Canyon. Those exploration entries are most likely a breakout for the Geneva Mine. A fan was located at the breakout to assist in ventilation. Jay Marshall, who is a registered professional engineer in the State of Utah, certified Plate 5-1.

See Plate II-2 in the Horse Canyon section of the mine plan for a detailed mine map of the Horse Canyon project. The exploration entries are shown on Plate II-2.

Monitoring and Sampling Location Maps

Elevations and locations of test borings and outcrop measurements are on Plates 6-2, 6-3, 6-4, and 6-5. Piezometers IPA-1, IPA-2, and IPA-3 are shown on Plates 7-1 and 7-4. Elevations and locations of seeps and springs monitored in 1985 by JBR and in 1993-1995 by EarthFax are on Plate 7-1.

Horse Canyon Mine UPDES discharge points UT022926 - 001, - 002, and - 003 (monitored from 1979 to 1991) are on Plate 7-1. Currently monitored UPDES discharge points, UT040013- 001A and - 002A are shown on Plates 7-1 and 7-4. Proposed UPDES points L-4-S and L-5-G are on Plate 7-4.

Locations for surface-water monitoring points HCSW-1 (HSW-1, HC-1), HCSW-2, HCSW-3, B-1 (HC-2), and RF-1 are shown on Plate 7-1. Locations for baseline and operational water-monitoring sites added for the Lila Canyon Extension are on Plate 7-4.

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Plate 7-1 identifies the surface water monitoring sites associated with the original Horse Canyon Mine. It also identifies the inventoried spring sites on and adjacent to the permit area.

Permit Area Boundary Maps

Plate 1-1, Permit Area Map shows the permit boundaries as Permit Area A- the Horse Canyon project, and Permit Area B- the Lila Canyon Extension. Plate 1-1 is only mentioned once in the MRP-MRP - PART B. In Section 321.100 UEI refers to Plate 1-1 as Permit and Lease Area Map. To avoid confusion UEI must use the same name throughout the MRP-MRP - PART B.

Plate 1-2 UEI shows the disturbed area boundaries that include the UTM coordinates to help the Division locate the disturbed area in relationship to the permit boundaries.

Surface and Subsurface Manmade Features Maps

UEI does not have any maps titled Surface and Subsurface Manmade Features. UEI shows the culverts in the disturbed area boundary on several maps and Little Park Road on Plate 4-1. As mentioned in the Existing Structures and Facilities Maps Section, the information about the culverts is inadequate, unclear, and contradictory.

R645-301-521.122 requires that UEI show the location of all man-made features within, passing through, or passing over the proposed permit area. Including, but not limited to: major electric transmission lines, pipelines, and agricultural drainage tile fields. UEI states, in section 521.122 of the MRP-MRP - PART B, that they have shown all such structures on Plate 5-2. Again, this is confusing, since Plate 5-2 only shows disturbed area boundaries and does not extend 1,000 feet outside the permit boundary. In addition, there are no major electric transmission lines, pipelines, and agricultural drainage tile fields within the area with the exception of the culvert under County Road 126. If the only man-made structure in the proposed permit area is a culvert under County Road 126 then UEI must plainly state this.

Subsurface Water Resource Maps

The cross section on Plate 7-1B, which shows the relationship of geology to the saturated zone in the lower Blackhawk Formation, extends from the Book Cliffs to Range Creek.

Water-level elevation contours are on Plate 7-1. Water levels for the IPA piezometers are tabulated in Appendix 7-1, and although the data do not evidence seasonal variations, the Permittee has portrayed variations of head on a contour map in Figure 7-1 (Volume 6) and shown them graphically in Figure 7-2.

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The MDC and Horse Canyon wells, completed in a small alluvial aquifer at the mouth of Horse Canyon, are discussed in Section 724.100 and shown on Plate 7-1.

Locations where ground-water elevations in the mine were determined in 1986 and 1993 are on Plate 7-1. These ground-water elevations were used in projecting on Plate 7-1 where mining will intercept water.

Water rights locations are on Plate 7-3. Water rights 91-4959 (Redden Spring) and 91-185 (MDC well), both held by the Permittee, are not shown on Plate 7-3.

Surface Water Resource Maps

Location of the Right Fork of Lila Canyon, which will receive discharges from the sedimentation pond – including mine discharge, is on several maps, notably Plate 7-1.

The Right Fork of Lila Canyon diversion and BLM stockwatering pond, located roughly two miles downstream from the disturbed area, are shown on Figure 1 in Appendix 7-9.

Locations of streams and seeps and springs are shown on Plate 7-1. There are no known perennial streams, lakes or ponds within the permit and adjacent areas. The nearest perennial stream is Range Creek, located several miles east of the Lila Canyon area: geologic maps and cross sections that extend from the Book Cliffs to Range Creek have been added to the Lila Canyon Extension MRP (Plates 7-1A and 7-1B).

Plate 7-3 shows locations of water rights. Water right 91-183 (Horse Canyon Creek), held by the Permittee, is not shown on Plate 7-3.

Vegetation Reference Area Maps

The MRP-MRP - PART B provides descriptions and maps of plant communities within the permit area. Plate 3-2 locates "land features" of the permit area including plant communities (listed above), spring locations, and geologic formations. Appendix 3-1 provides a description and quantitative survey of the vegetation as well as a map of the plant communities within the permit and reference areas. The vegetation map in Appendix 3-1 shows the boundary for the reference area, while Plate 3-2 does not.

The Division requests two vegetation maps: one that shows the entire area (Plate 3-2 is adequate) and one that details the reference and proposed disturbed areas. For this second map, UEI must include the location and boundary of the newly assigned reference and proposed disturbed areas. UEI should follow DOGM Vegetation Information Guidelines (page 3) and draw this second map in more detail, such as a scale of 1"=400'.

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Well Maps

Locations are shown on Plate 7-1.

One oil exploration hole was drilled south of the proposed Lila Canyon Extension area, in Section 25, T. 16 S., R 14 E., SLM, by Forest Oil Company. The location of the hole is shown on Plate 6-2.

Exploratory boreholes S-26, S-28, and S-31 (Plate 6-2) were offset with shallow piezometers A-26, A-28, and A-31, intended to monitor ground water in the alluvium of Little Park (Table 6-3). These piezometers have been plugged and abandoned and are not shown on maps in the MRP.

Contour Maps

UEI submitted several plates showing the contour of the land on and adjacent to the proposed permit area.

Plate 5-1A shows the pre-mining contours for the disturbed area. Several maps, including Plate 5-3 show contours for the entire Lila Canyon area. The contours for Plate 5-3 are based on contours from USGS topographic maps and accurately represent the pre-mining contours for the Lila Canyon Extension.

A qualified, registered, professional engineer prepared, or directed the preparation of, Plates 5-1A and 5-3 and certified them.

Findings:

The information found in the MRP-Part B is inadequate. Before approval, UEI must provide the following in accordance with:

R645-301-521.141 and R645-301-121.200, UEI must not refer to Plate 5-2 as an affected area boundary map in Section 521.141 of the MRP-MRP - PART B. UEI stated that Plate 5-2 shows the affected area boundaries. Plate 5-2 does not show the potential affected area boundaries, rather it shows the disturbed area boundaries.

R645-301-521.120 and R645-301-121.200, The information on Plate 5-1A, Pre Mining Contours is not consistent with the information in the text. UEI shows a 48" and a 24" culvert on Plate 5-1A and in Section 521.120 but refers to only one 36" culvert in Section 526.110. UEI must clearly state the number, size, and type of

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culverts in the Lila Canyon Extension disturbed area boundaries. In addition, UEI states in Section 526.110 that Little Park Road can be found on Plate 5-1. UEI did not label Little Park Road on Plate 5-1, nor did they show the line type for a road in the legend. UEI must also properly label the Little Park Road on Plate 5-1 and label it as a pre-existing structure. In Section 120.120 UEI must state the Little Park Road is also an existing structure.

- R645-301-121.100**, UEI must be consistent in reference to Plate 1-1. UEI labeled the map as Permit Area Map but in Section 321.100 they refer to the map as Permit and Lease Area Map.
- R645-301-411.141**, UEI must include 42EM1342 on Plate 4-3. (see Historical Resource Information for details).
- R645-301-724.100, 724.200**, UEI must show water rights 91-4959 (Redden Spring), 91-183 (Horse Canyon Creek), and 91-185 (MDC) on Plate 7-3.
- R645-301-722.300, 731.700**, The Permittee must show all Lila Canyon Mine surface- and ground-water monitoring points on Plate 7-1A to make Plate 7-1A accurate and consistent with statements in the MRP and with the legend on the plate itself.
- R645-301-323.100**, UEI must provide another plate that details the reference and proposed disturbed areas. For this additional map, UEI must include the location and boundary of the newly assigned reference and proposed disturbed areas. UEI should follow DOGM Vegetation Information Guidelines (page 3) and draw this additional map in more detail, such as a scale of 1"=400'.
- R645-301-722**, The applicant must submit a map identifying the characterization of stream reaches showing where mining will take place within 100 feet (horizontal) of a stream channel.
- R645-301-525.300, R645-301-525.490**, UEI must describe how they will mitigate subsidence fractures and other impacts to the surface water channels, even those that act ephemerally. Information should include a monitoring plan to identify cracks and other effects on channels, as well as what type of equipment and methods they plan to use in mitigation. The Division recommends that BTCA at the time be used.

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MINING OPERATIONS AND FACILITIES

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

Analysis:

The Permittee met the general requirements of R645-301-526 and R645-301-528 by providing the Division with a description of:

- The type and method of coal mining.
- Anticipated annual and total production of coal.
- The major equipment to be used.
- Facilities to be constructed and removed or left as part of the postmining land use.

The Division addressed specific requirements for facilities such as impoundments, topsoil storage, coal handling and storage, mine development waste handling, and water pollution controls in other sections of the TA.

UEI chose to develop the new mine facilities at the Lila Canyon Extension site rather than use the existing facilities at the Horse Canyon site for the following reasons:

- Development of the Horse Canyon site would entail disturbance of reclaimed ground.
- The existing Horse Canyon facilities are not suitable for a large-scale longwall operation.
- The Horse Canyon Mine workings are not in operational condition.

UEI partially reclaimed the Horse Canyon mine site and received Phase II bond release (Section 528.110). Division records indicate that UEI did the reclamation in 1990 and 1991, with Phase I bond release granted on February 5, 1997. UEI still has 22.7 acres to reclaim for a total of 74.26 acres within the permit area. On November 10, 1999, the Division granted Phase II bond release on the condition that UEI remove a sediment pond and culvert. The Division granted final approval of the Phase II bond release on September 6, 2002. Within the 22.7 acres, several buildings at the site remain standing and negotiations are underway for postmining use of the buildings by a second party. At Phase II bond release, all the backfilling, grading, topsoil placement, drainage controls and vegetation have been completed. The only remaining items are that the site meets the vegetation success standards and complies with the general performance standards.

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The Horse Canyon Mine was not originally designed to produce 4,500,000 tons of coal per year (Section 520). The Division was not able to obtain complete annual production figures for the Horse Canyon Mine, but in 1969, the mine produced 843,362 tons of coal. The information on Plate 5-1 suggests that coal production between 1970 and 1980 was on a similar scale.

Some of the main pillars were pulled during retreat mining and other areas are underwater. While reopening portals and shoring up old mine workings may be an option, such an alternative would be expensive. In addition, the travel time from the Horse Canyon portals to the Lila Canyon Extension area would result in long travel times for both miners and equipment.

The Division does not have the resources to independently verify that using the Horse Canyon facilities would be uneconomical nor has UEI given the Division detailed economic data to support the claim. UEI has offered some good reasons why they should develop the Lila Canyon facility. The Division does not have a compelling reason to deny the development of Lila Canyon facility.

The average gradient of the Lila Canyon Extension site is 10%. The gentle slope of the area reduces many of the problems of reclaiming mine sites developed in steep canyon areas.

Access to the lower Sunnyside seam at this location requires tunneling from the base of the cliffs upwards at 12% through a sandstone rock-slope for a distance of approximately 1,200 feet. UEI refers to these inclined portals as rock-slopes in the MRP-MRP - PART B. They will drive the ventilation portal from the underground workings to the surface. See Plate 5-2 for the locations.

While UEI could construct a road to the outcrop, reclamation of the road to the standards in the R645 Rules would be difficult if not impossible. Development of the rock slope tunnels increases UEI's ability to reclaim the site.

UEI will use the rock material from the two access tunnels and the portal face-up areas to create a pad for surface facilities. UEI will construct other cut/fill pads from subsoils. The amount of bank rock material that UEI will remove to construct the rock slopes is 16,650 bank cubic yards. UEI assumes a swell factor of 1.5; therefore, the loose cubic yards of material would be 25,000 cubic yards.

The material from the rock slopes is by definition underground development waste and coal mine development waste. Coal mine waste is defined as coal processing waste and underground development waste. R645-301-536 requires that all coal mine waste be placed within approved portions of the permit area. UEI will place the material from the rock slopes in a refuse pile.

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Because the material from the rock slope will not contain coal, or material that is combustible or acid or toxic forming, the Division will allow UEI to use that material as structural fill. Fill for other areas of the disturbed area will come from subsoils.

UEI will initially conduct mining by room-and-pillar methods in the Lower Sunnyside Coal Seam. They estimate production in the first year to be 200,000 tons, increasing to 1,000,000 to 1,500,000 tons per year in the second through the fifth year. If demand increases, UEI will install longwall equipment and production could peak at 4,500,000 tons per year.

In the MRP-Part B, UEI proposed to construct mine access portals, a ventilation portal, an elevated conveyor, a coal storage pile and reclaim system, a crusher, a truck loop and truck loadout, a warehouse and storage yard, an office, parking and bathhouse facilities, a substation, water storage and water treatment facilities (leach field), a topsoil storage pile and a sediment pond.

To support the new center of activity at Lila Canyon, Emery County will upgrade the existing County Road #126 from State Highway 6 to a corral and from this point will upgrade unimproved roadway RS 2477 from the corral to the Lila Canyon Extension surface facilities (Appendix 1-4).

Findings:

The information provided meets the minimum general requirements of Mining Operations and Facilities.

EXISTING STRUCTURES:

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

Analysis:

An existing structure means a structure or facility used in connection with, or to facilitate, coal mining and reclamation operations, for which construction began before January 21, 1981. A structure constructed before January 21, 1981 does not have to meet the design criteria of structures constructed after that date. However, existing structures do have to meet the performance standards.

In Section 526.110 of the MRP-Part B, UEI states:

The only existing structures are found in Horse Canyon (Part "A" of this permit) and are the remains of the United States Steel (and Kaiser Coal Company) operation. Horse

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Canyon received phase II bond release and the remaining structures have been left in place for future use. Only two existing structures, a 36" CMP culvert located near the new proposed sediment pond, and the County road on top of Little Park, can be found within the Lila Canyon Permit. The existing culvert is shown on plate 5-1A. The existing road on Little Park can be found on Plate 5-1 as well as most other plates showing the surface area of the Lila Canyon Permit. Several vehicle ways will be used for water and subsidence monitoring. These ways branch off the Little Park Road and generally follow the ephemeral drainages. The ways are shown on Plate 5-1 as well as most other plates showing the surface area of the Lila Canyon Permit. More detail of the existing Little Park Road can be found in Appendix 5-4.

The information in the MRP-Part B is contradictory. UEI states that the only existing structures are at the Horse Canyon Project, but later states that there are existing structures at the Lila Canyon Extension. UEI also states that there are two 36" culverts but then states there is only one 48" culvert. The Division covered this deficiency in the Maps, Plans, and Cross Sections of Resource Information section of this TA.

UEI shows two culverts on several maps including Plate 1-2, Disturbed Area Map. However, UEI only addresses the removal of one 48" culvert and in Section 526.110 is silent on the 24" culvert mentioned in Section 521.120.

UEI states that Emery County will remove the existing 48" culvert when they upgrade County Road 126.

UEI states in Section 526.115 of the MRP- Part B that the County will modify or reconstruct the culvert within the disturbed area boundary. If the County will do the work then the Division assumes that the project is a County project and does not involve UEI.

UEI must describe how the bypass culvert will connect to the culvert under County Road 126. In addition, UEI must explain what modifications to the culvert and the surrounding slope will take place during reclamation.

Findings:

R645-301-526.115.4 and R645-301-526.116.1, Regarding the culvert under the county road; UEI must show: 1) What section of the culvert Emery County will install and what part UEI will install, 2) What work will be done by Emery County regarding modification of the culvert during reclamation, and 3) How the culvert north of the sediment pond will be modified when Emery County modifies the road. The Division assumes that when the undisturbed bypass culvert is removed, modifications to the culvert will include a fluted inlet and riprap placement on the surrounding slope.

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PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

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

Analysis:

The Division cannot make a determination of the existence of known cultural resources listed or eligible for listing in the National Register of Historic Places, public parks, or units of the National System of Trails or the Wild and Scenic Rivers system within the proposed permit extension until UEI provides all cultural resources information.

The Division is waiting for more information on the University of Utah (Rauch) and BLM (Miller) reports (see deficiency in Environmental section). The Division will determine if UEI must submit a protection/mitigation plan for 42EM1342, 42EM1343, 42EM2255, and 42EM2256 at that time. The Division will review the information and consult with SHPO on the four sites.

The plan does not include a reference to the data recovery program for site 42EM2517, a Fremont component rock shelter just outside the permit area. This recovery program will begin following the mine plan approval. UEI must include details for this data recovery plan in Chapter 4. Information must include expected implementation date and overseeing agency. (R645-301-411.143).

Findings:

The Division considers information in the application inadequate to meet the minimum Protection of Public Parks and Historic Places section of the Operation Plan regulations. For more details, refer to the deficiencies in the Environmental Information - Historic and Archaeological Resource Information section of this TA.

R645-301-411.143, UEI must include information of the data recovery plan for 42EM2517 in Chapter 4 - include expected implementation date and overseeing agency.

RELOCATION OR USE OF PUBLIC ROADS

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

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Analysis:

The Permittee met the minimum requirements of R645-301-526.116 through 526.116.2 by:

- Showing that no public road will be relocated.
- Showing that the public will be protected by mining and reclamation operations that will be conducted within 100 feet of a public road.

There is only one public road in the Lila Canyon Extension area, the Little Park Road. UEI will not relocate Little Park Road. They will use the road for access to subsidence and water monitoring points. UEI has no plans to relocate or upgrade Little Park Road.

There are several Jeep trails and wheel tracks within the Lila Canyon Extension area. The Division does not consider the Jeep trails and wheel tracks to be roads because they were not engineered and do not receive maintenance.

Emery County will upgrade and pave the existing County Road #126 (2.63 miles) and RS2477 roadway from State Highway 6 to the Lila Canyon Extension surface facilities (Appendix 1-4, Agreement between Emery County and UEI dated October 19, 1999).

The permitting status of the road was questioned by the Division when an article entitled "Utah DOGM Office Clears Way to Process Lila Canyon Permit," was published in the Sun Advocate, Thursday February 28, 2002. The press release stated that UEI planned to build a 4.7-mile road from the mine site to a Union Pacific rail line. A public notice placed in both the Sun Advocate and the Emery County Progress in April 2002, subsequently clarified that Emery County would construct and improve the 4.7-mile road from the mine site to U.S. Highway 6.

