



Energy West Mining Company
P. O. Box 310
15 No Main Street
Huntington, Utah 84528

C/015/0009
Received 4/27/15
Task ID #4790

April 27, 2015

Electronically Submitted

Utah Coal Program
Utah Division of Oil, Gas, and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Subj: Deficiency Response to Task ID 4790, Addition of Waste Rock Site for Trail Mountain Mine, PacifiCorp, Trail Mountain Mine, C/015/0009, Emery County, Utah.

PacifiCorp, by and through its wholly-owned subsidiary, Energy West Mining Company (Energy West) as mine operator, hereby submits the additional information requested by the Division in regards to the submitted amendment to transfer the Cottonwood Waste Rock Site, which is currently part of the Cottonwood/Wilberg Mine permit (C/015/0019), to the Trail Mountain Mine permit (C/015/0009). The additional information includes the Appendices for the Biology and Land Use chapters. These appendices were mistakenly excluded from the original submittal.

Energy West has posted its bond to \$1,154,000.00 as estimated by the Division's bond specialist, Pete Hess. Originally, the bond was proposed to be increased to 1,232,000 as outlined Volume 1, Chapter 3, Appendix 1 of the amended Trail Mountain permit. Posting of this amount has been completed and a copy has been hand delivered to the Division.

Once Energy West receives conditional approval to this amendment, clean copies of the chapters and maps (PE certified) shall be submitted.

If you have any questions concerning this action, please contact myself at 435-687-4712 or Dennis Oakley at 435-687-4825.

Sincerely,

A handwritten signature in blue ink that reads "Kenneth S. Fleck".

Kenneth Fleck
Geology and Environmental Affairs Manager

Cc: file

The following responses to deficiencies are formatted as found in the technical analysis document. They are broken down into logical section headings similar to the R645 regulations. In each section, the regulation number along with the associated deficiency is followed by the permittee's italicized response.

Deficiency Response

R645-301-300 Biology: The cover page to the Appendix A and Appendix B are included but the actual appendix was not transferred over. The application must contain the contents of Appendix A (Vegetation Report) and Appendix B (Soils Conservation Service Vegetation Production Report) prior to approval.

R645-301-400 Land Use and Air Quality: The cover page to the Appendix A and Appendix B are included but the actual appendices were not transferred. The application must contain the contents of Appendix A (Cultural Resource Evaluation) and Appendix B (Approval Order 835-91) prior to approval.

The above noted appendices were inadvertently excluded from the original submittal. These appendices are included for inclusion to Task ID #4790.

R645-301-222.400: Please provide Volume 4, Biology Appendix B with soil productivity information.

Volume 4, Biology, Appendix B has been included with this submittal.

Maps – The conditional approval of the twenty-four Plates listed on pages 5 and 6 of this document is recommended. These plates are required to be certified under R645-301-512.100, -512.120, -512.130, -512.140, -512.150, -512.200, -512.230, -512.240, -512.250. When the Permittee submits the properly certified plates to the Division,, FINAL APPROVAL of Task ID # 4790 can be made by the Division.

The drawing titles "Trail Mountain Mine / Waste Rock Storage Facility/ 2001 Soil Sample Locations" and Figure 1, Trail Mountain Mine, Waste Rock Storage Facility, Soil Distribution for Final Reclamation are not PE certified and do not need to be certified. They are recommended for approval as submitted.

All appropriate maps shall be certified by a registered PE of the State of Utah. Signed maps will be supplied with the clean copy submittal.

Bonding – Energy West Mining Company must post an additional \$332,000 of bond in order to complete the permitting process to add the waste rock disposal facility (from the Cottonwood/Wilberg permit (C/015/0019) to the Trail Mountain Mine permit (C/015/0009).