UEI does plan to tie the bypass culvert into Emery County's culvert under the County Road 126. Emery County will install the culvert under the road and has consented to allow mining operations within 100 feet of the public road. To protect the public, Emery County requires a 6-foot chain link fence between the disturbed area and the Lila Canyon Road (see Appendix 1-4, letter from the Emery County Road Department dated January 10, 2001). The Division believes that the fence will offer the public protection from the hazards associated with the mining and reclamation facilities that are located within 100 feet of County road.

Plate 5-2 shows the location of the proposed culvert, County Road 126, the chain link fence and the sediment pond. See Plate 7-6 in Appendix 7-4 for sediment pond designs.

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Findings:

The information provided in the MRP-Part B meet the minimum regulatory requirements for this section of the regulations.

AIR POLLUTION CONTROL PLAN

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

Analysis:

First year production from the mine is estimated to be 200,000 tons, increasing in the second through fifth year to between 1,000,000 and 1,500,000 tons. Long wall mining could be utilized to generate as much as 4,500,000 tons a year (Section 523).

Appendix 4-3 contains correspondence between UEI and the Department of Environmental Quality, Division of Air Quality (DAQ). In the cover letter for the Notice of Intent dated December 22, 1998, UEI requested approval for a Minor Source of up to 2,000,000 tons/year. An Approval Order (DAQE-702-99) was issued August 27, 1999.

The Approval Order (AO) indicates public comments were considered in developing the requirements of the AO for this new source. The DAQ received five public comments on degradation of the environment in general and one comment referring to air quality degradation in particular.

The AO is predicated on UEI operating according to the Notice of Intent submitted to the DAQ on December 24, 1998, and additional information submitted to the DAQ on February 19, 1999 and May 11, 1999.

The following equipment was approved with the AO:

- One enclosed crusher rated at 500 tons/hr equipped with dust suppression spray at its exhaust.
- One truck loading facility with enclosed 450 tons surge bin and sprays as needed.
- One (80 ft tall) stacking tube with associated coal stockpile (27,000 Tons of open storage, Section 520 of the MRP-MRP - PART B).
- One reclaim system conveyor.
- Associated conveyors equipped with dust suppression sprays at all transfer points.
- Mobile diesel equipment.
- 0.68 miles of paved road, posted speed limit 25 mph, as per General Condition #13.

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The requirements of the AO include:

- Annual training of employees;
- Control of disturbed or stripped areas through treatment;
- Maintenance of 4.0% moisture content of fines;
- Watering storage piles, as conditions warrant;
- Limitations on the silt-size coal fines in stored coal (5.1%) and haul roads (10%);
- Visible emissions limits (20% opacity);
- Maintaining the surface of unpaved roads and pad areas in a damp/moist condition;
- A production limit of 1,500,000 tons of coal per rolling 12 month period;
- A consumption limit of 63,000 gallons of diesel fuel per rolling 12 month period;
- Use of #2 fuel oil only; and
- Sulfur content of fuel oil or diesel is not to exceed 0.5% by weight

The AO from the DAQ ensures that particulates and pollutants will be controlled through very specific dust suppression requirements, pollution control equipment, limited fuel consumption and proper equipment maintenance, limited production, employee training and record keeping.

UEI has informed the DAQ of the delay in construction of the Lila Canyon site in a letter dated June 10, 2000, as required by AO DAQE-702-99 General Condition #6 (E-mail communication between Maung Maung and Priscilla Burton on June 3, 2004).

A rain gauge will be installed at the site to comply with the Air Quality Approval Order (Section 724.411).

Findings:

The Division finds that UEI has obtained the required DAQ permit, however the operations plan must include the following information to be in compliance with the AO DAQE-702-99:

- R645-301-420, (1)** In accordance with the approved Air Quality Order DAQE-702-99 General Conditions # 10 – 17, the MRP-Part B should indicate that the haul road will be paved and that all unpaved roads and pad areas used by mobile equipment will be treated with water or dust suppressant and that open stockpiles will be watered as conditions warrant.

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COAL RECOVERY

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

Analysis:

The Permittee did not meet the minimum requirements for R645-301-522 because they failed to address how they would recover the coal that is located within the logical mining unit but outside the proposed permit area expansion. The coal recovery plans in the application deal only with the reserves in the permit expansion area. The logical mining unit (LMU) on Plate 5-4 and the Permittee's lease by application for additional federal coal leases to the south.

Expansion of the mine to the west and north is impossible because the coal outcrops on the western escarpments and old Horse Canyon Mine workings to the north. UEI looked at the potential for reworking the area and determined that there are no recoverable resources. Deep cover limits expansion to the east. The economic cut off to coal based on depth of cover varies within the area from 2,500 feet to 3,000 feet of cover. Therefore, significant expansion to the east is limited at this time due to economics and technology.

Findings:

The information found in the MRP- Part B is inadequate. Before approval, UEI must provide the following in accordance with:

R645-301-522, UEI must discuss the potential for expanding the mine. Rules require future mining plans. It is understood that UEI has submitted a lease by application to the BLM for additional leases in the area.

SUBSIDENCE CONTROL PLAN

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

Analysis:

General

The Permittee did not meet all of the subsidence regulation in R645-301-525. The subsidence control plan section of the TA is divided into subsection and the deficiencies were addressed in the subsections.

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Plate 5-3, Subsidence Control Map, shows the location of renewable resources that subsidence could damage such as water rights, springs, and eagle nests. The map also shows the location of the underground mine workings, and the angle-of-draw. Plate 5-5, Mine Map, shows the projected mine workings in the Lila Canyon Extension. Both Plate 5-3 and Plate 5-5 have a scale of 1:12,000 and UEI had a professional engineer certify the maps.

UEI did not state what the angle-of-draw was in the subsidence section of the MRP - Part B. In the coal recovery section of the MRP - Part B and on Plate 5-3, UEI listed the angle-of-draw as 21.5 degrees. In the MRP - Part B, UEI listed U.S. Geologic Survey Professional Paper 332, Some Engineering Geologic Factors Controlling Coal Mine Subsidence in Utah and Colorado, as a reference. The author's findings were that in Utah and Colorado the average angle of draw is 21.5 degrees. The Division and other government agencies usually accept a 21.5 angle-of-draw until information from the subsidence monitoring program can be used to determine the actual angle-of-draw. The Division assumes that the angle-of-draw will be 21.5 degree.

Plate 5-5, Mine Map, shows the schedule for mining and the location of first mining areas, full extraction areas, and main entries that UEI will protect. The R2P2 contains additional information on locations of pillars, entries, extraction ratios, and measures taken to prevent or minimize subsidence and related damage.

Renewable Resources Survey

Plate 5-3, Subsidence Control Map is at a scale of 1:12,000 as required by R645-301-525.110. The map shows the location of the springs and water rights. The location of the water rights came from the water right descriptions, which lists the locations to the nearest quarter section.

Plate 5-3 shows the maximum extent of subsidence at a 21.5 degree angle-of-draw. The Division was not able to duplicate the subsidence boundaries using a 21.5 degree angle-of-draw, particularly in Sections 11, 14, 19 and 30. UEI must explain why they did not use a constant 21.5 degree angle-of draw or draw the maximum extent of subsidence using a 21.5 degree angle-of-draw.

The Permittee did not the line types shown on Plate 5-3 and Plate 5-5. The Permittee must show the roads and drainages on the subsidence maps. The Division needs that information to determine areas where subsidence damage could occur.

If the line types are consistent from map to map, UEI showed the location of the Little Park Road and some Jeep Trails that branch off the main road on Plate 5-3. Part of Little Park Road lies within the subsidence zone.

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The Division has observed that subsidence usually does not cause damage to dirt roads. The damage to dirt roads is usually minor and mostly consists of tension cracks. In the past, permittees in Utah have easily repaired roads damaged by subsidence.

In Chapter 7 of the MRP- Part B, UEI lists the location of each State Appropriated water right, the amount of water associated with the right, and the water use. The Division will rely on this information to resolve any problems involving water replacement issues.

In Section 727 of the MRP- Part B, UEI states the following:

Any State-Appropriated water supply that may be damaged by mining operations will either be repaired or replaced. As soon as practical, after proof of damage by mining in Lila Canyon, of any State-Appropriated water supply, UEI will replace the water. Water replacement may include sealing surface fractures, piping, trucking water, transferring water rights, or construction of wells. The preferable method of replacement will be sealing of surface fractures effecting the water supply. As a last resort, UEI will replace the water by transferring water rights or construction of wells.

The Division concurs with the water replacement program proposed by UEI. The first option should be to restore any water lost. UEI proposes to do that by sealing cracks, piping, or trucking water. When repairs are not possible, UEI commits to replacing water either by drilling wells or, as a final option, transferring water rights.

In Chapter 3 of the MRP - Part B, UEI stated that the two threatened or endangered species in or around the Lila Canyon Extension are the bald eagle and black-footed ferret. While there have been no sightings of bald eagles within the Lila Canyon Extension within the past three years the area has the potential for supporting bald eagles.

On Plate 5-3, UEI shows the location of eagle nests. There is one active and one tended nest within a ¼ mile of the surface facilities. The close proximity of the surface facilities to the nests makes their future use unlikely. Mitigation will consist of a prey base off-site vegetation treatment project approved by the USFWS, UDWR, and BLM. However, if either of these nests or any future nest is lost because of mining activities (subsidence), UEI is committed to working with the Division, who will then consult with USFWS and UDWR for mitigation requirements.

The Division received some public comments about the potential for subsidence to damage snake dens. DWR and BLM wildlife biologists, in consultation with the Division, have determined that any loss of snake dens to subsidence would be random and a minor impact to the population of snakes. For all wildlife issues, see the Operation Plan, Fish and Wildlife Information section of this TA.

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The Permittee did not meet all of the requirements of R645-301-525.130 because they did not provide proof that property owners in and around the proposed Lila Canyon Extension were given water rights survey and a dry technical assessment or engineering evaluation. The State Water Rights Division told UEI that there are no water conservancy districts in or around the Lila Canyon Extension so the requirement to notify the water conservancy districts is not relevant.

Subsidence Control Plan

UEI will prevent subsidence from occurring on the escarpments by only conducting first mining in the area. The Division will reassess control of subsidence in other areas after all resource information is collected.

Description of Coal Mining Method

Coal mining will begin in Section 15, T. 16 S., R. 14 E., in the Lower Sunnyside Coal Seam. Development of the Lower Sunnyside Coal Seam will be down dip toward the east. Two 1,200-foot tunnels will access the coal seam. UEI will drive the tunnels upward from the cliffs at a 12% grade. UEI will develop the ventilation fan portal from the underground workings to the surface. See Plate 5-2 for the location of the portals and Plate 5-5 for the mine workings.

UEI will conduct initial mining by the room-and-pillar method. Production in the first year will be around 200,000 tons, and around 1,000,000 to 1,500,000 tons per year during the second to fifth year. If demand increases, UEI will install longwall equipment and production could peak at 4,500,000 tons per year. The estimated life-of-mine is 20 years.

Plate 5-3 shows the areas where subsidence could occur, while Plate 5-5 shows the timing and sequence of mining. The information presented by UEI is sufficient for the Division to determine what areas will subside, and when.

Mine Map

Plate 5-5, Mine Map, shows the schedule for mining, and the location of first mining areas, full extraction areas, and main entries that will be protected.

Plate 5-5 shows the underground workings and the areas where first mining only will be utilized to protect escarpments and the raptor nests that may exist on the escarpments. The areas to be protected from subsidence are confined to the western edge of the underground mine.

Subsidence Monitoring

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UEI will initiate subsidence monitoring in an area before any second mining begins in that area. The subsidence-monitoring plan will consist of the following:

- Aerial subsidence monitoring
- A 200-foot grid
- 12-16 control points
- Six of these points outside the subsidence zone
- Accuracy of plus or minus 6 inches horizontally and vertically
- A map of subsided areas
- Annual surveys in active subsidence areas

Subsidence monitoring will continue for five years after mining stops, or until subsidence is complete. If, for three years in a row, the subsidence is measured to be less than 10 percent of the highest subsidence year, subsidence will be determined to be complete, and no additional monitoring for that area will be required.

UEI will conduct a subsidence ground survey in conjunction with the quarterly water-monitoring program. They will note any cracks observed and report them to the Division.

The Division determined that ground surveys conducted in conjunction with water monitoring are insufficient to determine subsidence effects. The main reason is that regularly scheduled monitoring programs do not cover the entire permit area, and often miss the areas where subsidence features are most likely to occur, such as near the panel edges. UEI needs to conduct ground surveys for each panel no earlier than six months after mining in the panel ceased but no more than twelve months after mining ended.

The two main objectives of the subsidence monitoring program are to determine: 1) When subsidence starts and stops, and 2) If any damage has occurred. The aerial monitoring program, which measures ground movement, is the best way to determine when subsidence begins and ends. Ground surveys are useful to determine if any subsidence damage has occurred. UEI should pay particular attention to any stream channels with less than 1000 feet of cover to the coal.

Subsidence Control Measures

UEI plans to use just one subsidence control method in the Lila Canyon Extension, to protect the escarpments. They will leave barrier pillars and only allow first mining within 200 feet of the outcrop barrier. This will protect the escarpments.

Anticipated Subsidence Effects

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The main panels of the Horse Canyon Mine (Permit Area A), in which past operators have conducted retreat mining, have dimensions of approximately 1,200 feet wide by 4,000 feet long. The cover (h) in these areas is approximately 2,000 feet. Using the methods described in the National Coal Board's *Subsidence Engineers' Handbook* the S/m ratio for this geometry would be 0.55 where "S" is the maximum subsidence and "m" is the seam extraction thickness. For an average seam extraction thickness of 12 feet, the total subsidence would be 6.6 feet. However, as described on page V-12 of the Horse Canyon MRP (Part A), the major impacts of subsidence are due to extension strains and not to total vertical subsidence. The prediction of average extension strain is accomplished with the use of the formula:

$$+E = 0.75 S/h \text{ where } S = \text{Subsidence and } h = \text{depth of cover}$$

The solution of this equation for the Horse Canyon Mine configuration discussed above produces a predicted, average extension strain of 2.5×10^{-3} which is less than that the limiting strain of 5×10^{-3} for protecting surface waters and groundwater resources. Thus, it is unlikely that the gradual compression expected over much of the subsidence area will have any deleterious effects on the overlying renewable surface resources. As reported in Chapter V of the Horse Canyon MRP (Part A), the cover thickness of over 2,000 feet is also much greater than the limiting thickness of 450 feet.

A cantilever effect of symmetrical subsidence on either side of thick pillars can greatly enhance the amount of extensive strain. The Horse Canyon MRP (Part A) indicates in Chapter V that Dunrud demonstrated this effect at the Geneva (Horse Canyon) mine over the barrier pillar separating the Geneva and Book Cliff mines. A nearly vertical break line occurred over the pillar with the appearance of large surface fissures hundreds of feet long and as much as 3 feet wide. The cover thickness in this area was about 900 feet. Such features would obviously have the greatest effect on the surface and groundwater resources in the area.

The pace at which subsidence occurs depends on many controls including the type and speed of coal extraction, the width, length and thickness of the coal removed, and the strength and thickness of the overburden. Observations of subsidence by Dunrud over the Geneva and Somerset Mines indicate that the subsidence effects on the surface occurred within months after mining was completed, and the maximum subsidence was essentially completed within 2 years of the finishing of retreat mining as reported in Chapter V of the Horse Canyon MRP (Part A).

In the 1992 annual subsidence report for the Horse Canyon Mine, UEI reported subsidence features outside of the Horse Canyon permit area, but within the area underlain by workings of both the Book Cliffs Coal Mine and the Geneva Coal Mine. The surface subsidence features were observed in Sections 9, 10, 15 and 16, Township 16 South Range 14 East. Those areas have cover averaging 800 feet but do not exceed 1,000 feet of cover. UEI noted a number of the subsidence features including:

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- Open jointing and fissuring related to cliff face retreat and spalling.
- Swarms of fissures related to extensional ground movements above, or adjacent to, the property-boundary barrier pillar between the Book Cliffs and Geneva Mines. The fissures are generally parallel to sub-parallel to the barrier pillar and are developed primarily along existing regional joint sets. Individual fissures can reach hundreds of feet in length and as much as three feet in width. Vertical displacement on the order of a few inches has been observed at some localities.
- Modifications in vegetation and soil structure were often associated with fissure development. Fallen trees were observed along several fissures and cryptogamic soil communities had been disrupted locally.
- At one or two locations, cool air was felt emanating from the larger fissures.

The 1992 annual subsidence survey showed that the only subsidence related activity noted within the Horse Canyon permit area was cliff spalling that occurred in 1958. Close examination of the outcrop areas and soil covered slopes directly above, and to the north of, the area of cliff failure did not reveal any evidence of mine subsidence features.

Most of the area UEI plans to subside in the Lila Canyon Extension has greater than 1,000 feet of cover. In areas with more than 1,000 feet of cover, no surface subsidence features are anticipated with the exception of ground lowering.

In areas with less than 1,000 feet of cover, subsidence features could include tension cracks, fissures, sinkholes, and ground lowering. In the southwest part of the permit area, the cover drops to less than 500 feet. Parts of Little Park Wash, an ephemeral stream, are located in the shallow cover area.

Should subsidence damage Little Park Wash the most likely subsidence features would be cracks, fissures, or sinkholes. Should Little Park Wash be damaged UEI could most likely make repairs by hand. If equipment is needed, UEI could access most areas by Jeep trails.

Minimize Damage to Non-commercial and Occupied Buildings

No non-commercial or occupied buildings exist within the proposed subsidence zone.

Replacement of Adversely Affected State-Appropriated Water Supplies and Mitigation to Material Damage of Land and Protected Structures

R645-301-525.400 requires that UEI describe how they will replace any State-Appropriated water supplies that may be damaged by mining operations. The Division needs to know what type of alternative water sources are available. Possible sources for water

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replacement include, but are not limited to, piping or trucking water, transferring water rights, sealing surface fractures and the construction of wells. UEI needs to evaluate which methods would be available in the area and when they would use each method.

Repair of Damages

UEI committed to restore surface lands to the extent technologically and economically feasible. While the use of heavy equipment in some areas is not practical, there are alternatives that others have used to reclaim mines in Utah and that have been quite successful. Those methods include manual labor and the use of explosives. The Utah Abandoned Mine Lands (AML) Program has used explosives in wilderness areas to eliminate hazards caused by mining.

Since no structures exist within the subsidence zone, UEI does not have to address how they will repair damage to buildings and other related structures.

Two items of concern to the Division are roads and streams. All dirt roads in the Lila Canyon tract are in areas with over 1,000 feet of cover or where mining will not take place. If subsidence damage should occur to the roads, UEI has committed to repair the damage by regrading the road. Since the roads will be accessible to earthmoving equipment, the Division finds the commitment adequate.

The Division is concerned that subsidence could damage the ephemeral streams located in areas of less than 1,000 feet of cover. Part of Little Park Wash, an ephemeral stream, has less than 1,000 feet of cover. Based on experience in the area, subsidence could cause cracks, fissures, or sinkholes to form. Should those features occur, UEI would most likely be able to repair the damage using hand methods. If hand methods prove to be impractical, UEI could have the option of moving equipment into the area. Jeep trails, which cover most of the area, could be used to move equipment in if necessary.

In Section 727 of the MRP-Part B, UEI stated:

Any State-Appropriated water supply that may be damaged by mining operations will either be repaired or replaced. As soon as practical, after proof of damage by mining in Lila Canyon, of any State-Appropriated water supply, UEI will replace the water. Water replacement may include sealing surface fractures, piping, trucking water, transferring water rights, or construction of wells. The preferable method of replacement will be sealing of surface fractures effecting the water supply. As a last resort UEI will replace the water by transferring water rights or construction of wells.

Rebuttable Presumption of Causation by Subsidence

UEI used an angle of draw of 21.5° in its subsidence calculations. The rebuttable

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presumption of causation for damage within the angle-of-draw, means that if damage to non-commercial buildings or occupied residential dwellings occurs as a result of earthen movement, the assumption exists that the mining caused the damage, unless UEI can prove otherwise. R645-301-525.541 assumes an angle-of-draw of 30° unless UEI can demonstrate that another angle-of-draw is more appropriate. Since there are no non-commercial buildings or occupied residential dwellings in the area of the 30° angle-of-draw, rebuttable presumption does not apply.

Adjustment of Bond Amount for Subsidence Damage

The Division does not bond for subsidence damage that has not yet occurred, except for conditions outlined in R645-301-525.550. The general practice to protect buildings and other structures is for UEI to purchase liability insurance, see R645-301-525.520, R645-301-525.530, and R645-301-830.500. Additional bond will be required, when subsidence-related material damage has occurred to land, structures, or facilities or where contamination, diminution, or interruption to a water supply has occurred.

UEI has 90 days to repair the damage before the Division can require additional bond. The Division may increase the 90-day period up to one year if subsidence is not completed within 90 days.

Performance Standards For Subsidence Control

UEI will comply with all provisions of the approved subsidence control plan.

Notification

UEI is required to notify the water conservancy district, if any, and the owners and all occupants of surface properties and structures above the underground workings. The notification will include the specific areas where mining will occur and the location or locations where UEI's subsidence control plan may be examined.

Findings:

Information provided in the proposed amendment is not adequate to meet the requirements of this section of the R645 Rules. Before approval, UEI must provide the following in accordance with:

R645-301-525.430, In Section 525.120 of the MRP-Part B, UEI stated that the depth of cover ranges from 1,500 feet to approximately 2,000 feet. Plate 5-5 shows that the minimum cover is 500 feet. UEI must clearly state the depth of cover in the subsidence section of the MRP-Part B.

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R645-301-525.440, UEI must submit a subsidence monitoring plan that includes a ground survey for panels no earlier than six months after mining was completed and not later than twelve months after mining was completed.

R645-301-525.130, UEI must demonstrate in the MRP-Part B that all property owners in, and around, the Lila Canyon Extension received copies of the water rights survey.

R645-301-525.110 and R645-301-121.200, UEI must 1) either draw the maximum subsidence boundaries on Plate 5-3 and Plate 5-5 at a constant 21.5 degree angle-of-draw, or state why the angle-of-draw varies, and 2) show in the legends what the different line types represent, particularly the symbols for roads and stream channels.

SLIDES AND OTHER DAMAGE

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

Analysis:

The requirements for slides and other damage consist of two parts. The first part requires that at any time a slide occurs, which may have a potential adverse effect on public, property, health, safety, or the environment, the person who conducts the underground mining activities shall notify the Division by the fastest available means and comply with any remedial measures required by the Division. In Section 515.100 of the MRP-Part B, UEI commits to phone the Division if a slide occurs (Section 515) and inform them of the slide and proposed remedial plan. The Division will then determine the adequacy of the remediation plan. UEI has also committed to report any potential hazards found during impoundment inspections.

The second requirement is that the MRP-Part B will incorporate a description of notification when potential impoundment hazards exist. The requirements for the description are: If any examination or inspection discloses that a potential hazard exists, the person who examined the impoundment will promptly inform the Division of the finding and of the emergency procedures formulated for public protection and remedial action. If UEI cannot formulate or implement adequate procedures, the Division will be notified immediately. The Division will then notify the appropriate agencies that other emergency procedures are required to protect the public. In Section 515.200 of the MRP-Part B, UEI commits to notify the Division of any impoundment hazards they discover during an inspection and the methods that will be used to remedy the situation.

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Findings:

The information provided in the MRP-Part B meet the minimum regulatory requirements for this 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.

Analysis:

DWR, USFWS, and BLM developed a mitigation plan during the EA (UT-070-99-22 July 2000) process (Sections 322.220, 333), to offset impacts to bighorn sheep as well as mule deer, elk, raptors, and chukars. The plan is a habitat enhancement project for about 70 acres of pinyon-juniper woodland, shrubs, forbs, and grasses, as well as to install two guzzlers. The mitigation will benefit both big game and raptors. The Division received comments on the need for cultural resource and TES clearances on mitigation projects. BLM and DWR are the leading agencies and will be responsible for Cultural Resource and TES clearances. The Division did not participate in the mitigation planning. UEI must include additional details of the EA mitigation plan, including implementation dates, project location, and overseeing agency in Section 333 (R645-301-333).

Appendix 3-5 and Chapter 3 narrative presents raptor information. Section 322.220, page 4 describes a protection plan for electrical wire infrastructure. Pages 6 and 10 refer to the overflight surveys from 1998 through 2003. The plan is to have aboveground power lines (Section 322.210) and construct all lines following the guidelines developed by the Environmental Criteria for Electric Transmission Systems of the Division. It states in Section 520 that "Within the disturbed area it is anticipated that a single pole shown on Plate 5-2 will be all that is required. Underground lines will be run where feasible. PacifiCorp will design and construct the power line from the distribution line to the Lila Canyon substation to the surface facility." The Division considers that Plate 5-2 shows the power line by a single dashed line, therefore, has no way of telling the spacing between power lines.

UEI must provide the power pole design plan for the proposed *disturbed site*. Also, provide a drawing for the power pole and line locations. UEI must implement new power pole configuration designed to maintain adequate spacing. The new configuration includes a minimum distance of 60 inches between energized hardware or between phases or between phases and ground wires to provide safe perching for large raptors (eagles). This information will assist the Division in determining whether UEI is proposing the best technology and if the configuration will minimize electrocution hazards to raptors. (R645-301-358.510). It is important to note that West Ridge Mine, developed in the Book Cliffs coalfield in 1998, located

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all power lines underground. The Division suggests UEI do the same best technology currently available (BTCA).

The agencies participating (USFWS, DWR, and BLM) in the EA wildlife mitigation plan decided there is a high probability the eagles will abandon all nests near the proposed surface facilities area because of close proximity to operations (Section 333, page 17). Regardless, UEI commits to conduct first seam mining (pillars remain) to help prevent loss of nests caused by subsidence. UEI also agrees to initiate the EA prey enhancement mitigation plan and to contact the Division to initiate a separate mitigation plan if there are future/unknown nests lost as a result of operations (page 3-10; Section 322.220).

Section 332 (page 13) states: “[UEI] employees and consultants...have numerous years of experience mining the Book Cliffs and Wasatch areas and none have observed nor are aware of any negative impacts on wildlife on vegetation, as a result of subsidence, with the exception of escarpment failure and disruption of surface or ground water”. UEI will help protect escarpments from subsidence with a minimum of 200’ barriers. UEI assesses there should be no effects of subsidence on surface or ground waters because the permit area has only ephemeral flow associated with precipitation events. (page 13). UEI commits to:

- Monitor mined areas in the spring for evidence of subsidence according to the subsidence control plan in Section 525 (page 14).
- Monitor ephemeral stream channels in areas of potential subsidence.
- Monitor vegetation using of infrared aerial photography every five years (this is not mentioned in Section 525, but is in Section 332, page 14).
- Develop a mitigation plan and submit the plan to the Division for approval if mining impacts vegetation and wildlife. Mitigation may include: (these are not mentioned in Section 525, but in Section 332, page 15)
 - a. Enhance habitat by increasing forage productivity in undisturbed areas.
 - b. Provide water sources.

The Division recommends that UEI include or reference the following in the subsidence control plan:

- Vegetation information from Chapter 3 concerning monitoring (page 3-14) and mitigation (page 3-15).
- Spring and seep information from Appendix 7-7.

These changes will help consolidate related agreements and plans currently scattered throughout the plan. These changes will also update the subsidence plan to complement the spring and seep mitigation plan.

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The Division received comments that subsidence could damage snake dens. DWR and BLM wildlife Biologist, in consultation with the Division, determined that loss of snake dens to subsidence will be random and a minor impact to the overall population of snakes. The agencies require no snake-related survey, but UEI must provide additional information on the impacts of subsidence in areas with less than 1000 feet of cover (R645-301-332).

The plan includes to construct a culvert and sediment pond in the southwest portion of the proposed disturbed area. Wildlife uses this drainage as a transportation corridor. It is not obvious to the Division that the mine needs to disturb this drainage when there are islands of undisturbed areas on the pediment within the disturbed area boundary. Regulation R645-301-358 requires minimizing disturbances and adverse impacts. The Division recommended to keep operation activities out of the drainages.

The conveyor from the rock tunnel to the run of mine coal stockpile is elevated to avoid restriction of large mammal movement. The only fence shown on the surface facilities map is along the road, about 1000 feet long. UEI assesses that the fence will not impede large mammal movement up-canyon, but will restrict movement in the drainage to the south.

UEI commits to discharge all suitable water encountered during mining in a manner that it becomes available to wildlife. Ensuring water quality suitability is a requirement of the UPDES discharge permit. The application discusses the possible benefits of water in the sediment pond to wildlife in Chapter 3, page 20.

The Division received comments that UEI's statement "... operational activities at the site will impact the wildlife slightly. But ... most of the wildlife... will either accept or adjust their behavior to coexist with the operation" (page 16; Section 333) is dismissive and unsupported, and does not satisfy the rules. The MRP- Part B now provides observations that support UEI's statement.

The Division received comments concerning the coal haul road and impacts to wildlife. UEI agrees to contact DWR when road kills are reported. UEI will instruct employees to move road kill to the sides of the road (Section 333, page 18). These measures will help reduce road kill of raptors, especially Golden Eagles that are scavenging from the road kill. The Division recommends extending this protective measure to include removing road kill from the permit area to the interstate.

Table 3-2 (page 9) shows 800 acres of sheep habitat. DWR determined that mining operations in Lila Canyon will not impact these sheep.

The MRP- Part B states (Section 322.220, page 9) that the proposed 40.77 disturbed acres is not critical to elk or deer winter range. Plate 3-1 shows that the disturbed area is yearlong habitat for mule deer and Rocky Mountain bighorn sheep.

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- The plan includes to annually train mine employees on environmental awareness (Section 333, pages 17-21).

Endangered and Threatened Species

As required above, UEI must follow the recommendation of UEI Consultant, Mr. Coonrod, (1999) to monitor and minimize impact to canyon sweetvetch and survey Cliff's blazing star and creutzfeldt-flower at least the year construction begins or one year prior to construction. If the results are positive for these species, UEI must immediately submit a protection/mitigation plan to go into Chapter 3 Section 333.

The MRP- Part B states that the "Applicant does not plan to monitor any wildlife species during the life of the operation with the exception of raptors" (page 19; Section 333.200). The Division requires UEI to include a separate commitment, in the MRP - Part B narrative, to survey Mexican spotted owl according to USFWS (see R645-301-322.100, R645-301-322.200 for deficiency). UEI must provide the Division with information from the MSO calling surveys. This requirement will help design a protection/mitigation plan if the results are positive for MSO (R645-301-333; see Environmental Resource – Fish and Wildlife section for deficiency).

The Fish and Wildlife Service commented in a letter dated April 14, 1999 (Appendix 3-3), that there should be an evaluation of effects on the Colorado pikeminnow (squawfish) on a water discharge line to the Price River. This discharge line was apparently proposed early in the planning process for the mine, but it is no longer being planned.

UEI calculated the estimated amount of water consumed by the mine. UEI provided the mass balance equation-parameters and total expected water loss from mining operations. The amount of water loss expected from ventilation-related evaporation is 3.63 acre-feet and from coal are 55.2 acre-feet. These losses total 62.71 acre-feet, annually. This volume of water is below the 100-acre foot threshold that requires mitigation (USFWS). UEI still needs to include the volume of water consumed for dust suppression, even though the total consumption value may not change drastically. There is also an incorrect value for coal moisture. (R645-301-333) Whether mitigation is necessary for the Colorado River TE fish will be decided when the issues are resolved. Furthermore, final decision will come from after consultation with USFWS (Biological Opinion) that the Division initiates through OSM.

The Division received comments that UEI has not assessed the potential impact of mine water discharge increasing salinity by running over the Mancos Shale before it drains to the Price River. Increasing salinity is in conflict with the Colorado River Basin Salinity Control Program and potentially could affect the Colorado River endangered fish. The Division contacted the USFWS and they stated salinity is not a concern to the fish, however, selenium is a concern.

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In response to the deficiency, UEI commented that if modeling shows mine discharge to reach the Price River, the operator will commit to monitoring at the point of discharge. The modeling (Appendix 7-9) showed mine discharge will not reach the Colorado River.

The Division contacted the Bureau of Reclamation (BOR) concerning the mine water discharge and the Colorado River Basin Salinity Control Program. The BOR has no regulatory requirement for salinity control. However, if the mine discharges and contributes to salinity, then BOR would be interested in working with the mine to reduce the output. Working with the mine could include the BOR paying to pipe the water to the Price River. The BOR also stated that since the BLM has salinity mandates, they should be the agency that addresses this issue.

The USFWS did not identify the southwestern willow flycatcher as a species that may occur in the area of influence. The Division received comments to address this species because of the influence of mining on Range Creek. UEI addresses the possible impacts of mining operations on Range Creek and the willow flycatcher. The Biology and Hydrology sections of the MRP - Part B describe the vegetation and geological constraints for potential habitat for or mining impacts to this species or Range Creek. (Sections 322.210 pages 5, 8; 724.200 page 23; Appendix 7-3 PHC).

Bald and Golden Eagles

Five Golden eagle nests are within the 0.5 mile (2640') buffer zone for the surface facility area. Plate 5-3 shows raptor nests and the subsidence angle of draw. The Division requests relocation of maps showing nest locations to a Confidential folder. Two golden eagle nests are within the subsidence angle of draw. UEI and collaborating agencies concluded that there is a high probability that the eagles will abandon these nests because of proximity to operations. The EA mitigation plan for 70 acres of habitat improvement described above was developed, in part, for the loss of these nests.

UEI commits to conduct raptor surveys at a minimum of a one-mile radius around any new activity (Section 333.200, page 19). These surveys will help ensure that raptors, nests or young are not adversely affected through any mining or mine-related activity i.e., aside from the predicted two golden eagle nests (Section 358.200). UEI established a one-half mile buffer zone of no disturbance during critical nesting periods for raptors. This buffer zone is adequate to protect eggs and chicks from abandonment. If any nests are active when UEI begins construction, it may be necessary to delay construction until the nesting season ends. Additionally, UEI agrees to contact the Division to initiate a separate mitigation plan if there are future nests lost as a result of operations.

Wetlands and Habitats of Unusually High Value for Fish and Wildlife

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A standard stipulation on federal coal leases is that the lessees monitor the effects of underground mining on vegetation. The MRP - Part B includes a plan to monitor vegetation with color infrared photography every five years. This commitment is consistent with Division requirements for other mines and is acceptable.

According to the MRP - Part B, there are no wetlands, riparian areas, or perennial drainages within the proposed permit area. There are greater numbers of observations of springs in the NW, NE, and SE corners of the permit area than other areas in the permit area (Plate 7-1A). The monitoring locations near these areas are L11G, L7G, L9G, and L12G. The habitat description for monitoring stations L9G and L12G are "minor wet meadows". The seep in the Stinky Springs Wash, which is associated with monitoring point L17G, is very important to Big Horn Sheep. At this time, it does not appear that many of the springs are within the 21.5-degree angle of draw (Plate 5-3, Plate 7-1A, DOGM generated map). The Division, however, is concerned about the subsidence zone established by UEI (see the related deficiency in Engineering). The Division reserves final decision on the springs within the angle of draw until UEI addresses related deficiencies.

Appendix 7-7 describes community types near the water monitoring sites (basically referencing Plate 3-2), provides a landscape picture for each of the sites, and briefly describes a repair plan for subsidence of springs and drainages. UEI assesses that it is unlikely that subsidence will negatively impact springs, seeps, and drainages, but commits to regrade and fill subsidence-related cracks, fissures, or sinkholes. Although these techniques may be the best repair methods at this time, technology rapidly changes. UEI may include the listed repair techniques, but must also state to use the best available techniques available at the time of repair. The plan must also include the possibility for the need to seed the repaired area and that UEI will notify the Division prior to any repair of seeps, springs, or drainages (R645-301-332).

Findings:

The Division considers information in the MRP - Part B inadequate to meet the minimum Fish and Wildlife Information requirements of the R645 Rules. Prior to approval, UEI must provide the following in accordance with:

R645-301-333, UEI must include additional details of the EA mitigation plan, including implementation dates, project location, and overseeing agency.

R645-301-358.510, UEI must submit the power pole design plan for the proposed disturbed site for inclusion in the MRP - Part B.

R645-301-332, UEI must provide additional information on the impacts of subsidence to snakes in areas with less than 1000 feet of cover in the MRP - Part B.

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R645-301-332, UEI provides a brief plan for repairing subsidence cracks near springs, seeps, and drainages. UEI should include repair techniques, but must also state to use the best available techniques available at the time of repair. The plan must also include the possibility for the need to seed the repaired area and that UEI will notify the Division prior to any repair of seeps, springs, or drainages.

R645-301-333, UEI provided the mass balance equation-parameters and total expected water loss from mining operations. UEI must also include the volume of water consumed for dust suppression, even though the total consumption value may not change drastically. An incorrect value for coal moisture must also be corrected.

TOPSOIL AND SUBSOIL

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

Analysis:

UEI outlined a disturbed area boundary on Plate 5-2 and has shaded undisturbed areas within those areas on Plate 5-2, however the legend misidentifies this shaded area as "disturbed". The entire disturbed area will be bonded (Section 521.163), topsoil will be removed from only 25.30 acres (Available Soil Resources Table Section 232.100) to develop the surface facilities described in Section 542.200. The disturbed area boundary will encompass 42.6 acres (Section 116.100, Section 542.200, Appendix 5-8). The MRP-MRP - PART B mistakenly indicates a disturbed area of 40.77 acres in Section 411.110. The MRP-MRP - PART B must consistently state the proposed disturbed acreage in each section. The Available Soil Resources Table (Section 232.100) indicates that there are potentially 48.23 acres of surface disturbance. This table was taken from the soil survey and does not accurately reflect UEI's intention to include 42.6 acres of disturbance within the disturbed area boundary.