At the time of this submittal, Energy West has been in contact with the Division's bonding specialist, Pete Hess, to discuss the additional bond requirements of the Trail Mountain Mine for the addition of the WRS. The discussions involved the discrepancies between Energy West's estimate and the Division's estimate. In the initial submittal, Energy West had estimated bond requirements of \$1,232,000.00, or an additional \$410,000. Mr Hess calculated the required bond to \$1,154,000 or an additional \$332,000. Prior to discussing these bonding requirements with Mr Hess, Energy West had submitted the paperwork and received the proper signatures for a bond rider of according to the Division's estimates of \$332,000. Mr Hess indicated that this would not become an issue since the bond rider posted is as the Division estimated. Refer to the attached email from Mr Hess.

Oakley, Dennis

From: Pete Hess <petehess@utah.gov>
Sent: Wednesday, April 15, 2015 1:36 PM
To: Daron Haddock; Dana Dean; Oakley, Dennis; OGMCOAL DNR; Suzanne Steab; Joseph Helfrich
Subject: Task ID # 4790 / Trail Mountain Mine / Add Waste Rock Site
Attachments: TotalBONDaddwasterocksiteTID4790.xls

Dennis Oakley called me this AM with a concern about the amount of bond needed to finalize the transfer of the waste rock site below the Cottonwood / Wilberg Mine into the Trail Mountain Mine permit, C/015/009.

I completed the addition of the direct costs for the waste rock site (2011 dollars) to the current Trail Mountain facilities reclamation (2012 dollars) by escalating the waste rock site for one year to 2012 dollars.

Then I escalated the total cost to 2015 (the current year) to \$ 1,126,947.00.

I then escalated this amount to 2017 dollars, which is when the next mid-term review is scheduled.

Total Required Bond Amount to 2017 = \$ 1,154,152.00.

The current bond posted is \$ 822,000, which leaves a deficient of \$ 332,000.

Scott Childs has used the \$ 332,000 deficit amount as the amount of additional bonding to be used by Energy West to obtain the additional surety amount.

The \$ 1,154,000 amount IS NOT the amount Dennis Oakley used in the TID 4790 reclamation cost estimate. He calculated the required bond amount as a larger amount.

EW has asked if they can use by number (\$ 1,154,000) in the final submittal of text, as that is the amount be evaluated by the surety for the additional \$ 332,000 bond. That paperwork is in process.

I said yes, that Dennis could use my calculations.

Please see my attached calculation.

Direct Costs / Trail Mine Facilities Area

Subtotal Demolition and Removal	\$369,084.00
Subtotal Backfilling and Grading	\$203,096.83
Subtotal Revegetation	\$38,547.16
Direct Costs	\$610,728.76

Indirect Costs / Trail Mine Facilities Area

Mob/Demob	\$61,072.88	10.0%
Contingency	\$30,536.44	5.0%
Engineering Redesign	\$15,268.22	2.5%
Main Office Expense	\$41,529.56	6.8%
Project Management Fee	\$15,268.22	2.5%
Subtotal Indirect Costs	\$163,675.31	26.8%

Total Cost 2012 Dollars / Trail Mine Facilities Area \$774,404.06

Add Reclamation Cost Waste Rock Site /CWW Vol 10
 Reclamation Cost 2011 Dollars

Demolition	\$10,618.49
Earthwork	\$231,606.96
Rip-Rap	\$24,151.09
Revegetation	\$33,342.25
Subtotal Diect Costs for Waste Rock Site (2011 Dollars)	\$299,718.79
Escalation Factor for 2011	1.012
Number of Years to 2012 (Escalation Dollars = \$ 3596)	1
Escalation Total Dollar Amount for 2012	\$303,315.42

Total of Mine Facilities + Waste Rock Site (2012 \$'s) \$1,077,719.00

Escalate to 2015 (Current Review Year) (ESF=1.015)	1.045678
Number of Years	3
Escalation Dollars	\$49,228.00

Total Cost Trail Mtn Disturbed Areas \$1,126,947.00

Escalate to 2017 (Next Midterm Review) (ESF= 1.012 for 2015)	1.02414
	2
Escalation Dollars	\$27,205.00