Since Regulation R645-301-232.100 requires topsoil removal from all disturbed areas. The MRP-MRP - PART B describes islands of undisturbed land (17.3 acres) within the disturbed area. These islands of undisturbed ground will be signed (Section 231.100) and protected by a 20 ft buffer zone (Section 234.220). In places, the islands will be protected with rock barriers (Plate 5-2). This is an excellent means of protecting the undisturbed islands from vehicle traffic and the Division would like UEI to expand its use. The Division has made additional recommendations to protect these lands from incidental coal fine deposition under the Surface Facilities heading of this TA.

For the purposes of removal, the MRP-MRP - PART B defines topsoil as all soil from the surface down to eighteen inches (Section 231.100). Plate 2-3 Soil Salvage and Replacement provides guidance for the topsoil removal. Plate 2-3 shows removal of eighteen inches of topsoil

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from the central and northwest portion of the disturbed area with twelve to eight inches being removed from the roadway and twelve to eighteen inches removed from the sediment pond location and eight to eighteen inches removed from beneath the coal stockpile and coal storage bin.

Soils will be removed from all disturbed areas including stony areas to a depth of eighteen inches or to shale (Sections 232.100 and 232.300) with the following exceptions:

- The steep rocky slopes within the disturbed area below and between the conveyor and coal storage pile (Section 232.710).
- The two bents to be constructed for the conveyor.
- The area of topsoil storage (topsoil will be removed from the access road to and around the topsoil pile, but not from beneath the topsoil pile, Section 232.100).
- The slope between the coal pile road and the portal access road (Plates 2-3 and 5-2). [No disturbance is anticipated for this slope, consequently, UEI will evaluate the condition of the slope after road construction and label the slope either disturbed or undisturbed, as appropriate, on an As Built site map.]

UEI will install an enclosed conveyor (Section 232.710) in an attempt to keep the native soils (beneath the conveyor and in undisturbed islands) free of coal accumulations. Installation of jersey barriers will protect the slope from encroachment by the coal stockpile. A commitment to vacuum on either side of the conveyor a distance of twenty feet has been included in the event that coal fines are blown from the stockpile (Section 232.710). Vacuuming has been found to be very disruptive to undisturbed soils and is in itself a disturbance. UEI is encouraged to closely monitor the undisturbed soils for coal fine deposition, see discussion under Support Facilities in this TA.

Soils to be salvaged are estimated to be 50,236 bank CY or 59,278 loose CY (Table of Available Soil Resources in Section 232.100). The table divides salvageable soil by map unit type. Soils will be removed from the 25.3 acres to be disturbed with a crawler-tractor, grader, front-end loader, and/or trackhoe.

To protect the soil resource, UEI has committed to handling the soils at an optimum moisture content, when the soils are loose and friable (Section 231.100), adding moisture or allowing the soils to dry as needed.

UEI commits in Sections 231.100 and 232.100 to employ a qualified soils specialist to oversee the soil salvage, construction of subsoil storage site, and reclamation of the site. UEI further commits in Section 232.500 to maintain records of materials removed and placement of materials either in the topsoil storage pile or in the fill. Soil pedestals will be left to verify soil removal depths (Section 232.500). Further, the MRP-MRP - PART B provides a commitment to

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develop As-Built maps showing where subsoil materials have been used as fill material (Section 232.500).

The Division received comments on the need for soil-borrow areas. Topsoil will be recovered from all disturbed areas (from a minimum depth of 6 inches from RBT soil up to 18 inches from VBJ, SBG and DSH soils). The total recovery of topsoil is estimated at 50,236 bank cubic yards. On the average, this represents a replacement depth of 15 inches over the proposed 25 disturbed acres. Furthermore, the Order 1 Soil Survey that suggests subsoils are also suitable for plant growth down to a depth of 48 inches (Appendix 2-3). These subsoils will be placed where they can be recovered and utilized to increase the rooting depth at reclamation. There is no need to develop a soil borrow area.

Storage of the approximately 59,000 loose cubic yards of topsoil will be in a stockpile (Section 232.100 Available Soil Resources Table) with the approximate dimensions 26 ft high X 246 ft long X 146 ft wide (Section 232.100), with 2h:1v side slopes. Plate 5-2 and Plate 2-4 show the location of the topsoil stockpile. Cross-sections 4+00 and 6+00 on Plate 5-7A-2 show the proposed stockpile. The Mass Balance Table 1 of Appendix 5-4 calculates from these cross-sections that there will be approximately 14,000 CY of soil in the stockpile. A clarification of this apparent discrepancy is requested.

The topsoil stockpile is located on Plate 5-2 and Plate 5-7, among others. Topsoil stockpile will be an Alternate Sediment Control Area (ASCA) protected from upstream flow by drainage ditches (design shown in Appendix 7-4). The stockpile will be loosely piled with a rough, irregular, pitted surface retain moisture and reduce erosion (Sections 231.100 and 231.400). The Division notes that this practice is described in the Practical Guide to Reclamation (DOG M, 2000), available at <http://dogm.nr.state.ut.us>.

The topsoil will be retained in place with the use of berm/ditches or silt fences surrounding the pile. The stockpile will be mulched and seeded in the fall (after September 15) using the mix in Table 3-4 (Section 231.400). Table 3-4 is a mix of native grasses, forbs and shrubs. Species in the mix should control erosion yet maintain the natural beauty of the landscape. Section 231.100 and Section 231.400 must indicate that if seeding does not immediately follow topsoil pile construction, the pile will be roughened again immediately prior to seeding.

The surface layer of soil is valuable, for it contains seeds, cryptogam filaments, other microorganisms, organic matter, elevated levels of nitrogen and phosphorus. UEI has committed to gathering a single five gallon bucket of cryptogamic soil separately from the remainder of the topsoil salvage (Section 232.100). (As discussed below, this is not enough material to provide adequate inoculum.) UEI proposes to try to establish cryptogams on the topsoil stockpile by adding two ounces of crushed and sieved surface soil containing cryptogam colonies to each load of wood fiber mulch hydrosprayed on the surface of the gouged topsoil pile (Section 234.230).

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The biologic soil crusts established on the topsoil pile could be later harvested for inoculation of the reclaimed site.

The Division previously recommended that the topsoil pile receive an initial irrigation after the 2 – 4 inch surface layer is applied, to ensure good contact, based upon the MRP- Part B: Jayne Belnap, "Cryptobiotic Soil Crusts: Basis for Arid Land Restoration (Utah)," Restoration and Management Notes 12:1 Summer 1994. UEI has declined to irrigate. Since the research on this issue is limited, the Division will not press the issue, unless further evidence of the benefits of irrigation in establishing transplanted cryptogam filaments becomes known.

The procedure that UEI has outlined for distribution of cryptogam filaments during final reclamation might be the best way of establishing the cryptogams on the topsoil pile. However, the percentage of cryptogamic soil to be added to the hydromulch should probably be on the order of 1% by volume. The area of the proposed topsoil stockpile is 246 ft X 146 ft with 2:1 side slopes or about one acre. Approximately 4,000 gallons of hydromulch spray are required for one acre, therefore eight, 5 gallon buckets of screened cryptogamic soil (through a ¼ inch sieve) should be added to the tank to create a 1% concentration (conversation between Priscilla Burton and Bill Lee, Skyline Reclamation, on May 27, 2004).

Storage of topsoil from the topsoil access road will be in berms around the topsoil stockpile (Section 232.100). Storage of topsoil from the fan portal will be in a berm around the fan disturbance (Section 234.100). Plate 5-2 shows the location of the topsoil berm at the fan site. To avoid contamination with rock dust, the berm will not extend in front of the fan. The bermed fan portal soil will be protected with a silt fence and vegetated (Section 234.100).

Subsoils

The recommendation for soil salvage of between six and 48 inches of topsoil and subsoil from the disturbed area is based upon the Order 1 Soil Survey (Appendix 2-3 and Section 232.500).

The MRP-MRP - PART B states that subsoil from 12 – 30 inches from cut areas will be used as fill material during operations (Section 232.500). Subsoil will also be used as cover over the waste rock disposed of in the refuse area (pages 2-3, Appendix 5-7). Section 232.700 specifies the subsoil recovery for soil types SBG, DSH, and VBJ, based upon recommendations found in Part 3.4 of Appendix 2-3 Soil Inventory. The Division understands that the recovery depth in inches is the depth of salvageable subsoil remaining after topsoil removal. Thus, for SBG soil the 30 inch removal thickness would come from between 18 inches and 48 inches in the profile.

The Division received comments that a subsoil stockpile should be required. An average recovery depth of 15 inches from the site will provide an adequate supply of topsoil for final

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reclamation. In addition the location of subsoil with suitable reclamation characteristics will be mapped for ease of recovery and replacement during reclamation (Section 232.500, Section 241, Section 242.100). These subsoils will be used as fill underneath parking areas, roads, buildings, and storage sites. These subsoils will be protected during operations by asphalt, concrete, or gravel over an impervious membrane (Section 232.500). The MRP- Part B indicates that upon reclamation, subsoils found to be contaminated with oil, grease or salts through visual evaluation will be hauled to a landfill site.

Findings:

The proposal does not meet the requirements of the R645 Rules. UEI must provide the following, prior to approval and in accordance with:

R645-301-234.230, UEI must clarify that the percentage of cryptogamic soil to be added to the hydromulch should be on the order of 1% by volume, rather than 2 ounces as stated in Section 234.230.

R645-301-121.200, • The disturbed acreage of 42.6 acres must be consistently stated in the MRP- Part B. For Example, Section 411.110 indicates 40.77 acres and the Available Soil Resources Table Section 232.100 suggests a potential disturbance of 48.23 acres. • Correctly label the legend of Plate 5-2 to indicate the undisturbed areas within the disturbed area.

R645-301-234.230, Section 231.100 and Section 231.400 must indicate that if seeding does not immediately follow topsoil pile construction, the pile will be roughened again immediately prior to seeding.

R645-301-232.100, • The plan should indicate that the condition of the slope between the coal pile road and the portal access road (shown on Plates 2-3 and 5-2) must be evaluated after road construction and must be labeled either disturbed or undisturbed, as appropriate, on an As-Built site map. • The vacuuming procedure described in Section 232.710 should be removed from the narrative. 3) UEI must gather enough cryptogamic soil prior to topsoil salvage to have a minimum of 1% by volume to add to the hydrospray of the topsoil stockpile. 4) The concept of rock barriers and incidental rock distribution along the boundaries of undisturbed ground (illustrated on Plate 5-2) should be expanded to provide protection for all undisturbed areas within the permit area.

R645-301-234.100, UEI must clarify the apparent discrepancy between the projections in the Mass Balance Table 1 of Appendix 5-4 that indicate approximately 14,000 CY of fill in the topsoil stockpile between cross-sections 4+00 and 6+00, and

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estimates in Section 232.100 Available So ils Resources Table that project the salvage of 59,000 CY of topsoil.

VEGETATION

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

Analysis:

UEI plans to revegetate with an interim seed mix on all incidental disturbances. Tables 3.4/3.5 and state the interim and final seed mix. The mixture contains a high proportion of Blue flax, an aggressive self-seeding native species.

Section 331 refers to the revegetation plan in Section 340 for further information about revegetation methods. The Reve getation section in the Reclam ation Plan details the plan.

Findings:

Information in the MRP-MRP - PART B meets the requirements of the Vegetation section of the Operation Plan.

ROAD SYSTEMS AND OTHER TR ANSPORTATION 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

Plate 5-2 shows the location of all roads that UEI will use for coal mining and reclamation activities within the disturbed Lila Canyon area. The roads within the disturbed area boundary include the Mine Facilities Road, and the Portal Access Road. The Division classifies all of the roads in the disturbed area as primary roads. The Division classified the roads as primary roads because UEI will use the roads to transport coal and/or they will be used frequently for more than six months.

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Plans and Drawings

R o a d s

UEI submitted plans and drawings for each road that they will construct in the disturbed area. :

Main Facilities Road

- A registered professional engineer certified all maps, cross sections, and profiles.
- UEI showed all culverts and ditches on Plate 5-2, Surface Area, and on the cross sections in Appendix 5-4.
- UEI showed the flow path for all ditches and culverts on Plate 7-5.
- UEI showed ditches on each cross section in Appendix 5-4.

Portal Access Road

- A registered professional engineer certified all maps, cross sections, and profiles.
- UEI noted the location of each cross section on a plat map.
- UEI showed the flow path for all ditches and culverts on Plate 7-5.
- UEI showed ditches on each cross section in Appendix 5-4.

Measures to be Taken to Obtain Division Approval for Alteration or Relocation of Natural Drainage

UEI does not propose to alter or relocate any natural drainage. UEI does propose to construct the Main Facility Road within 20 feet of the Right Fork of Lila Wash. Because of the close location of this road to the drainage, the Division will require UEI to supply detailed drawings and cross-sections that show how UEI will protect the undisturbed drainage.

Location of Roads in Intermittent or Perennial Streams

UEI does not propose to locate a road in the channel of an intermittent or perennial stream, locate a temporary ford in the channel of an intermittent or perennial stream, or install a low-water crossing of a perennial or intermittent stream channel.

Drawings and Specifications for each Low-Water Crossing of Perennial or Intermittent Stream Channels so that The Division Can Maximize the Protection of the Stream

UEI plans no low-water crossings.

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Plans to Remove and Reclaim Each Road that would not be Retained Under an Approved Postmining Land Use, and the Schedule for this Removal and Reclamation.

In Section 542.600 UEI states:

A small portion of the county road (in the vicinity of the sediment pond culvert) will be left after final reclamation. The county road will provide for access for ranchers, and recreationalists conforming with the post mine land use of wildlife, grazing, and incidental recreation. There will be no roads left within the disturbed area after final reclamation. UEI will reclaim all roads upon cessation of mining.

The statement contradicts other statements that the County Road is outside of the disturbed areas and that therefore, UEI has no jurisdiction over the road. See Plate 5-2.

Performance Standards

UEI ensured that each road met the performance standards outlined above in the Minimum Regulatory Requirements for Road Systems and Other Transportation Facilities.

In meeting regulatory requirements, UEI provided the following information:

- Appendix 5-5 contains information about slope stability for the roads. UEI states that they performed a slope stability analysis for the worst-case scenario for the embankments and cut slopes. UEI showed the location of the cut slope and embankment that they analyzed and explain why those cross sections represent the worst-case scenario.
- UEI showed the ditches and drainage system for each road. In addition UEI showed how they will prevent or minimize erosion
- Primary roads have been located in the pad area. UEI designed the pad area to minimize erosion, insofar as is practicable. In addition, the roads are located on stable surfaces.
- UEI does not propose to have any temporary roads in perennial or intermittent streams.
- The primary roads will have adequate drainage controls.
- The road base shown for the primary roads in Appendix 5-4 will be 8-inch road base gravel. Other mines have used that type of material and the Division considers it adequate.

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Primary Road Certification

The road plans and cross-sections are located in Appendix 5-5 and on Plate 5-2. A registered professional engineer must certify the plans.

A qualified registered professional engineer certified the actual construction or reconstruction of primary roads in a report to the Division. UEI provided those reports, called as-builts, to the Division upon completion of the road.

Other Transportation Facilities

In Section 520 of the MRP-MRP - PART B and on Plate 5-4, UEI describes and shows the conveyors they will use at the Lila Canyon facility. The main conveyor will transport coal to the surface. The main conveyor belt is 60 inches wide, extends 320 feet from the portal, and has a belt speed of 700 feet per minute. Since UEI plans to leave the ground beneath the conveyor as undisturbed, due to the steepness and remoteness of the area, UEI will totally enclose the conveyor.

The coal will move from the main conveyor to the stacking tube. From there, the coal will feed into a reclaim tunnel and load onto the reclaim tunnel conveyor (48 inches wide and 280 feet long, covered where above ground). Next, the coal will go to the crusher.

From the crusher the loadout conveyor will transport the coal to the loadout bin. The loadout conveyor is 48 inches wide, 210 feet long and has a belt speed of 500 feet per minute. UEI will cover the above ground portion of the conveyor.

From the loadout bin, the truck conveyor will transport the coal to trucks for over-the-road transport. The truck conveyor is 48 inches wide, 50 feet long and UEI continues to cover all above ground sections.

Findings:

Information provided in the MRP-MRP - PART B is not adequate to meet the requirements of this section of the regulations. Before approval, UEI must provide the following in accordance with:

R645-301-534.140, UEI must clarify the remarks in Section 542.600 that references part of the Emery County Road being left after final reclamation. The Emery County Road is outside of the disturbed/permit area and UEI has no jurisdiction over the road.

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R645-301-527.210, R645-301-527.220 and R645-301-527.230, UEI must submit detailed maps and cross-sections that show how the South Fork of the Lila Wash will be protected from mining activities, especially from the Main Facility Road, which is located 20 feet from the drainage.

R645-301-527.200 and R645-301-527.210, UEI must show 1) The location of each culvert and ditch on Plate 5-2, 2) Show the flow path for all culverts and ditches on Plate 7-5, and 3) Show each ditch on the cross-sections in Appendix 5-4.

R645-301-512.250, UEI must have all the plans, maps, cross sections, and profiles for each primary road certified by a registered professional engineer.

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

Noncoal waste can be classified as non-hazardous or hazardous and includes recyclable materials, asphalt and concrete. Non-hazardous waste consists of garbage that UEI will dispose of by placing in dumpsters. UEI will have the non-hazardous waste shipped to a state licensed disposal site, most likely East Carbon Development Corporation (ECDC.) UEI will send hazardous waste, as defined by Resource Conservation and Recovery Act (RCRA), to a state licensed disposal site - most likely ECDC. See Section 528.330 of the MRP-MRP - PART B for more details about hazardous waste disposal.

The Division will allow UEI to dispose of concrete debris on site. The on-site disposal of concrete will be done by placing the concrete in areas that will be backfilled and graded, as shown on Plate 5-6.

The MRP-Part B indicates in Section 542.640 that a minimum of two feet of cover will be placed over sand and gravel road surfacing materials and asphalt will be disposed off-site. Concrete will be buried by four feet of cover.

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Coal Mine Waste

Appendix 5.7 describes 25,000 loose cubic yards of underground development waste generated from portal development. Additional refuse will come from the operation of the screening plant and the mine itself. Appendix 5.7 indicates that there is room at the refuse disposal facility for storage of an additional 19,500 cu yards of mine waste.

In Section 528.320 of the MRP-Part B, UEI states that coal mine waste will consist of coal processing waste, and underground development waste. The underground development waste consists of three subcategories: rock slope material, underground development waste that contains coal, and reject material from the coal crushing operation. The location of the coal mine waste storage facilities (refuse pile) is shown on many maps and cross sections including: Map 5-2, Surface Area; Figure 1, Appendix 5-7; and Figure 2, Appendix 5-7. The location of the coal mine waste is cross-hatched on the cross-sections and labeled.

UEI will construct the coal mine waste disposal site (refuse pile) as follows:

- Ground Preparation: UEI will remove vegetation and topsoil from the site and store it in the designated topsoil piles. Next, they will remove the subsoil and fill the site with coal mine waste. UEI will divide the refuse pile into two sections, the first one will be used for rock slope material, and the second section will be used for underground coal mine waste and reject material from the crusher.
- Placement of Coal mine Waste (Refuse): UEI states in Appendix 5-7 that coal mine waste will be placed into the cells. UEI will construct the section of the refuse pile that contains only structural fill by placing the material in the cell, compacting it and then covering the area with four feet of non acid-, non toxic-forming material.
- Coal Processing Waste Testing: UEI will test the material from the rock slopes during the initial startup, at the 1/4, 1/2 and 3/4 marks, and at the end of the project. Material from the crusher or coal sections of the mine will be tested every 6,000 tons.
- Spreading and Compaction: UEI states that compaction will take place using a wheeled loader during the filling operation. They will place the material in lifts with a maximum thickness of 12 inches.
- Drainage: UEI will grade the subsoil to allow proper drainage and to prevent the impoundment of water.

The main design criterion for coal mine waste disposal areas are as follows:

The coal mine waste must be disposed of in a way that minimizes the adverse effects of leachate and surface-water runoff on surface and ground water quality and quantity. UEI will most likely not encounter significant amounts of acid or toxic-forming material. If UEI does encounter significant amounts of acid or toxic-forming materials, the 4 feet of material placed

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over the coal mine waste will limit any leachate from coming in contact with surface water. There are no water resources underneath the coal mine waste. Therefore, groundwater resources will not be damaged from leachate from the coal mine waste disposal site.

UEI must construct the coal mine waste disposal facility (refuse pile) to ensure mass stability and prevent mass movement during and after construction. The coal mine waste disposal facility has a static safety factor of 16.19. The minimum required static safety factor is 1.5. UEI based the stability calculations on cross section 8+00 (Figures 1 and 2, Appendix 5-7).

After final grading, UEI will cover the coal mine waste disposal area (refuse pile) with 4 feet of non acid-, non toxic-forming material. The four-foot cover will be adequate to protect vegetation from any acid or toxic materials.

The coal mine waste storage facility will be located within the disturbed area of the Lila Canyon Extension. Access to the site will be restricted to mine personnel during normal mining operations. In the event of the mine going into temporary cessation, the four feet of cover and cell construction methods will protect the public from hazards associated with the site.

UEI does not anticipate that any coal mine waste will be disposed of outside the permit area, nor do they anticipate placing coal mine waste from another operation in the Horse Canyon Permit area. If the need arises, UEI must modify the MRP.

A registered professional engineer (P.E.) designed the coal mine waste disposal facility. The Division will require P.E. certified as-built drawings when UEI finishes construction of the site.

UEI has committed to notify the Division in the event of a potential hazard at the coal mine waste disposal site. See the section on slides and other damage in this TA for details on how UEI will handle emergencies.

In Appendix 5-7, UEI estimates that there will be 25,000 loose cubic yards of underground development waste generated from portal construction. UEI expects an insignificant amount of additional refuse to come from the operation of the screening plant and the mine itself. Appendix 5-7 indicates that there is room at the refuse disposal facility for storage of an additional 19,500 cubic yards of mine waste.

Refuse Piles

The R645 RULES definition of terms are found in R645-100-200 as follows:

- A refuse pile is a surface deposit of coal mine waste that does not impound water.

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- Coal mine waste means coal processing waste and underground development waste.
- Coal processing waste means earth materials that are separated from the product coal during cleaning, concentrating, or the processing or preparation of coal.
- Underground development waste means waste-rock mixtures of coal, shale, claystone, siltstone, sandstone, limestone, or related materials that are excavated, moved, and disposed of from underground workings in connection with underground coal mining and reclamation activities.

Coal processing waste will be limited to materials from the crusher. UEI will not dispose of material separated from the coal during the crushing process underground. The coal processing waste will be disposed of in the refuse pile shown on Plate 5-2 and described in Appendix 5-7.

UEI plans to generate 16,650 bank cubic yards of material during the construction of the rock slopes that lead from the surface facilities area to the coal seam. UEI assumes that the loose material will take up 1.3 times the in-place volume. Therefore, a disposal site with the capacity for approximately 25,000 cubic yards of coal mine waste is necessary. Because the material from the rock slopes is not expected to contain coal or acid- or toxic- forming materials, UEI proposes to use the 25,000 cubic yards of material for structural fill.

UEI will not use refuse material from the crushing process or from material taken from within the section of the mine that has coal as structural fill. To distinguish the two types of refuse, UEI refers to one as rock slope material. See Section 536.300 in the MRP- Part B for details.

The R645 RULES do not have any specific requirements for the use of refuse as structural fill. The rules do specifically state that refuse can be used for structural backfill in underground mines (R645-301-536.700) and to construct dams and embankments (R645-301-536.800.) R645 RULES (R645-301-536.900) also state that refuse piles must meet the requirements of 30 CFR 77.214 and 30 CFR 77.215:

UEI shows the location of the refuse pile on Plate 5-2. UEI labeled the material from the rock slopes that they will use for structural fill, and marked it differently than the coal processing waste. In Appendix 5-7, UEI states that they will place 25,000 cubic yards of rock slope material in the refuse pile as structural fill and that up to 19,473 cubic yards of coal processing waste can be disposed of in the refuse pile. Section 520 (Refuse Piles) gives the refuse- pile capacity as 44,400 cubic yards.

UEI needs to list the amounts of rock slope material and coal processing waste material separately in Table 1, Appendix 5- 7. Note that all structural fill will be placed between cross sections 4+00 and 8+00 on Figure 1 Appendix 5-7.

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Appendix 5-7 contains detailed information on the construction of the refuse pile/coal mine waste disposal facility. Figure 1, Appendix 5-7 shows the location of the refuse pile and the division between the rock slope material and coal waste in plan view. The profiles show the pre-mining, operational, and reclaimed stages of the refuse pile. Figure 2, Appendix 5-7 shows the cross-sections for the refuse pile.

The profiles and cross-sections show how UEI will construct the refuse pile. UEI will salvage the top 18 inches of pre-disturbed ground as topsoil, then remove the subsoil.

Figure 1, Appendix 5-7, UEI shows that they will place coal mine waste in the refuse pile. However, on Figure 2, Appendix 5-7, UEI shows that they will place slope rock material in the entire refuse pile. Because UEI will handle the rock slope material differently than the material with coal, UEI must distinguish between the two types of materials in the cross-sections and profiles.

Figure 2, Appendix 5-7, UEI shows that they will cover the slope rock (coal mine waste) with 18 inches of topsoil and 30 inches of fill material, totaling 48 inches of cover.

Section 528.320 distinguishes the coal-free coal mine waste, which UEI will use as structural fill, from the material that will go into an apparently separate refuse pile. However, the MRP-MRP - PART B makes it clear that these two areas are adjacent and adjoining and will be treated as one area or structure, especially during reclamation.

Figure 1, Appendix 5-7 shows that UEI will divide the refuse pile into two sections. The western section will be rock slope material, used to create a structural fill. The eastern section has the capacity for 19,437 cubic yards of coal mine waste (see Appendix 5-7).

UEI outlines the testing of coal mine waste in Appendix 5-7. UEI will test all rock slope material five times. UEI will only use rock slope material as structural fill. The testing will take place during the initial start up, at the ¼ mark, the ½ mark, the ¾ mark, and near completion. UEI will test other coal mine waste, generated during operations from the crusher and underground development, containing coal every 6,000 cubic yards.

UEI will treat and dispose of all coal mine waste as if the material were acid- or toxic-forming. All coal mine waste will be disposed of under four feet of material.

Impounding Structures

UEI will not construct any impoundments from coal mine waste. The only impoundment structure at the Lila Canyon site is the incised sediment pond.

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Burning And Burned Waste Utilization

Appendix 5-3, Coal Mine Waste Fire Extinguishing Plan, calls for smothering potential fires with borrowed soil material. The source of the borrowed soil is not determined, but implies an off-site source. On-site subsoils are already committed for use as final reclamation cover over the mine waste. On-site subsoil cover may not be used for fire suppression.

Return of Coal Processing Waste to Abandoned Underground Workings

UEI does not propose to dispose of coal mine waste underground

Excess Spoil:

UEI does not anticipate the generation of any excess spoil.

Findings:

The information provided meets the minimum acceptable requirements of the Spoil and Waste 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, -300-148, -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**

Three of the seven volumes, Volume 5 of 7, 6 of 7 and 7 of 7 were used in the evaluation of surface water sources, monitoring and potential impacts to those sources as a result of mining. In its review, the Division found that the Permittee has addressed several issues, however, they still need to clarify some information.

The Permittee based the ground-water and surface-water monitoring plans on the PHC determination and the analysis of baseline hydrologic, geologic, and other information in the proposed amendment (Section 731.221, page 44). Surface- and ground-water monitoring sites will be monitored quarterly. Water samples from seeps, springs, and streams will be analyzed for the parameters listed in Tables 7-4 and 7-5, which match the operational parameters in the

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Division's Directive Tech 004. Monitoring reports will be submitted to the Division at least every three months, within 30 days following the end of each quarter (Section 731.220, page 43).

The MRP –Part B includes a commitment to analyze ground- and surface-water samples for baseline parameters preceding each 5-year permit renewal. These permit-renewal baseline analyses will be done for the surface-water samples collected at either high or low flow and for the spring samples collected at low flow during that year (Section 731.200, page 37).

The Permittee's water-monitoring plan is intended to provide data to show impacts to potentially affected springs, seeps, impoundments and drainages within and adjacent to the permit area by comparison with relevant baseline data and with applicable effluent limitations. The Permittee selected monitoring locations and frequencies, described in Table 7-3, so that significant springs, seeps, impoundments and drainages that could potentially be impacted by the mining and reclamation operations will be monitored on a regular basis (Section 731.222, page 45).

Groundwater Monitoring

Section 731.211 discusses the ground-water monitoring plan. It makes reference to water rights on several of the springs to be monitored. Section 731.212 states that when analyses of ground water indicate non-compliance with permit conditions, the operator will promptly notify the Division and take the actions provided for in R645-300-145 and R645-301-731. No springs or seeps are located within the disturbed area or near the proposed surface facilities (Section 724.100, page 8).

The Division received comments that the number of seeps and springs being monitored is not sufficient, most of them are outside the permit area, and one spring in the permit area is not sufficient.

Determination of the permit area is not based on hydrologic systems. The R645 Rules require protection of resources both inside and outside the permit area, and baseline and operational monitoring of both the permit area and adjacent areas. The Division notes that expanding the permit area to include more springs would actually lower the performance standard for protection of the added springs from; "minimize impact" and "prevent material damage", to simply "minimize impact".

The seeps and springs selected by the Permittee for monitoring are representative of the springs and seeps in the ground-water emergence zones located over or adjacent to the area of proposed mining. An additional, detailed investigation of every aspect of every component of the hydrologic resources is not needed to monitor the resources and minimize impacts, or to comply with the Coal Mining Rules. Springs initially selected typically have baseline water-quantity and -quality data from the EarthFax survey, have been developed for use by the water

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right holder, and have the greatest or most consistent flow of the group or zone. As the mine plan has developed, springs have been added or removed to optimize the effectiveness of monitoring.

The MRP - Part B states there are 13 ground-water monitoring sites proposed for the Lila Canyon Extension (Section 731.211, page 38), but that number includes sites L-6-G and L-10-G that have been abandoned since the MRP - Part B was first written, so there are only 11 sites proposed for operational monitoring (Table 7-3). Sites L-5-G, L-7-G, L-8-G, L-9-G, L-11-G, L-12-G, L-16-G, L-17-G and IPA-1, -2, and -3 are the eleven sites currently proposed for ground-water monitoring. These are described in Section 731.211 and listed in Table 7-3. Locations are shown on Plate 7-4. Data collected up through October 2002 are in Appendix 7-1. More recent data have been submitted directly to the Division's database. Station L-5-G is the potential mine discharge point and will be monitored in accordance with UPDES Permit requirements. IPA-1, -2, and -3 will be monitored quarterly for water levels (Section 731.211, page 40).

The Permittee began monitoring spring locations L-6-G through L-10-G in 2000 to determine if the springs proposed for operational monitoring were still viable and to establish a current baseline that would be continuous from pre-mining into operational conditions. Baseline monitoring for L-11-G and L-12-G was initiated in October 2001. L-11-G has replaced L-6-G, which was dropped from the plan in 2003. Seeps in Stinky Spring Canyon at the southwest corner of the Lila Canyon Extension area were added to the monitoring plan in 2002 (L-16-G and L-17-G). Monitoring of L-10-G ceased in the first quarter of 2003 because it was considered too far outside the permit area to be of any benefit. When mine operations begin, the Permittee could resume monitoring of this spring as an undisturbed control point.

L-6-G (H-18) is down gradient from water rights 91-617 (Mont Spring) and 91-618 (Leslie Spring). These water rights correspond closely to JBR sites H-21 and H-19 and are near H-20, H-21A, H-21B, and H-22. The Permittee selected H-18 as the location for L-6-G because it is the lowest spring in the group; however, this location has been dry during recent monitoring, so L-11-G, located approximately 100 yards up the drainage, was added in 2001 to replace L-6-G. Spring L-11-G corresponds with sites H-18A and H-18B. There are no data in the MRP - Part B on H-18A and H-18B, but from Plate 7-1 these appear to be in the same alluvial system that was monitored at L-6-G. Data for L-11-G are in the Division's database.

L-7-G corresponds with springs 8, 9 (or S-9), 19-A, and 19-B (Plate 7-1). Spring 9 was monitored from 1993 to 1995, and has had consistent flow. Baseline data are in Appendices 7-1 and 7-6. Spring 9, or more likely this group of springs, has also been called Cottonwood Spring (Section 731.211, page 39), which is associated with water right 91-2521 in Table 7-2. However, Plates 7-1 and 7-3 indicate water rights 91-399 and 91-2537 are located in this group of springs, while water right 91-2521 is located on an adjacent topographic high (NE/4 Section 13, T. 16 S., R. 14 E.); such imprecision in the description of water right locations is not uncommon, and it is probable that all three water rights apply to this group of springs.

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L-8-G, L-9-G (Pine Spring), and L-10-G (William's Draw Spring) correspond with the springs monitored by EarthFax as 10, 16(Z), and 14, respectively. L-12-G corresponds roughly with EarthFax springs 11 and 12, but does not coincide exactly with either one. Appendices 7-1 and 7-6 of the Lila Canyon Extension contain water-quality data on springs 9, 10, 14, and 16(Z) from 1993, 1994, and 1995, when they were monitored for baseline for the South Lease by IPA. There are field data on springs 11 and 12 but no water-quality analyses were done.

A cluster of springs and seeps (4, 5, 6, 7, 8-A, and 9-R) in the northeast corner of the Lila Canyon Extension is not being monitored. There is no water right associated with these springs and seeps, and they are well outside the zone of projected subsidence.

Baseline water levels for 1994, 1995, and 1996 have been established at IPA-1, IPA-2, and IPA-3. The Permittee successfully measured water levels in all three piezometers on May 15, 2001 and each quarter since. Data collected through October 2002 are in Appendix 7-1, and the most recent data are in the Division's database. Eventually, the mine may intercept the three IPA piezometers, so in addition to the three piezometers, UEI commits to the monitoring of underground usage and discharge to more accurately define potential impacts on ground water (Section 731.513, pages 52-53).

Ground water will be monitored and data will be submitted at least every three months for each monitoring location. Monitoring submittals will include analytical results from each sample taken during the approved reporting period. When the analysis of any ground-water sample indicates noncompliance with the permit conditions, then the operator will promptly notify the Division and immediately take the actions provided for in 145 and 731 (Section 731.212, page 40-41). Ground-water monitoring will continue through mining and reclamation until bond release (Section 731.214, page 41).

Equipment, structures and other devices used in conjunction with monitoring the quality of ground water on-site and off-site will be properly installed, maintained and operated and will be removed by the operator and when no longer needed (Section 731.215, page 41).

Contamination of perched ground water in the Price River and Colton Formations is unlikely because the perched zones are several hundred feet above the Lower Sunnyside Coal Seam, and low-permeability strata separate the perched ground-water zones from the coal seam. The perched ground water will not be intercepted by mining activities.

Surface Water Monitoring

The proposed surface-water monitoring plan is detailed in Section 731.220. The plan provides for monitoring of parameters that relate to the suitability of the surface water for current and approved postmining land uses and to the objectives for protection of the hydrologic balance

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as set forth in R645-301-751 (Section 731.221, page 44). Parameters are listed in Table 7-4. Surface-water monitoring will continue through mining and reclamation until bond release (Section 731.224, page 45).

Locations of all monitoring sites are shown on Plate 7-4. Proposed monitoring methods, parameters and frequencies are described in Table 7-3, "Water Monitoring Stations," and Table 7-4, "Water Monitoring Parameters." The operational water-monitoring plan will be implemented upon approval of the MRP - Part B.

Drainages in the area flow in direct response to snowmelt and precipitation events (Section 724.200, page 20). The proposed surface-water monitoring program will monitor the Lila Canyon drainage both above and below the disturbed mine site area at L-1-S, L-2-S, and L-3-S and the sediment pond discharge at L-4-S.

L-1-S, L-2-S, L-3-S, and L-4-S have been monitored monthly since July 2000, and a summary of field observations through October 2002 is in Appendix 7-1. Most reports are "no flow". "No access" is frequently reported December through February, but once the mine begins operation, all sites will be more accessible. In any quarter, a minimum of three attempts will be made to access water monitoring sites, using either 4-wheel drive vehicles or ATVs, before reporting "No access"; however, safety and common sense will prevail while making such attempts (Section 731.220, page 43).

Discharges of water from this operation 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 Environmental Protection Agency (EPA) set forth in 40 CFR Part 434 (Section 752, page 71). Sediment pond and mine discharges will be monitored monthly or as frequently as discharges occur (Table 7-3). Appendix 7-5 contains a copy of the UPDES permit for the Lila Canyon Extension. The UPDES permit was issued in 1999.

Equipment, structures and other devices used in conjunction with monitoring the quality and quantity of surface water on-site and off-site will be properly installed, maintained and operated and will be removed by the operator when no longer needed (Section 731.225, page 45).

Acid- and Toxic-Forming Materials and Underground Development Waste

Two rock slopes driven upward from the base of the Book Cliffs to the coal seam will provide access to the underground workings of the Lila Canyon Extension. Underground development waste that will be removed from the tunnels is designated as "rock-slope material" or "mine development waste", and will contain mostly shale, sandstone, and mudstone, with traces of coal (Section 520, page 17). Rock-slope material/ mine development waste will be

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used as fill for the shop-warehouse concrete pad portion of the refuse pile (Section 537.200, page 53; Section 528.320, page 45; Plate 5-2).

The refuse pile has been designed for the storage and disposal of coal processing waste (Section 528.320, page 45) and underground development waste (Section 520, page 16). The designed capacity of the pile is 44,400 yd³ (page 18), which is in excess of projected needs. The areas in the refuse pile for rock-slope fill and for coal mine waste are adjacent and adjoining and will be treated as one area or structure (Section 528.320, page 45; Plate 5-2). Appendix 5-7 provides detailed information on construction, operation, and reclamation of the refuse pile.

Material not transported to the surface, such as overcast material, rock falls, and slope material may be disposed of underground according to the appropriate MSHA regulations (Section 513.300, page 3). Because this will be an underground mine there will be no spoil.