Escalated Reclamation Cost to 2017	\$1,154,152.00
Bond Amount (rounded to nearest \$1,000)	\$1,154,000.00
Posted Bond 10 / 09 / 2012	\$822,000.00
Difference Between Cost Estimate and Bond/ CO 10051	-\$332,000.00
Percent Difference	-28.00%

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change New Permit Renewal Exploration Bond Release Transfer

Permittee: PacifiCorp

Mine: Trail Mountain Mine

Permit Number: C/015/0009

Title: Deficiency Response to Task ID 4790, Addition of Waste Rock Site for Trail Mountain Mine, PacifiCorp, Trail Mountain Mine, C/015/0009, Emery County, Utah.

Description, Include reason for application and timing required to implement:

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

- Yes No 1. Change in the size of the Permit Area? Acres: _____ increase decrease.
- Yes No 2. Is the application submitted as a result of a Division Order? DO# _____
- Yes No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
- Yes No 4. Does the application include operations in hydrologic basins other than as currently approved?
- Yes No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
- Yes No 6. Does the application require or include public notice publication?
- Yes No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
- Yes No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
- Yes No 9. Is the application submitted as a result of a Violation? NOV # _____
- Yes No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
- Yes No 11. Does the application affect the surface landowner or change the post mining land use?
- Yes No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
- Yes No 13. Does the application require or include collection and reporting of any baseline information?
- Yes No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
- Yes No 15. Does the application require or include soil removal, storage or placement?
- Yes No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
- Yes No 17. Does the application require or include construction, modification, or removal of surface facilities?
- Yes No 18. Does the application require or include water monitoring, sediment or drainage control measures?
- Yes No 19. Does the application require or include certified designs, maps or calculation?
- Yes No 20. Does the application require or include subsidence control or monitoring?
- Yes No 21. Have reclamation costs for bonding been provided?
- Yes No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
- Yes No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you. (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

Kenneth Fleck
Print Name

Kenneth S. Fleck
Sign Name, Position, Date

Manager of Environmental Affairs APRIL 27, 2015

Subscribed and sworn to before me this 27 day of April, 2015

Kael Lynn Winn
Notary Public

My commission Expires:

Attest: State of Utah } ss:
County of Emery



For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining
----------------------	---------------------------	-------------------------------

PacifiCorp

Energy West Mining Company

Trail Mountain Mine MRP

Deficiency Response

Request for Additional Information, Addition of Waste Rock Site

Task ID #4790

Volume 1: Chapter 3, Appendix 1

Replace bond summary page

Direct Costs / Trail Mine Facilities Area

Subtotal Demolition and Removal	\$369,084.00
Subtotal Backfilling and Grading	\$203,096.83
Subtotal Revegetation	\$38,547.16
Direct Costs	<u>\$610,728.76</u>

Indirect Costs / Trail Mine Facilities Area

Mob/Demob	\$61,072.88	10.0%
Contingency	\$30,536.44	5.0%
Engineering Redesign	\$15,268.22	2.5%
Main Office Expense	\$41,529.56	6.8%
Project Maignement Fee	\$15,268.22	2.5%
Subtotal Indirect Costs	<u>\$163,675.31</u>	26.8%

Total Cost 2012 Dollars / Trail Mine Facilities Area \$774,404.06

Add Reclamation Cost Waste Rock Site /CWW Vol 10
Reclamation Cost 2011 Dollars

Demolition	\$10,618.49
Earthwork	\$231,606.96
Rip-Rap	\$24,151.09
Revegetation	\$33,342.25
Subtotal Diect Costs for Waste Rock Site (2011 Dollars)	<u>\$299,718.79</u>