The Permittee has committed that the underground development waste to be placed in the refuse pile will be examined and tested as necessary to determine acid- or toxic-forming potential (Section 536, page 51). Samples will be collected and analyzed a minimum of five times during construction of the rock-slope tunnels, and from every 6,000 tons of waste rock placed on the refuse pile during mine operation (Appendix 5-7, page 3). According to Appendix 5-7, page 3, the parameters to be determined are in Table 2, but there is no Table 2 in Chapter 2, Chapter 5, or Appendix 5-7.

The R645 Rules require that coal mine waste be disposed of in an approved disposal area such as the refuse pile and, at a minimum, be covered with four feet of nontoxic and noncombustible material. The reclamation plan specifies four feet of subsoil and topsoil will be placed over the refuse pile, including the slope-rock underground development waste used to build the pads and left in place for final reclamation (Section 553.300, page 59; Section 731.311, page 46; Appendix 5-7, page 3).

Gravity Discharges From Underground Mines

Gravity discharge from the mine is unlikely. The proposed access portals are below the coal outcrop, as shown on Figure 7-1 (Volume 7) and Plates 5-2 and 7-5. The fan is to be located on the outcrop, above the portals. The two 1,227-foot access tunnels will slope up at approximately 12 percent, from a starting elevation at the base of the Book Cliffs of approximately 6,150 feet. The intersection of the coal seam and the rock slope will take place at approximately 6,300 feet elevation (Section 520, page 17). Ground-water elevations are static at approximately 5,990 feet. Ground-water levels would need to rise approximately 310 feet to reach the intersection of the tunnels with the coal seam at 6,300 feet (and 160 feet just to reach the starting elevation of the tunnels), so it is unlikely water levels will ever reach the intersection of the tunnel and coal seam. (Section 521.321, pp. 53-54).

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Water-Quality Standards And Effluent Limitations

Water monitoring parameters are shown in Table 7-4. Water monitoring locations and sample frequencies are described in Table 7-3 and on Plate 7-4.

Sedimentation pond discharge will be conducted in accordance with 40 CFR Parts 122 and 123, R645-301-751 and as required by the Utah Division of Water Quality (UDWQ) for UPDES permits (Section 742.112, page 60). A UPDES discharge permit has been issued by the UDWQ for the proposed sediment pond and mine water for the Lila Canyon operation (Appendix 7-5).

Surface-water monitoring data will be submitted to the Division at least every three months (731.220 page 43). When analysis of any surface-water sample indicates non-compliance with the permit conditions, UEI will promptly notify the Division and immediately take action to identify the source of the problem, correct the problem and, if necessary, to provide warning to any person whose health and safety is in imminent danger due to the non-compliance (Section 731.223, page 44-45).

Diversions: General

Plate 7-2 identifies all of the undisturbed and disturbed area diversion ditches. All disturbed area drainage will be diverted to the sedimentation pond (see Plate 7-6). The undisturbed areas, UA-2, UA-3, UA-4 and UA-6 will also be directed to the sedimentation pond Table 5, Appendix 7-4. It was pointed out to Jay Marshall that UA-4 could be diverted to the channel above the proposed sedimentation pond. He stated that he may consider that option in the future if the volume is needed in the sedimentation pond. The pond is properly sized to handle the required runoff volume.

The plans indicate one undisturbed diversion is planned for the mine site, Section 732.300. Plates 7-2 and 7-5 show the undisturbed Culvert UC-1 that will be placed in the Right Fork of Lila Creek to divert undisturbed drainage under the sedimentation pond.

Ditch DD-7 and Culvert DC-7 carry water to the edge of undisturbed area UA-6, but the flow path from there to ditch DD-12 isn't indicated on maps or plans. There needs to be a ditch and an associated disturbed area added to Plate 7-2, and other plates as appropriate.

Diversions: Perennial and Intermittent Streams

Section 742.333 (page 67) states that all temporary diversions are designed to safely pass the peak runoff of a 2-year – 6-hour precipitation event, and refers to Appendix 7-4 for details. Designs in Appendix 7-4 are based on a 10-year, 6-hour event. This itself is not a problem as the

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designs in Appendix 7-4 are therefore more robust than indicated in Section 742.333, but the discrepancy needs to be corrected.

Casing and sealing of wells

IPA-1, -2, and -3 will be reclaimed according to the Division's performance standards (which are the R645 RULES). If any wells are installed in the future, the requirements of R645-301-765 will be met (Section 765).

As part of the postmining land use change approved by the Division on January 6, 2004, the Horse Canyon Well is to be transferred to CEU as a potential source of culinary water for the Utah universities science field camp. According to R645-301-731.400, the Permittee retains responsibility for proper management of this well until bond release.

Stream Buffer Zones

UEI has addressed mining activity in stream buffer zones by indicating that all surface water channels within 100 feet of the proposed mining activity act ephemeral. UEI states in Sections R645-300-731.600 and 731.612 of the MRP - Part B that no mining activities will take place within 100 feet of a perennial or intermittent stream.

UEI has characterized all stream channels using monitoring and other classification methods (Appendix 7-7) to substantiate that the streams are ephemeral.

Sediment Control Measures

The Division previously discussed the placement of the sedimentation pond, and asked UEI to discuss the possibility of moving it out of the channel. UEI has indicated verbally to the Division that they cannot move the pond from the planned location due to space requirements for other surface facilities. The planned pond location may not be exactly what the Division would have desired, but it does satisfy the regulations.

Siltation Structures: General

UEI proposes to use siltation structures and silt fences below the fan portal to control and treat runoff from the site.

Siltation Structures: Sedimentation Ponds

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UEI plans to use a sedimentation pond to treat runoff from the disturbed mine site. The sedimentation pond location, design plans, and cross-sections are shown on Plates 7-5 and 7-6. Design calculations are in Appendix 7-4.

The Division previously discussed the placement of the sedimentation pond, and asked UEI to discuss the possibility of moving it out of the channel. UEI has indicated verbally to the Division that they cannot move the pond from the planned location due to space requirements for other surface facilities. Their planned pond location may not be exactly what the Division would have desired, but it does satisfy the regulations.

UEI has modified the truck turn-around increasing the radius of the turn for safety, and removing the need to place the road next to the stream channel.

UEI shows the undisturbed drainage area, UA-4, which drains into the sedimentation pond. The pond is designed to treat the calculated volume of runoff from the area. Plate 7-2 shows the drainage area and Plate 7-6 shows the design of the sedimentation pond. Neither plate identifies the discharge point from UA-4 or erosion protection measures for inflow to the pond. UEI will be required to submit this information, along with erosion control design plans.

Siltation Structures: Exemptions

UEI has not requested any exemptions for siltation structures. No exemptions have been granted by the Division.

Discharge Structures

UEI plans two discharge structures for the mine. A sedimentation pond will contain and treat disturbed area runoff. UEI has identified that mine water would be discharged to Lila Canyon Wash, Section 731.513. UEI calls Lila Canyon Wash the North Fork of Coleman Wash. Plate 7-5 also indicates that mine water will be discharged to Lila Canyon Wash. The Division assessed groundwater information from what has been presented in the MRP - Part B and other mines in the Book Cliffs. The Division has determined there is a good probability that water will be intercepted and pumped from the mine. UEI has addressed the Division's concern about the consolidation of discharge points to lessen the impacts to receiving stream channels. The analysis in Appendix 7-9 indicates that the maximum discharge conceived for the mine would amount to only 3% of the total 2-year flood volume. Therefore any mine discharge to the stream will have much less erosive effect on the channels than natural flows would have.

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Findings:

The information provided does not meet the requirements of the R645 RULES. The Permittee must provide the following, prior to approval and in accordance with:

R645-301-742.333, The Permittee must to clarify what precipitation events are used in the designing of diversions. Section 742.333 states peak runoff of a 2 year - 6-hour precipitation event was used; designs in Appendix 7-4 are based on a 10-yr, 6-hr event. The designs in Appendix 7-4, are therefore, more robust than indicated in Section 742.333, but the discrepancy in the text of Chapter 7 (and anywhere else in the MRP - Part B a similar statement appears) must be corrected.

R645-301-731.200, The MRP - Part B states (Section 731.211) that there are 13 ground-water monitoring sites proposed for the Lila Canyon Extension, but that number includes sites L-6-G and L-10-G that have been abandoned since the Lila Canyon Extension MRP was first written. There are currently only 11 sites proposed for operational monitoring (Table 7-3). The Permittee must update the MRP to indicate the correct number of ground-water sites to be monitored.

R645-301-121.200, -731.311, According to Appendix 5-7, page 3, Refuse Testing, the parameters to be determined for the materials to be placed in the refuse pile are in Table 2, but there is no Table 2 in either Chapter 2 or 5 or Appendix 5-7. The Permittee needs to identify the parameters and update Appendix 5-7 to correctly identify where they are listed in the MRP.

R645-301-232, -722.200, -742.123, Ditch DD-7 and Culvert DC-7 carry water to the edge of undisturbed area UA-6, but the flow path across this undisturbed area to Ditch DD-12 isn't indicated on maps or plans. Maps and plans need to show a continuous flow path from Ditch DD-7 and Culvert DC-7 to Ditch DD-12, along with the associated disturbed corridor.

SUPPORT FACILITIES AND UTILITY INSTALLATIONS

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

Analysis:

UEI refers to the new support facilities in the following sections of the MRP-MRP - PART B: Section 520, Plate 5- 2, the appendices of Chapter 5, and in the bond calculations. Appendix 5-4, New Facility Design, shows the design for the roads and sewage system. Appendix 5-7 has the designs for the refuse pile. The new structures and facilities listed include:

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OPERATION PLAN**Buildings:**

- Office/Bathhouse
- Shop Warehouse
- Security Shack

Utilities:

- Mine Substation
- Power Lines
- Power Poles
- Water Treatment Plant
- Potable Water Tank
- Process Water Tank
- Sewer Tank & Drain Field

Mine Facilities:

- Ventilation Fan
- 60-inch Conveyor from tunnels to Coal Stockpile
- Run of Mine (ROM) Underground Belt from Stockpile to Crusher
- 48-inch Conveyor from Crusher to Loadout Bin
- 48-inch Conveyor from Loadout Bin to Truck Loadout
- Reclaim Tunnel, Escape Tunnel, Fan, and Fan House
- ROM Storage Pile
- Crusher Screen Plant
- Truck Scale and Loadout
- Coal Loadout Storage Bin
- Coal Stacking Tube
- Culverts (Note: names, diameter and length must be included)
- Guardrails
- Underground Pipes
- Chain Link Fence

Support Facilities:

- Non-Coal Waste Area
- Equipment & Supplies Storage Area
- Topsoil Pile
- Refuse Pile
- Sediment Pond
- Slope Access Road
- Rock Slopes
- Mine Facilities Road
- Truck Loadout Road

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Portal Access Road
Office/Bathhouse/Warehouse Asphalt Parking Area
Mine Parking
Fuel Tanks
Rock Dust Bins
Explosive Magazines

UEI showed the location of each structure on Plate 5-2.

Plate 5-8 is a detailed map with cross-sections that shows the coal handling facilities. Those facilities consist of a truck loadout, a scal e, a 48-inch conveyor from the loadout bin to the truck loadout, a 48-inch conveyor from the load out bin to the crusher, a 48-inch reclaim conveyor, a stacking tube, and a 60- inch conveyor from the mine.

UEI will construct the buildings, support structures, and mine facilities using standard building materials such as steel, wood and concrete and will use standard construction techniques for the construction and demolition of the facilities. UEI will accomplish reclamation of the surface facilities by removing the structures. When possible, they will salvage machinery and steel building components. UEI will ship all building debris, with the exception of concrete, off site.

UEI is required to construct and maintain support facilities to:

- Control or prevent erosion, siltation, water pollution, and damage to public or private property.
- Minimize damage to fish, wildlife, and related environmental issues such as minimizing additional contributions of suspended solids to streamflows.
- Minimize damage to oil, gas, and water wells; oil, gas, and coal-slurry pipelines; railroads, and other utilities.

All support facilities will be located within the disturbed area. Runoff from the disturbed area will report to the sedimentation pond for treatment before being discharged. For additional details on erosion, siltation, and water pollution see the Hydrology section of this TA. Fish and wildlife issues are discussed in detail in the Fish and Wildlife Protection Plan section of this TA.

The disturbed area boundary for permit area "B" encompasses 42.6 acres, however there will be only 25.3 acres actually disturbed for the operations area. This leaves 17.3 acres of undisturbed ground within the disturbed area boundary. Leaving as much land undisturbed as possible fulfills the requirements of R645-301-333, "...the operator will minimize disturbances and adverse impacts." This undisturbed land within the disturbed area boundary must be protected from disturbance, however.

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Plate 5-2 shows the facilities to be developed at the site. The plate shows a Run of Mine (ROM) storage pile containing approximately 27,000 tons of open storage at the upper end of the permit area, within 20 feet of undisturbed slopes. The Lila Canyon ROM stockpile will be somewhat protected from wind by the escarpment to the east and north (personal communication between Jay Marshall and Priscilla Burton, June 8, 2004). UEI has included in the MRP-MRP - PART B several means by which deposition of coal fines on the undisturbed slope will be controlled:

- Enclosed conveyor (Section 520) from the portal to the ROM storage pile.
- 80 feet distribution tube to control the drop of ROM coal.
- Jersey barriers to prevent encroachment against the canyon slope.
- ROM stockpile will be 8 inch minus (personal communication between Jay Marshall and Priscilla Burton on June 8, 2004).
- Water sprays at the head roller to moisten the coal as it falls into the pile.
- In-line crusher with covered conveyor from ROM to loadout bin.
- Water sprays at all transfer points.

In addition, the deposition of coal fines onto undisturbed ground from the ROM storage pile will be visually monitored (personal communication between Jay Marshall and Priscilla Burton on June 8, 2004). If monitoring reveals coal fine deposition, then water sprays on the open stockpile will be warranted as per the August 27, 1999 Approval Order (DAQE-702-99) General Condition #16. In addition, UEI could broaden the area of topsoil salvage within the disturbed area or employ additional measures, such as a wind fence. [A silo was considered, but three concrete structures would be required to handle 27,000 tons of ROM and that's a lot of concrete to be buried on site during reclamation.]

Findings:

The information provided does not meet the requirements of the R645 RULES. UEI must provide the following, prior to approval and in accordance with:

R645-301-526.222, To protect islands of undisturbed areas within the permit area, UEI must include in the MRP-MRP - PART B a commitment to visually monitor undisturbed ground within the permit area for coal fine deposition. If monitoring reveals coal fine deposition, then water sprays on the open stockpile will be warranted as per August 27, 1999 Approval Order (DAQE-702-99) General Condition #16.

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SIGNS AND MARKERS

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

Analysis:

UEI committed to place signs and markers as required by the R645 RULES. These signs and markers for underground coal mines will:

- Be posted, maintained, and removed by the person who conducts the coal mining and reclamation operations.
- Be of a uniform design that can be easily seen and read, be made of durable material, and conform to local laws and regulations.
- Be maintained during all activities to which they pertain.
- Be displayed at each point of access from public roads to areas of surface operations and facilities on permit areas.
- Show the name, business address, and telephone number of UEI who conducts coal mining and reclamation operations and the identification number of the permanent program permit authorizing coal mining and reclamation operations.
- Be maintained until after the release of all bonds for the permit area.
- Clearly mark the perimeter of all areas affected by surface operations or facilities before beginning mining activities.
- Be erected to mark buffer zones as required under R645-301-731.600 and be clearly marked to prevent disturbance by surface operations and facilities.
- Be erected to mark where topsoil or other vegetation-supporting material is physically segregated and stockpiled as required under R645-301-234.

Findings:

UEI has met the minimum requirements of the signs and markers section of the regulations.

USE OF EXPLOSIVES

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

Analysis:

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R645-301-524.220 allows UEI to submit a specific blasting plan separate from the MRP-MRP - PART B. UEI has opted to submit a detailed blasting plan if and when they propose to blast.

Findings:

UEI has met the minimum regulatory requirements for the use of explosives.

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:

Affected Area Maps

Plate 1-1, Permit Area Map, shows the location of the entire Horse Canyon Permit area. The area includes permit area A, which is the Horse Canyon project, and permit area B, which is the Lila Canyon Extension. The map does not show any areas of potential future expansion. In the past, UEI has indicated that they might seek additional reserves to the south. The permit section of the environmental part of this TA addresses those deficiencies.

To depict areas of potential impacts from surface water discharges via the sedimentation pond and mine water discharges UEI has submitted affected area maps showing the named drainages and monitoring sites of the Price River drainage from the permit area to the Price River. To depict the area of any potential impacts from mining to Range Creek, maps should also show the surface water features of the permit area and Range Creek drainage.

Mining Facilities Maps

Plate 5-2 shows the surface facilities for the Lila Canyon Extension. UEI did not show the location of some culverts on Plate 5-2. That deficiency is addressed in the road section of the TA.

Since UEI is not required to change the sedimentation pond location, no changes are required for the facilities plans to depict the relocation.

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Mine Workings Maps

Plate 5-5 shows the projected mine workings for the Lila Canyon Extension. The only openings are the two rock tunnels and the ventilation portal. UEI shows the timing and sequence of the mining operation on the map.

Monitoring and Sampling Location Maps

UEI submitted maps showing all water monitoring sites.

Findings:

Information provided in the MRP-Part B meets the minimum requirements of the Maps, Plans, and Cross Sections of Mining Operations section of the regulations.

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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:

Any soils not salvaged and protected are subject to contamination from mine operations, compaction, and mixing with unsuitable materials. Some of the deeper subsoils have very high (>65%) rock contents with parent materials from marine shales that could severely limit vegetation establishment and growth. UEI will have difficulty achieving revegetation success if reclamation projects include the use of contaminated material or root "unfriendly" material as part of the growth medium.

The reclamation plan calls for:

- The removal of all structures and coal, from the site.
- Backfill and grading the site to approximate premining contours.
- Rip the backfill material to 16-18 inches.
- Replace the salvaged/stored topsoil.
- In Section 342.220 UEI states that they will rip the topsoil to a depth of 6-18 inches.
- In Section 241, Section 244.200, Section 552.100 and Section 553.230 UEI states that they will pock (surface roughened) the surface after topsoil placement.
- In Section 341.220 UEI states that gouging (pocking) will be done on the contour to minimize the potential for erosion and act to trap moisture.
- Analyze the growth medium for fertilizer requirements. Currently, the recommended fertilizer rate is 100 pounds per acre of 16-16-8.

The information in the MRP-MRP - PART B about soil preparation is contradictory and confusing. Ripping and pocking are mutually exclusive operations. Ripping is done on gentle slopes due to equipment limitations. While pocking can be done on steep and gentle slopes the combination of pocking and ripping is redundant.

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Pocking (gouging) must be done with a random pattern to be effective. Therefore, pocking on the contour would be ineffective. UEI must remove the reference in the MRP-MRP - PART B to pock (gouge) on the contour.

Because of limited precipitation, the Division considers surface roughening essential at this site. In conjunction with roughening, the track hoe can cast any vegetation, dead trees, and large rocks back onto the reclaimed surface (Appendix 5-8). This debris provides solar protection and increases available moisture in small areas as well as increases topographic and vegetation diversity.