Escalation Factor for 2011 1.012

Number of Years to 2012 (Escalation Dollars = \$ 3596) 1

Escalation Total Dollar Amount for 2012 \$303,315.42

Total of Mine Facilities + Waste Rock Site (2012 \$'s) \$1,077,719.00

Escalate to 2015 (Current Review Year) (ESF=1.015) 1.045678

Number of Years 3

Escalation Dollars \$49,228.00

Total Cost Trail Mtn Disturbed Areas \$1,126,947.00

Escalate to 2017 (Next Midterm Review) (ESF= 1.012 for 2015) 1.02414

Escalation Dollars \$27,205.00

Escalated Reclamation Cost to 2017* \$1,154,152.00

Bond Amount (rounded to nearest \$1,000) \$1,154,000.00

Posted Bond 10 / 09 / 2012 \$822,000.00

Difference Between Cost Estimate and Bond** -\$332,000.00

* As calculated by Division

** A bond rider in this amount was effective April 15, 2015 to increase the total bond for the Trail Mountain mine to \$1,154,000.00

PacifiCorp

Energy West Mining Company

Trail Mountain Mine MRP

Deficiency Response

Request for Additional Information, Addition of Waste Rock Site

Task ID #4790

Volume 4, Biology, Appendix A and B:

Add Appendix A and Appendix B

Prepared by

MT. NEBO SCIENTIFIC RESEARCH & CONSULTING
Post Office Box 337
Springville, Utah 84663
(801) 489-6937

for

UTAH POWER & LIGHT COMPANY
Mining Division
Post Office Box 310
Huntington, Utah 84528

Report: Patrick D. Collins, Ph.D.

Fieldwork: Patrick D. Collins
P. Dean Collins

Date: August 1989

TABLE OF CONTENTS

SCOPE	8-5
INTRODUCTION	8-5
General Site Description	8-5
Proposed Disturbances	8-6
Reference Areas	8-6
Sample Areas	8-6
METHODS	8-6
Cover and Composition	8-6
Woody Species Density	8-7
Productivity and Range Condition	8-7
Reference Areas	8-7
Threatened and Endangered Species	8-8
Sample Adequacy and Group Comparison Tests	8-8
RESULTS	8-8
Proposed Disturbed Pinyon/Juniper Community	8-8
Pinyon-Juniper Community Reference Area	8-9
Proposed Disturbed Gardner Saltbush	8-9
Gardner Saltbush Community Reference Area	8-9
Black Sagebrush/Grass Community	8-9
Black Sagebrush/Grass Community Reference Area	8-10
Statistical Analyses	8-10
Threatened and Endangered Species	8-10
DATA SUMMARY TABLE	8-11 thru 31

SCOPE

The following is a report of the vegetation of an area that is proposed for disturbance for a waste rock storage area for Utah Power and Light Mining Division, Emery County, Utah. This area will be called the "Cottonwood/Wilberg Waste Rock Storage Area" in this report. The primary purpose of this report is to supply meaningful and scientific data that will provide accurate standards for future reclamation of the area. Proposed disturbed areas, and reference areas similar to the proposed disturbed areas, were studied on the site. Studies were performed in accordance to the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGMI).

A METHODS section is included in this report to provide the reviewers with all methodologies used to obtain the data. Within the INTRODUCTION of the report, a General Site Description section is provided to give an overview of the site. The RESULTS section specifically describes each proposed disturbed plant community, reference area, and also supplies summaries of data and statistical analyses from ecological sampling. VEGETATION MAPS of each area were also included in this report.

INTRODUCTION

General Site Description

The study site for the proposed disturbed Waste Rock Storage Area was located 1.75 miles south of the Wilberg Mine, Emery County, Utah. Legal descriptions of the study site was: Township 17 South, Range 7 East, Section 34. Elevation of the study site ranged between 6,700 ft. and 7,000 ft. above sea level. Slopes of the study area varied between 3 degrees and 36 degrees and were composed of exposures to the east, west and south.

Soils of the area were derived primarily from Blue Gate Shale, overlain by Emery Sandstone - both members of the Mancos Shale stratigraphic unit. Major plant communities of the general area were typical salt desert shrublands and comprised of communities with the following plant species as dominants and/or subdominants: Pinyon Pine (*Pinus edulis*), Utah Juniper (*Juniperus oostersperma*), Mat Saltbush (*Atriplex corrugata*), Gardner Saltbush (*Atriplex gardneri*), Shadscale (*Atriplex confertifolia*), Salina Wildrye (*Elymus salinus*), and Black Sagebrush (*Artemisia nova*).

The waste rock storage facility, including the access road, drainage control diversions and sediment pond will occupy approximately 25 acres of land within the following associated vegetation communities:

Pinyon-Juniper	10 acres
Black Sagebrush	4 acres
Gardner Saltbush	11 acres

Revised 09/15/89

Proposed Disturbances

The two types of proposed disturbances that have been planned for the area are: a waste rock storage area and an access road to it. The proposed disturbances will primarily impact 3 plant communities. The access road will dissect a Pinyon-Juniper community, whereas, the waste rock storage area disturbance affects Gardner Saltbush and Black Sagebrush/Salina Wildrye plant communities.

Reference Areas

Reference areas to be used as standards for success at the time of final reclamation were selected for each of the proposed disturbances. These areas were chosen to comply with guidelines provided by DOGM and had similar slopes, soils, exposures, species composition, precipitation, elevations and other environmental variables.

Sample Areas

The following vegetation types and reference areas have been sampled and described in this report:

1. Proposed Disturbed Pinyon/Juniper Community
2. Reference Area Pinyon/Juniper Community
3. Proposed Disturbed Gardner Saltbush Community
4. Reference Area for the Gardner Saltbush Community
5. Proposed Disturbed Black Sagebrush/Grass Community
6. Reference Area for the Black Sagebrush/Grass Community

Summarized sampling results and more descriptive material for each of these communities are included in the following pages of this report.

METHODS

Quantitative and qualitative data were taken on and adjacent to proposed disturbed and reference areas of the waste rock site. Sampling was done July 11- July 14, 1989.

Cover and Composition

Bi-directional random and regular placement of sampling plots were designed to provide unbiased accuracy of the data compiled. Sample locations were located at regular intervals along transect lines. Sample plots were then randomly located at various distances right or left of the transect line. The direction (right or left) and distances were determined by random number selection. Cover estimates were made using ocular methods with meter square quadrats. Species composition and relative frequency were also assessed from the

quadrats. Additional information recorded on data sheets were: estimated precipitation, slope, exposure, grazing use, animal disturbance and other appropriate notes.

Woody Species Density

Density of woody plant species were recorded using the point quarter distance method (Cotton and Curtis 1956). In this method, random points were placed on the sample sites and measured into four quarters. The distances to the nearest woody plant species were then recorded in each quarter. The average point-to-individual distance was equal to the square root of the mean area per individual.

Productivity and Range Condition

Productivity and Range Condition estimates for the Cottonwood/Wilberg Waste Rock Storage Areas were performed by the U.S. Soil Conservation Service, Price Utah. Copies of these estimates will be supplied by Utah Power & Light, Mining Division. (see Page 7-19)

Reference Areas

Location and selection for the Pinyon/Juniper community reference area was straightforward. This reference area was located adjacent to the proposed disturbed access road and was actually part of the Pinyon/Juniper community to be disturbed. Reference area selection for remaining proposed disturbance communities, Gardner Saltbush and Black Sagebrush, were not so obvious. These proposed disturbed communities, with their relatively small areas, lie within an atypical depression that will be used as the waste rock area. This depression will be virtually entirely filled with waste rock, leaving almost no portion of the area with identical topography (slope, elevation, exposure, species composition, etc.) for reference areas. Identical plant communities of the proposed disturbance area were difficult to locate in the immediate area, including adjacent canyons i.e. Cottonwood and Huntington Canyons. We therefore selected sites that most closely approximated these communities and were within or near the permit area (see vegetation map for locations).