Incorporating hay/straw (especially hay) as an amendment during gouging is the current standard treatment for soil stability. UEI may want to incorporate noxious weed-free hay/straw during gouging to better ensure a timely and successful reclamation. One of the goals of incorporating hay/straw during gouging is to amend the soil with organic material. Hay is better than straw as a soil amendment because it has a higher N:C ratio. UEI may decide to use hay rather than straw. Often, a fiber mulch follows seeding to provide surface protection from rain and wind. UEI should refer to the Vegetation Guidelines for methods and application rates.

The reclamation project will include application of seed with the hydromulch (at 2000 pounds per acre) and an application of tackifier (at 100 pounds per acre). The plan states that the hydroseed/mulch process will include fertilizer, if required. It is not suitable to include fertilizer with seed during hydroseeding operations. UEI must remove this combined process from Section 341.220, page 22 and Appendix 5-8, page 3. (R645-301-333).

The reclamation plan does not include irrigation. The Division does not anticipate the necessity to irrigate as long as UEI uses water-harvesting methods, such as gouging.

Findings:

The Division considers information in the MRP-Part B inadequate to meet the minimum General Requirements section of the Reclamation Plan regulations. Prior to approval, UEI must provide the following in accordance with:

R645-301-333, UEI must remove the combined application of seed with fertilizers from Section 341.220, page 22 and Appendix 5-8, page 3.

R645-301-242.200 and R645-301.121.200 UEI must submit a consistent plan for the distribution and preparation of all topsoil and growth medium. UEI states that they will rip the topsoil and subsoil in Section 341.200 but they also state in other sections the pocking (gouging) will be used. UEI must also remove from Section 341.200 reference to gouge on the contour. Pocking or gouging must be done in a random pattern to be effective.

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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:

The postmining land use is in accordance with the BLM's management plans. Appendix 4-2 contains a letter from the BLM stating the postmining land use for the area is wildlife habitat, grazing, and incidental recreation. Should these plans change, UEI will accommodate the landowner (BLM) and Emery County at the time of reclamation (Section 412.140).

UEI presents the reclamation plan in Appendix 5-8 and Chapters 2, 3, and 5 of the MRP - Part B. UEI will monitor the site for 10 years before final bond release. Should monitoring indicate that livestock grazing is detrimental to the achievement of bond release, UEI will fence the site along with supplemental seeding. There will be no roads left in the disturbed area.

The current disturbed area for the Horse Canyon Mine (Part A) is about 74 acres. All but 16.18 acres of that acreage received Phase II bond release on April 11, 2002. On February 25, 2004, the Division approved a change in postmining land use on those 16.18 acres, plus some undisturbed acreage: the land and structures, including the Horse Canyon Well, will be donated by the Permittee to CEU for use as a science field camp for Utah universities. The Lila Canyon Extension MRP is out-of-date, as it does not contain information on the approved postmining land use change.

The Division received comments that the MRP - Part B fails to restore the land to a quality capable of supporting wilderness designation. In the 2003 settlement with the State of Utah, the Secretary of Interior agreed that public lands other than Section 603 WSA's and Congressionally designated wilderness could not be managed or otherwise treated as wilderness study areas, absent congressional authorization.

The Division received comments that the reclamation plan is inadequate to ensure that UEI will restore the water sources and other wildlife habitats to the postmining land use. The Division addresses these issues in the reclamation section of this TA.

Findings:

Information provided in the MRP - Part B does not meet the minimum Postmining Land Uses requirement of the regulations. Prior to approval, the Permittee must provide the following in accordance with:

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R645-301-724.100, The Permittee must update the MRP – Part B, Lila Canyon Extension to include the approved postmining land use change.

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

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

Analysis:

UEI considers that the EA (UT-070-99-22 July 2000) mitigation plan will enhance the vegetation for an additional 70 acres.

The plan includes maintaining the sediment pond through the life of the operation and removing it when effluent meets reclamation criteria. Sections 761 and 763.100 indicate the sediment pond will remain in place until the stability and vegetation requirements for Phase II Bond Release are met (minimum of 2 years after the last augmented seeding).

The species in the seed mixture (after Permittee incorporates Division requests) will potentially provide good forage and cover for wildlife. UEI will reclaim the pinyon/juniper area to a grass/shrub community. This plan may enhance the quality of habitat in the area.

Findings:

Information in the MRP-Part B meets the minimum Protection of Fish, Wildlife, and Related Environmental Values section of the Reclamation Plan regulations.

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:

The definitions of Approximate Original Contour (AOC) are contained in SMCRA and the R645 Rules. The objectives of postmining back filling and grading is to return the site to a configuration resembling the topography of the land prior to mining, and to blend the site into the drainage pattern of the surrounding terrain. At the same time, the permittee must meet

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reclamation performance standards including: controlling erosion; establishing mass stability; and establishing permanent, diverse, and effective vegetative cover.

In the MRP – Part B, UEI did not meet all the of requirements for restoring the Lila Canyon extension to approximate original contours, as explained below.

Final Surface Configuration

UEI did not request a variance from AOC. The Division reviewed all the pre-mining and postmining topographic maps and cross sections to determine if the postmining topography, excluding elevation, closely resembles its pre-mining configuration. The Division's findings are as follows:

- UEI showed the pre-mining topography shown on Plate 5-1A and the postmining topography on Plate 5-6. One difference between the pre-mining and postmining topography is that the postmining contours were usually smoother. However, pocking and other surface roughening techniques tend to make the postmining surface look more natural after a few years.
- The topography on Plate 5-1A and Plate 5-6 are the same for the topsoil storage area and the sediment pond. Restoring the site to the exact original contours is all but impossible due to the surface roughening techniques that UEI will use, and the limitation of earthmoving crew and equipment. In addition, the postmining contours on Plate 5-6 are not consistent with cross section 4+00 on Plate 5-7A-2. On the map, UEI showed that they would remove the sediment pond; while on the cross-sections UEI showed that the pond would stay. The Division also addressed the deficiency in the map section of the TA.
- The cross-sections shown on Plate 5-7A-1 through Plate 5-7A-4 show that pre-mining and postmining contours will be similar between cross section 0+00 and 18+00. The major changes will occur in the area of the main mine facilities. The area in and around the reclaimed refuse pile will be higher than the pre-mining topography. The reason for the increase in elevation is that coal mine waste will be disposed of in that area. The increase in elevation is minor and will not interfere with surface flows. UEI will leave cut slopes from the road embankment as shown in cross-section 16+00.
- UEI showed pre-mining and postmining cross-sections on Plate 5-7B-1 through Plate 5-7B-3 for cross sections 20+00 to 26+00. The concrete disposal area will have an elevation slightly lower than the pre-mining elevation as shown on cross-section 18+00. The reason for the elevation decrease is the pre-mining slopes do not meet the minimum safety factor requirements (safety factor of 1.3) therefore; the area cannot be restored to

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the pre-mining contours. The postmining contours do meet the minimum safety factor requirements and blend into the surrounding area.

- Figure 2 of Appendix 5-7 shows detailed cross-sections of the pre-mining, operational and postmining refuse-pile area. The reclaimed refuse pile will be a slight mound. The mound will not impound any water. See the profile on Figure 1 of Appendix 5-7 for details.
- Three critical areas for final surface configuration are the portal areas. UEI is required to eliminate all highwalls. Because the Lila Canyon Extension will be developed after the passage of SMCRA, the Division cannot allow any highwalls to remain after reclamation. Plate 5-9 showed detailed cross-sections for all portal areas. The pre-mining contours for the rock slope portals showed the face up areas to be a cliff. Therefore, UEI is required to backfill the areas to form cliffs. UEI will construct the ventilation fan portal on a natural slope and restore it to the approximate pre-mining configuration.

All Highwalls to be Eliminated

UEI states the following in Section 553.120:

“Minor highwalls may be created with the development of the rock slope portals. Upon completion of mining, these entries will be sealed as per Closure for Mine Openings Appendix 5-6, and highwalls will be eliminated during the reclamation phase of the operation. During reclamation, suitable materials will be placed against the portals. This material will be shaped to eliminate the highwall and to bring the slope back to the approximate original contour.”

Plate 5-9 shows the pre-mining, operational and postmining cross sections for all portals. The two portals that provide access to the mine via the rock tunnel will have highwalls or face-ups that are approximately the same height as the openings, which is 6 feet. The highwalls may be slightly taller because UEI may need to remove loose rock. Since the portal face up areas are in a nearly vertical cliff, UEI will eliminate the highwall by backfilling against the portal face-up.

The fan portal will have a 17-foot highwall. UEI will have to remove some of the cliff when they construct the fan facility, because it will be in a high cliff.

Because the fan portal area will be in an isolated area, getting earthmoving equipment to the site without going through the portal will be difficult. Because of the size restriction of the mine, the type of equipment that UEI can bring through the mine is limited. If UEI plans to bring equipment in and out of the mine for reclamation, they must develop a plan to reclaim the highwall without sealing the portal. If UEI plans to airlift the equipment in and out, they must

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describe the type of equipment that they will use. Plateau Mining Corporation developed a technique to reclaim highwalls at remote sites. They used collapsible fences to hold the material in place until the equipment could be moved underground. This method may work at the Lila fan portal. UEI needs to provide a detailed explanation of how they will reclaim the highwall at the fan portal breakout.

Safety is a major concern with highwalls. Since the Lila Canyon highwalls are in an existing cliff, the existence and reclamation of the highwalls will not create additional safety hazards. The steep cliffs above the two lower reclaimed portals will prevent people, livestock, and wildlife from traveling over the highwall areas. People, livestock, and wildlife traveling over the upper reclaimed highwall will face the same hazards as found on any other slope in the area.

Because UEI will restore the highwall areas to approximate pre-mining topography, the Division finds that the highwall elimination plans meet the minimum requirements of R645-301-553.120.

Hydrology

The main concerns with hydrology are that UEI restore drainages, control sediment, and prevent hazardous and toxic discharges. The Division considers that UEI will meet those conditions when they meet the hydrologic reclamation requirements.

Findings:

Information provided in the MRP-Part B is not adequate to meet the requirements of this section of the regulations. Before approval, UEI must provide the following in accordance with:

R645-301-542.100 and R645-301-553, UEI must submit a detailed reclamation plan for the fan portal site. The plan must show how UEI will reclaim the 17-foot highwall. If UEI plans to bring the equipment in and out of the portal, they must develop a plan to reclaim the highwall without sealing off the portal. In addition, UEI must describe the type of equipment that they will use given the limitations of the mine. If UEI plans to airlift the equipment in and out, they must also describe the type of equipment that will be used.

R645-301-542.200, UEI must submit reclamation maps that show the reclaimed contours at the topsoil stockpile area, and at the sediment pond. The pre-mining topography on Plate 5-1A and the postmining topography shown on Plate 5-6 are the same. Restoring the site to the exact original contours is all but impossible. In addition, the postmining contours on Plate 5-6 are not consistent with cross sections 4+00 on Plate 5-7A-2. On the map, UEI showed that they would remove the sediment

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pond while on the cross section UEI showed that the sediment pond would remain after final reclamation. UEI must correct this deficiency.

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

The AOC section of this TA discusses AOC and highwall elimination issues in detail. No excess spoil piles will be associated with the site. No major depressions will be present after reclamation, see Plate 5-6, Post Mining Topography.

Slope Stability:

The slope stability requirements are in R645-301-553.130, which states that the postmining slope will not exceed either the angle of repose or such lesser slope as is necessary to achieve a minimum long-term static safety factor of 1.3 and prevent slides.

In Appendix 5-5 UEI discusses slope stability for the Lila Canyon Extension. In Table 1 they list the summary of the laboratory test results. However, UEI does not show how they used the direct shear test results to determine the interior angle of friction or the cohesion. UEI must show how those values were determined.

UEI assumed that all the backfilled and graded slopes, as well as cut slopes, would be in homogenous material. When the Division visited the site they saw that the slopes usually did not consist of homogeneous material; rather the slopes consisted of bedrock covered with soil. Therefore, the assumption about homogeneous soil is not valid.

UEI assumed that all failures would be circular. Slopes that consist of bedrock and a thin soil covering seldom have circular failures. Therefore, UEI must look at noncircular failures.

Postmining Land Use:

The postmining land use finding is in the postmining land use section of the TA. The reclaimed contours will be compatible with the postmining land use. The postmining land uses are wildlife habitat, grazing, and incidental recreation, which are identical to the pre-mining land

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uses. The postmining land use is in accordance with the BLM's management plans. See Appendix 4-2 of the MRP-MRP - PART B for the BLM postmining land-use approval letter.

Settled and Revegetated Fills :

The variances from AOC and other requirements for existing spoil or underground development waste do not apply to the Lila Canyon Extension since those materials are not present on the site before permit issuance.

Section 537.200 through Section 537.250 UEI discusses placement of rock slope material during final reclamation. The sections of the MRP correspond to sections of the R645 RULES. Since R645-301-537.200 – R645-301-537.250 deal with settled and revegetated fill.

The information in Section 537.200 through Section 537.250 of the MRP-MRP - PART B have nothing to do with settled and revegetated fill and therefore must be removed.

Spoil Disposal:

Spoil is overburden removed during coal mining and reclamation. Overburden is all of the material that overlies a coal deposit, with the exception of topsoil. The only spoil that UEI will generate at the Lila Canyon Extension will be at the fan portal. UEI will use that spoil as backfill at the fan portal site. The proper compaction of spoil is a performance standard that UEI must meet during reclamation.

Disposal of Coal mine Waste and Underground Development Waste :

The Division and UEI consider the material from the rock slope tunnels to be coal mine waste; therefore, that material must be disposed of in a refuse pile. In addition to the rock slope material, mine development waste and reject material from the crushing process are also potential sources of coal mine waste.

The reclamation plan for the refuse pile is in Appendix 5-7. The refuse pile will meet the requirements of R645-301-537.250 because:

- The reclaimed slopes will meet the AOC requirements and will support the postmining land use. UEI will construct no terraces on the outslopes of the refuse pile. The grade of the outslopes will not be steeper than 3H: 1V; see Figure 2 of Appendix 5-7 for details.
- UEI will cover all refuse material with a minimum of 4 feet of material; see Figure 2 of Appendix 5-7 for details.

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- The slopes in and around the reclaimed refuse pile will have very gentle slopes with a stability factor greater than 8 (see Appendix 5-7). The minimum safety-factor requirement is 1.3. Thus, the slopes of the reclaimed refuse pile are considered stable.

Exposed Coal Seams and Acid- and Toxic-Forming Materials and Combustible Materials:

The only exposed coal will be at the fan portal area. The cross section of the reclaimed fan portal on Plate 5-9 shows that the coal seam will be backfilled by more than 4 feet of fill materials.

Previously Mined Areas

There are no known previously mined areas in the disturbed area boundaries for the Lila Canyon site.

Special Provisions for Steep Slope Mining

Neither backfilling and grading on steep slopes, nor special provisions for steep slope mining are considered for this TA because Lila Canyon Extension area is not considered a steep slope mine. Special provisions for steep slope mining would apply if UEI planned to get a variance from AOC requirements. Since UEI did not apply for an AOC variance, they are not required to address these requirements.

Findings:

Information provided in the MRP-Part B is not adequate to meet the requirements of this section of the regulations. Before approval, UEI must provide the following in accordance with:

R645-301-553.130 and R645-301-122, UEI must show how the interior friction angle and the cohesion for the soils were determined from the direct shear test results or reference the source for the soil properties.

R645-301-553.130 and R645-301-121.200, UEI must show that all reclaimed areas and cut slopes will be in soil only or they must do safety factor calculations with a bedrock/soil interface. The profiles in Appendix 5-5 show that the slopes consist only of soil. The Division saw that the slopes in Lila Canyon consist of bedrock with a few feet of soil cover. While circular failure is unlikely in bedrock, noncircular failure can occur along the bedrock/soil interface. Therefore, UEI must submit additional failure analysis based on noncircular failures.

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R645-301-121.300, UEI must remove all information from Sections 537.200 – 537.250 of the MRP-Part B that do not apply directly to settled and revegetated fill that will be allowed to remain in place at final reclamation.

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:

UEI committed in Section 529 of the MRP-Part B to seal all underground openings when no longer needed. See Appendix 5-6 for the portal-sealing plan. The portal-sealing plan meets Division and MSHA requirements. In addition, UEI will seal all wells when no longer needed.

As part of the performance standards, the Division will require UEI to barricade and fence mine entries that are temporarily inactive in the permit area. UEI must post warning signs around the entries and periodically inspect and maintain the barricades.

Findings:

UEI meets the minimum mine openings requirements of the regulations.

TOPSOIL AND SUBSOIL

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

Analysis:

Redistribution

The MRP-Part B describes in Section 241 grading the surface to AOC, replacement of subsoils in the root zone, ripping, replacement of topsoil, replacement of boulders and gouging and treatment of the surface with an inoculum.

UEI has provided Plate 2-3 outlining Soil Salvage and Replacement. In addition, the grading sequence is itemized in steps a through f. The sequence begins with: "a. Grade all areas where no subsoil is being stored. b. Replace subsoil on areas from which it was removed." The Division received comments that the sequence as written was very confusing. Crucial to the understanding of steps a and b in the regrading sequence will be the

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As-Built map (Section 232.500) that will provide the operational location of the subsoils suitable for placement in the top four feet rooting zone. i.e. subsoil from soil map units SBJ, DSH and VBJ identified in the Order 1 Soils Survey. The As-Built map is referred to in the discussion of Section 241 and 242.100 and 232.500. The Division understands and follows the concept of salvaging the subsoil and documenting its placement for use at final reclamation.

The Division received comments on the depth of topsoil replacement, believing that the MRP-MRP - PART B called for eighteen inches of topsoil to be replaced over the entire site. Section 242.100 describes the replacement of topsoil to approximate the variable depth of topsoil encountered at the site during the Order 1 Soil Survey (see Plate 2-3 Topsoil salvage and Replacement). Section 242.100 also outlines the equipment to be used to replace the topsoil.

Inoculum is referred to in Section 241 and soil amendments are referred to in Section 243. The inoculum will stimulate microbial activity in the soil. The MRP-Part B is not clear on what product will be re-applied to the soil to re-establish bacteria, microhorizia [sic], and mycelium (Section 241), however the Division expects that the best technology available at the time of reclamation will be employed, as per R645-301-333.

Re-establishment of biologic soil crusts will be attempted on the surface of the topsoil storage pile (Section 231.400). If successful, this source of biologic soil crusts will be utilized to inoculate the reclaimed site (Section 244.200). At the time of reclamation more options for cryptogam re-establishment may be available. For example, the U.S. Army Corps of Engineers is experimenting with cyanobacteria pellets, which may be commercially available in two years (see <http://www.cecer.army.mil/td/tips/product/details.cfm?ID=527>). Deficiencies regarding the plans for cryptogam establishment have been itemized under Operations Plan Topsoil and Subsoil R645-301-234.230 and R645-301-232.100.