Selection of these reference areas were approved by DOGM (personal communications, B.A. Stettler, July 13, 1989). Justification for the selection for these references were as follows. Firstly, they were the communities that most closely simulate the communities to be disturbed when compared to all other locations observed. Secondly, it may be possible to use the reference area for the Black Sagebrush (or Pinyon/Juniper community) for the Gardner Saltbush community standards at the time of final reclamation because the slopes, elevations and general physiognomy of the area will be changed during mining operations. It is possible that other native plant communities may be

more suitable for final reclamation. We have, however, selected reference areas similar to each of those areas to be disturbed. Yet it does leave the possible option of substituting more suitable reference areas at the time of future reclamation if the regulatory agency and operator agree to those terms.

Threatened and Endangered Species

The areas were surveyed on a grid-type system for threatened and endangered plant species. Voucher specimens for many of the species will be filed at the Brigham Young University herbarium. Plant nomenclature follows Welch et al. (1987).

Sample Adequacy and Group Comparison Tests

Sampling adequacy for cover and woody species density was achieved using formulas from Snedecor and Cochran (1980), insuring that 80% of the samples were within 10% of the true mean for the shrub communities of the area. On areas where sample adequacy was not met, the maximum sample size required by DOGM was achieved. Student's t-tests were also employed to compare the proposed disturbance and reference areas of all sites for cover and woody plant species density. Jaccard's Community Coefficient's were used to make species composition comparisons. This was done by listing the species that occurred in the sampling quadrats only (cover and density) and from these, compiling common species lists. All sample means, standard deviations, and sample sizes were included in this report to enable the reviewers to apply further statistical tests if desired.

Vegetation Mapping

Vegetation mapping was done by walking the area and using aerial photos and contour maps. Sampling locations are also shown on these maps.

RESULTS

Proposed Disturbed Pinyon/Juniper Community

The proposed disturbed access road for the waste rock storage area was located within a Pinyon/Juniper plant community. The general slope of the area was 3 degrees with an exposure to the south. The community was composed of 90.26% trees and shrubs (Table 1). Dominant plant species in this community were Pinyon Pine (*Pinus edulis*), Utah Juniper (*Juniperus osteosperma*) and Mountain Mahogany (*Cercocarpus montanus*).

Woody plant species density was 804 individuals per acre (Table 3). Mean total living cover was estimated at 33.45% (Table 1). For a list of species with their relative cover, frequency and composition, refer to Table 2.

Pinyon/Juniper Reference Area

The reference area for the Pinyon/Juniper community was located adjacent to the proposed disturbed community. Its slope and exposure was virtually identical to that community. Reference area sample results show the composition to be 77.21% woody species, 15.29% forbs and 0.00% grasses (Table 4). The dominate species were also Pinyon Pine, Utah Juniper and Mountain Mahogany. Mean total living cover was estimated at 34.08% (Table 4). Woody species density was 776 individuals per acre (Table 6). For a list of the cover and frequency data by species refer, to Table 5.

Proposed Disturbed Gardner Saltbush

A erosional depression with steep slopes and generally level bottomlands formed the proposed waste rock storage area. Gardner Saltbush communities dominated the slopes of the depression. There were a variety of exposures due to the erosional patterns of the area. The transects were placed to dissect this area and include exposure differences to most accurately predict the average cover and species composition. The mean slope of the community was about 25 degrees. The dominate plant species was Gardner Saltbush (*Atriplex gardneri*), that comprised 93% of the total living cover. Mean total living cover was 24.55% (Table 7). Total density of the area was 5,556 woody plants per acre (Table 9). For a list of species with their relative cover and frequency, refer to Table 8.

Gardner Saltbush Community Reference Area

The community that most closely simulated the proposed disturbed community was also adjacent to the area (refer to the METHODS section for procedures used to select this area for a reference site). The slope of the area was 36 degrees with an eastern exposure. The total living cover was 25.13% (Table 10), and composed of virtually 100% Gardner Saltbush (Table 11). Density of the area was estimated at 4,928 individuals per acre (Table 12).

Black Sagebrush/Grass Community

A Black Sagebrush community exists at the base of the slopes of the depression proposed to be used for the waste rock storage area. The slope of this community was estimated at 3 degrees. Mean total living cover of this community was estimated as 25.25%, with 66.63%

shrubs, 2.88% forbs, and 30.49% grasses (Table 13). Dominate species (Table 14) were Black Sagebrush (*Artemisia nova*) and Salina Wildrye (*Elymus salinus*). For a summation of cover by species, refer to Table 14. Density of woody species was estimated at 4,519 individuals per acre (Table 15).

Black Sagebrush/Grass Community Reference Area

A similar community was located approximately 1/4 mile east of the proposed disturbed area (refer to vegetation map). The slope of this area was also approximately 3 degrees with an exposure to the south. The Black Sagebrush Community had a mean total cover of 24.38%, with the same dominate species as the proposed disturbed community, but a slightly different list of component species (refer to the METHODS section for procedures used to select this area for a reference site). For a list of these data, refer to Tables 19-21.

Statistical Analyses

Statistical analyses were employed to compare each proposed disturbed plant with its respective reference area (Tables 19-21). Jaccard's Similarity Coefficients showed the Pinyon/Juniper community to be 74%, the Gardner Saltbush community to be 20%, and the Black Sagebrush/Grass community 64% similar to their reference areas. As described in the METHODS section of this report, the species used for these analyses were composed only of species encountered in the quadrats. If general species lists were compiled and used in the similarity equations, the percent of similarities would undoubtedly been much higher.

When group comparison tests were performed on each of the plant communities, no significant differences were observed between proposed disturbed areas and their reference areas for either cover or density (Tables 19-21).

Threatened and Endangered Plant Species

No threatened or endangered plant species were found during the course of the study. As mentioned previously, voucher specimens will be donated to the herbarium at Brigham Young University.

TABLE 1: Total cover and composition summary for the proposed disturbed Pinyon-Juniper Community for the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover and composition with standard deviations and sample sizes.

TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZES
Total Living Cover*	33.45	23.15	40
Litter	20.13	14.64	40
Bareground	22.25	18.99	40
Rock	24.18	24.46	40
COMPOSITION			
Trees/Shrubs	90.26	22.46	40
Forbs	7.24	17.23	40
Grasses	0.00	0.00	40

* Sample size insures 80% accuracy within 10% of the true mean or maximum samples suggested by the State of Utah, Division of Oil, Gas and Mining.

TABLE 2: Species cover and frequency summary for the proposed disturbed Pinyon-Juniper Community of the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover, standard deviation, sample size and relative frequency by species.

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
<i>Cercocarpus montanus</i>	3.25	13.99	40	7.50
<i>Ephedra viridus</i>	1.08	2.71	40	15.00
<i>Juniperus osteosperma</i>	6.75	13.00	40	35.00
<i>Opuntia polyacantha</i>	0.13	0.78	40	2.50
<i>Pinus edulis</i>	19.35	24.85	40	50.00
<i>Yucca harrimaniae</i>	1.93	5.02	40	17.50
FORBS				
<i>Cryptantha humilis</i>	0.88	1.58	40	35.00
<i>Erigeron sp.</i>	0.03	0.16	40	2.50
<i>Penstemon mucronatus</i>	0.08	0.26	40	7.50
GRASSES				

TABLE 3: Woody species densities of the proposed disturbed Pinyon-Juniper Community of the Cottonwood/Wilberg Waste Rock Site.

	NUMBER/ACRE*
Artemisia nova	40.19
Cercocarpus montanus	40.19
Ephedra viridus	194.24
Juniperus osteosperma	147.35
Pinus edulis	207.64
Opuntia polyacantha	66.98
Rhus trilobata	6.70
Yucca harrimaniae	100.47
	<hr/>
TOTAL	803.76

* Sample size was 30 (n=30) and insured that 80% accuracy within 10% of the true mean.