Amendments will replace lost soil nutrients based upon testing of the topsoil stockpile prior to redistribution. Grab samples will be collected every 15 ft to a depth of 18 inches from the stockpile and analyzed for nitrogen, potassium, and phosphorus (Section 243) The Division would rather that the bottom and middle portions of the 25 ft deep pile are sampled to see what the effects of darkness, compaction, and sterility have been on the fertility of the topsoil stockpile. Therefore, the Division recommends that when the topsoil pile height is reduced to approximately 10 feet at its deepest end, then the sampling described in the MRP-Part B should be conducted, except that 4 or 5 grab will be sufficient.

Appendix 5-8 indicates fertilizer application to the reclaimed surface will be based upon the testing of the topsoil. In past reclamation, the Division has noted that the application of nitrogen was a detriment to the encouragement of native species. The application of fertilizer may be detrimental to the establishment of micro-organisms as well. Plant nutrients should be applied only in the case of severe deficiencies.

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Findings:

The information provided in the MRP-Part B is adequate for the purposes of the R645 RULES with the following exception. Prior to approval and in accordance with:

R645-301-243, The MRP-Part B indicate that grab samples will be collected from the topsoil stockpile after its height is reduced to 10 feet at the deepest end (Section 243). Four or five grab samples should be sufficient to determine what the effects of darkness, compaction, and sterility have been on the fertility of the topsoil stockpile.

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:**Reclamation**

UEI has committed to reclaim all roads within the disturbed area boundaries. UEI will remove and bury the road surfaces (road base gravel) on site and cover it with a minimum of two feet of material. UEI will bury concrete under four feet of material.

UEI stated in the text of the MRP-Part B that they would dispose of the asphalt off site, see 542.640 of the MRP-Part B. However, in the bond calculations (Appendix 8-1) UEI calculates asphalt disposal on the assumption that the material will be disposed of on site. UEI must correct the contradiction.

Retention

UEI states in Section 642.600 of the MRP-Part B that there will be no roads left in the disturbed area after reclamation.

Findings:

Information provided in the MRP-Part B is not adequate to meet the requirements of this section of the regulations. Before approval, UEI must provide the following in accordance with:

R645-301-830.140, UEI must either include the cost of disposing asphalt off-site or modify the MRP-Part B by including an on-site asphalt disposal site.

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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

UEI has submitted reclamation plans for the Lila Canyon Extension. As designs of hydrologic structures will not change, the reclamation plans are adequate.

Findings:

Information provided in the MRP-Part B meets the minimum requirements of the Hydrologic Reclamation Information section of the regulations.

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:

UEI plans to reclaim all disturbed areas not planned for use as contemporaneously as possible and within the constraints of seasonality.

Findings:

Information in the MRP-Part B is adequate to meet the minimum Contemporaneous Reclamation section of the Reclamation Plan regulations.

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.

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Analysis:

The seed mixture for final reclamation is shown on Table 3.4/3.5 and consists of native species. The plan commits to use noxious weed free seed.

The seed mixture does not replace the diversity found on site. The list below provides the Division's suggestions for increasing diversity, based upon Dr. King's vegetation analysis (except primrose). The number in parenthesis is the contribution to total percent vegetation cover for that species.

- Reduce slender wheatgrass
- Add bottlebrush squirreltail (@11.3%).
- Replace basin wildrye with Salina wildrye (@ 2.9%) as availability permits.
- Add desert blue bells Phacelia crenulata (@ 0.5%).
- Add white evening primrose.
- Add Mormon tea (@0.2%).
- Decrease the rabbit brush to 0.1 pounds live seed per acre or remove from mix.

The seeding rate shown in Table 3.4/3.5 is about 165 seeds per square foot. This rate is about 1.65 times higher than the rate recommended by the *Interagency Forage and Conservation Planting Guide for Utah* and *The Practical Guide to Reclamation in Utah*. UEI still has not incorporated the Division's recommendations to increase diversity and has not changed the mix components or amounts as requested in the previous TA. UEI must modify the mix to increase diversity and reduce the seed rate.

Using transplants in a 9-inch precipitation zone is desirable and necessary to meet the success standards. Appendix 5.8, Section 357.312 (page 32), and Table 3-3 describe the plan for planting bare-root or containerized seedlings. Table 3-3, however, states that UEI will plant seedlings around November 1, 2025, which is the same year as seeding. UEI must clarify the timing of planting seedlings.

The plan states that for the woody plants supplement project's "the species and numbers will be determined from the evaluation of the ocular estimates. The operator will follow R645-301-357.311". The plan only provides the species list for seeding and does not provide the list for the transplants (seedlings). UEI must provide a tentative list of species and ratios for the transplants and submit in Chapter 3 of the MRP - Part B as requested during the previous TA.

The Division received comments that UEI should not use lethal means of control for weeds and wildlife. The MRP - Part B states "no use of pesticides or chemical that have serious consequences to plants or wildlife will be used...unless recommended by a regulatory agency..." (Section 333.200, pp. 18/19). The plan clearly states to apply the Utah State regulations concerning weed control in Chapter 3, pp. 32-33.

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Section 357.301 states UEI would like to reserve the right to apply for augmentation of reclaimed areas, thus extending the bond liability period on a site-specific case scenario. This statement is acceptable, but unnecessary. Rule 645-301-357 allows a limited amount of reseeded and other work for specific purposes without lengthening the extended liability period.

Timing

Table 3-3, General Reclamation Timetable, lists Phase I (earthwork) complete in August 2025, seeding and mulching beginning in October (weather dependent), and planting seedlings and installing fencing beginning in November. (See R645-301-121.200 for deficiency regarding the timing of planting seedlings). Except as discussed below, these are the normal times for planting, and the schedule is acceptable.

Salina wildrye, galleta, and blue grama are three of the more dominant grasses in the proposed disturbed and reference areas. Galleta and blue grama are warm season grasses. The Division's experience has been that these species do not establish well when seeded in the fall. To increase the knowledge of warm season species planting dates in Utah, UEI agrees to establish demonstration plots to test whether summer seeding will increase establishment of the warm season species (Section 354, page 28).

Mulching and Other Soil Stabilizing Practices

The seeded, reclaimed site will be sprayed with 2000 pounds per acre of wood fiber mulch and 100 pounds per acre of a tackifier. For areas with slopes greater than 3:1, UEI will use additional mulch and tackifier (Section 357.365, page 36). However, Appendix 5-8 states 500 pounds per acre of wood fiber mulch and 100 pounds per acre of tackifier will be applied with the seed followed by application of an additional 1500 to 2000 pounds per acre of mulch and 100 pounds of tackifier. (See Permit Application Format and Contents section for the deficiency requesting clarification on mulching details).

Vascular vegetation and biological soil crusts (cryptogamic soil) currently stabilize the undisturbed area. Dr. King reports that cryptogamic soil contributes 7% percent of the total cover for the proposed disturbed area and 14% in the reference area. Reestablishment of cryptogamic soil will ensure long-term stabilization and enable plant community restoration. The Division recognizes the recovery rates for cryptogamic soil are slow. Furthermore, that the period of extended liability may not be enough time to see "mature" or significant colonies. UEI, however, may accelerate the recovery period through cryptogamic soil-related best management practices known at the time of reclamation.

To increase the knowledge of cryptogamic soil re-establishment in Utah, UEI agrees to the salvage of cryptogams prior to disturbance, and their redistribution on the topsoil pile. If soil

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crusts form on topsoil stockpiles, UEI will collect the colonies from the topsoil pile for redistribution at reclamation. When cryptogams are salvaged, a qualified botanist or soil scientist will oversee this salvaging process. See the Soil Resources section of this TA for details.

Standards for Success

The Division cannot fully evaluate this section until UEI addresses related deficiencies, e.g.,

- Soil amendment (hay/straw) and mulch: method and amount.
- Seed mix: composition and amount.
- Seedlings: species and timing.

Revegetation success is determined by the effectiveness of vegetation for the approved postmining land use and the extent of cover compared to the reference area. To avoid impacting the reference area by mining activity, UEI, Dr. King, and the Division established a new reference area in 2003, slightly farther from the mine entrance than before. If operations disturb the site, the Division may require a new location.

Tree and shrub stocking and vegetative ground cover will determine reclamation success. UEI will establish plant cover, woody plant density, and productivity at a minimum of 90% of the reference area (at a confidence interval of 0.1). UEI will meet diversity standards with the species in the final seed mix, and may plant additional plantings of seedlings to contribute to diversity (at year two). Woody plant density is set at 1500 stems per acre.

The MRP-Part B states that diversity will be met if categories of species (grass, forbs, shrubs, etc.) observed at 20% frequency or higher in the reclaimed area match or are above the number of categorized species in the reference area (Section 356.230, page 29).

Nurse crops are not beneficial in precipitation zone of less than 14 to 16 inches, especially a 9-inch precipitation zone such as Lila Canyon. UEI removed the reference that Russian Thistle serves as a nurse crop to help shade undergrowth and stabilize soil as requested during the last TA.

Wildlife habitat is the primary postmining land use. UEI does not plan to require or use animal control measures.

Section 358.100 refers to Appendix 3-3, which contains a current (2003) letter from the USFWS on threatened and endangered species. This section also states that the mine site environmental coordinator will identify possible TES species, notify the Division, and "take whatever actions are necessary to safeguard both the species and its habitat".

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The MRP – Part B states there are “no wetlands and / or riparian areas within the area of potential disturbance”. There are springs and wet meadows in the area that are considered habitats of high value for wildlife. UEI will address concerns about these areas as requested throughout this TA.

UEI must include a narrative in the MRP- Part B for the following missing Sections: 357.302, -.303, and -.304.

Findings:

Information in the MRP-Part B is inadequate to meet the minimum requirements of the Revegetation section of the Reclamation Plan regulations. Prior to approval, UEI must provide the following in accordance with:

R645-301-342.230; R353.120, UEI must modify the mix to increase diversity and reduce the seed rate.

R645-301-341.210; R353; R356.210; R356.231, UEI must provide a tentative list of species and ratios for the transplants and submit in Chapter 3 of the MRP-Part B as requested during the previous TA.

R645-301-357, UEI must include some information in the MRP – Part B narrative for the following coal rules: R645-301- 357.302, -357.303, and -357.304.

STABILIZATION OF SURFACE AREAS

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

Analysis:

For this site, the Order 1 Soil Survey identifies microbial crusts on the surface of the soil. Microbial crusts stabilize the soil through protection of the soil from water and wind erosion.

The plan recognizes the need to re-introduce microbial life in Section 241, and specifies a method in Section 244.200. Section 244.200 indicates that if soil crusts form on the topsoil pile, they will be added to the wood fiber mulch application in an attempt to reestablish biologic soil crusts on the reclaimed soil surface.

The best technology for re-introducing cryptogams on a large scale is still a subject of research. The internet site www.soilcrust.org provides excellent references. Introduction of

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biologic soil crusts may be as simple as sprinkling the crushed organisms over the surface and irrigating as described by Jayne Belnap in the publication, "Cryptobiotic Soil Crusts: Basis for Arid Land Restoration (Utah)," Restoration and Management Notes 12:1 Summer 1994. UEI's commitment to advancing this research is commendable.

Appendix 5-8 Reclamation and Enhancement Plan describes the means of soil stabilization including: gouging of the site to encourage a roughened appearance as shown in Figure 1; and placement of large rocks and boulders and vegetation; application of 500 lbs/acre wood fiber mulch and 100 lbs/acre of tackifier with seeding and then a second over spray of 1500 – 2000 lbs/acre of wood fiber mulch with 100lb/ac of tackifier and 200 lb/ac of 16-16-8 fertilizer. Appendix 5-8 further describes the use of wood fiber mulch over topsoil.

In accordance with R645-301-244.300, rills and gullies that contribute to a violation of water quality or that disrupt the postmining land use will be filled, regraded or stabilized.

Findings:

The information in the MRP-Part B meets the requirements of the R645 Rules with regard to stabilization of the soil surface and control of erosion and air pollution attendant to erosion.

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**

Plate 1-1, Permit Area Map, shows the affected areas for the Horse Canyon Mine. The areas include Part A, the Horse Canyon Project and MRP - Part B, the Lila Canyon Extension.

Bonded Area Map

The Division bonds for activities that will occur within the disturbed area boundaries. Several maps show the disturbed area boundaries, including Plate 5-2, Surface Area.

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Reclamation Backfilling And Grading Maps

Several maps and cross-sections illustrate the backfilling and grading plan. Plate 5-6 shows the overall reclamation plan including the postmining contours. The general cross-sections are on Plate 5-7A-1 through Plate 5-7A-4 and Plate 5-7B-1 through Plate 5-7B-3. To ensure that UEI could properly reclaim the refuse piles, they provide more a detailed map and cross sections of the refuse area. Figure 1 in Appendix 5-7 shows the contours of the refuse pile area while Figure 2 Appendix 5-7 shows the cross sections.

The contours on Plate 5-6 showed that UEI would reclaim the topsoil storage area and sediment pond to the exact pre-mining contours. The contours on Plate 5-6 are not consistent with the cross sections on Plate 5-7A-2. The cross section 4+00 shows that the sediment pond will remain after reclamation, while on Plate 5-6 UEI showed they would reclaim the sediment pond to the exact pre-mining contours.

UEI will need to submit new reclamation maps with the changes identified in the operation plan concerning removal of the undisturbed drainage culverts and adjusting the sedimentation pond.

Plate 7-7 shows the postmining hydrology at Phase I bond release. The notes on the map indicate that UEI will remove the sedimentation pond, RD-1, RD-2, and the upper portion of UC-1 at Phase II bond release. They will leave the portion of UC-1 that lies beneath the County Road in place.

Final Surface Configuration Maps

Plate 5-6 shows the postmining contours for the disturbed area. The disturbed map is not consistent with Plate 5-1A. On Plate 5-6, in the fan portal area, UEI has two parallel undisturbed-area boundary lines; while on Plate 5-1A there is only one line. UEI must show the same disturbed area boundaries on all maps.

Reclamation Surface and Subsurface Manmade Features Maps

UEI states that no manmade features will remain in the reclaimed area, except the 60-inch culvert section that will underlie the county road in the South Fork of Coleman Wash.

Findings:

Information provided in the MRP-Part B is not adequate to meet the requirements of this section of the regulations. Before approval, UEI must provide the following in accordance with:

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R645-301-542, UEI must submit reclamation maps that show the postmining contours at the topsoil storage site and at the sediment pond. In addition, UEI must submit cross-sections that show final reclamation of the sediment pond. The topography on Plates 5-1A and 5-6 are the same for the topsoil storage area and the sediment pond. Plate 5-6 shows the sediment pond will be removed at final reclamation, but cross section 4+00 on Plate 5-7A-2 shows the pond will remain.

R645-301-542, UEI must delineate the same disturbed area boundaries on Plate 5-6 as they do on all other maps.

BONDING AND INSURANCE REQUIREMENTS

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

Analysis:

Form of Bond

UEI submitted a rider to the bond in 2003 for the Lila Canyon Extension for \$1,556,000. The Division will evaluate the bond after they approve the reclamation plan but before permit issuance.

The Division will allow UEI to submit a bond separately after the Division has determined the bond amount, which they can only do after completing the TA review. Before the Division issues a permit, UEI must post a bond; see the requirements of R645-301-820. Upon receipt of the bond, the Division then makes a finding about whether or not the bond is in the proper form; see R645-301-860 for the requirements for the proper form of the bond. The Division cannot issue the permit until UEI has posted an adequate bond.

Determination of Bond Amount

The Division reviewed the bond calculations in Appendix 8-1. The Division noticed that UEI calculated asphalt disposal on the assumption that the material would be disposed on site. However, in the MRP-Part B, UEI repeatedly stated that asphalt would be disposed off site. The bond calculations must be consistent with the reclamation plan.

R645-301-830.130 requires that the reclamation cost estimate take into account the probable difficulty of reclamation, considering such factors as topography, geology, hydrology, and revegetation potential. The Division bases the reclamation cost estimate on the Office of Surface Mining's Reclamation Cost Handbook.

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UEI did not bond for subsidence. The regulations do not require a Permittee to bond for subsidence unless damage occurs to either structures or facilities protected under R645-301-525.500 or when contamination, diminution or interruption to a water supply protected under R645-301-731.530 occurs. UEI did obtain subsidence insurance.

The Division will finalize the bond after the reclamation plan is approved.

Terms and Conditions for Liability Insurance

UEI is required to submit a certificate issued by an insurance company authorized to do business in Utah to demonstrate that UEI has a public liability policy in force for the coal mining and reclamation activities in the permit area. The policy will provide a minimum insurance coverage for bodily injury and property damage of \$300,000 for each occurrence and \$500,000 aggregate.

UEI has an ACCORD form in Appendix 8-2 and 8-3 from the Federal Insurance Company stating the policy limits, the policy expiration date is June 1, 2005. An updated ACCORD form prior to issuing the approval for the Lila Canyon Extension must be in place.

Since the Horse Canyon Mine has a valid permit, UEI is required to have insurance at all times. The amounts of the policy are as follows:

- | | |
|---|-------------|
| • General aggregate limit | \$3,000,000 |
| • Products/completed operations aggregate limit | \$1,000,000 |
| • Advertising injury and personal limit | \$1,000,000 |
| • Each occurrence | \$1,000,000 |
| • Medical expense limit | \$10,000 |

The policy amounts are adequate to meet the minimum regulatory requirements.

UEI must maintain the policy in full force during the life of the permit or any renewal thereof, including the liability period necessary to complete all reclamation operations. The policy will include a rider requiring that the insurer notify the Division whenever substantive changes are made in the policy, including any termination or failure to renew. The ACCORD form, in Appendix 8-2 and Appendix 8-3, states that the issuing company will notify the Division at least 45 days before cancellation.

UEI also has subsidence coverage included with \$250,000 property damage deductible under the general liability policy.

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Findings:

Information provided in the MRP-Part B is not adequate to meet the requirements of this section of the regulations. Before approval, UEI must provide the following in accordance with:

R645-301-830.140, UEI must either include the cost of disposing asphalt off site or modify the MRP-Part B by including an on-site asphalt disposal site.

R645-301-830.140, UEI must have documentation showing that they are properly insured before the Division will approve the Lila Canyon Extension.

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CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT

CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA)

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

Analysis:

The Division has not completed the CHIA for this submittal. The Division has received comments that there are insufficient data to prepare a CHIA for the Horse Canyon Mine – Lila Canyon Extension area. Data are available from federal, state, and a number of other sources. UEI is not required to provide site-specific data unless none are available from other sources. The Division is not limited to information provided in the MRP-Part B in preparing the CHIA. However, the Division anticipates that they will undoubtedly use data in the MRP-Part B, along with other information, in preparation of the CHIA.

The Division has received comments that UEI has not identified the discharge area for the regional aquifer. The Division will consider the potential for discharge from a regional aquifer in the CHIA.

The Division will provide an assessment of the probable cumulative hydrologic impacts (CHIA) of the proposed operation, and all anticipated mining upon surface- and ground-water systems in the cumulative impact area. The CHIA will be sufficient to determine, for purposes of permit approval, whether UEI has designed the proposed operation to prevent material damage to the hydrologic balance outside the permit area. The Division will use data and analyses from several sources, including those submitted by UEI in the Lila Canyon Extension MRP-Part B in preparing the CHIA.

Findings:

The Division has not yet completed the CHIA for this submittal.

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