TABLE 4: Total cover and composition summary for the Pinyon-Juniper Community Reference Area for the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover and composition with standard deviations and sample sizes.

TOTAL COVER	X MEAN COVER	STANDARD DEVIATION	SAMPLE SIZES
Total Living Cover*	34.08	30.91	40
Litter	15.58	11.88	40
Bareground	20.63	20.97	40
Rock	29.73	24.61	40
COMPOSITION			
Trees/Shrubs	77.21	39.40	40
Forbs	15.29	32.98	40
Grasses	0.00	0.00	40

* Sample size insures 80% accuracy within 10% of the true mean or maximum samples suggested by the State of Utah, Division of Oil, Gas and Mining.

TABLE 5: Species cover and frequency summary for the Pinyon-Juniper Community Reference Area of the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover, standard deviation, sample size and relative frequency by species.

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
<i>Artemisia nova</i>	0.28	1.43	40	5.00
<i>Cercocarpus montanus</i>	2.58	7.70	40	10.00
<i>Ephedra viridus</i>	1.43	5.58	40	7.50
<i>Eriogonum sp.</i>	0.20	0.46	40	17.50
<i>Juniperus osteosperma</i>	12.68	29.05	40	20.00
<i>Opuntia polyacantha</i>	0.25	1.56	40	2.50
<i>Pinus edulis</i>	14.45	24.69	40	37.50
<i>Yucca harrimaniae</i>	0.75	3.96	40	5.00
FORBS				
<i>Cryptantha humilis</i>	1.33	2.84	40	20.00
<i>Penstemon mucronatus</i>	0.15	0.65	40	7.50
GRASSES				

TABLE 6: Woody species densities for the Pinyon-Juniper Community Reference Area of the Cottonwood/Wilberg Waste Rock Site.

	NUMBER/ACRE*
Artemisia nova	25.87
Cercocarpus montanus	97.01
Ephedra viridus	161.61
Juniperus osteosperma	148.74
Pinus edulis	239.29
Opuntia polyacantha	45.27
Yucca harrimaniae	58.20

TOTAL	775.99

* Sample size was 30 (n=30) and insured that 80% accuracy within 10% of the true mean.

TABLE 7: Total cover and composition summary for the proposed disturbed Gardner Saltbush Community for the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover and composition with standard deviations and sample sizes.

TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZES
Total Living Cover*	24.55	9.29	40
Litter	5.28	2.29	40
Bareground	64.15	18.27	40
Rock	6.15	12.91	40
COMPOSITION:			
Trees/Shrubs	95.45	12.37	40
Forbs	0.31	1.95	40
Grasses	4.24	12.32	40

* Sample size insures 80% accuracy within 10% of the true mean or maximum samples suggested by the State of Utah, Division of Oil, Gas and Mining.

TABLE 8: Species cover and frequency summary for the proposed disturbed Gardner Saltbush Community of the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover, standard deviation, sample size and relative frequency by species.

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
<i>Artemisia nova</i>	0.43	2.65	40	2.50
<i>Atriplex corrugata</i>	0.13	0.78	40	2.50
<i>Atriplex gardneri</i>	22.83	9.17	40	100.00
FORBS				
<i>Stanleya pinnata</i>	0.13	0.78	40	2.50
GRASSES				
<i>Elymus salinus</i>	1.05	3.08	40	12.50

TABLE 9: Woody species densities of the proposed disturbed Gardner Saltbush Community of the Cottonwood/Wilberg Waste Rock Site.

	NUMBER/ACRE*
Artemisia nova	46.30
Atriplex gardneri	5,509.82
	<hr/>
TOTAL	5,556.12

* Sample size was 36 (n=36) and insured that 80% accuracy within 10% of the true mean.

TABLE 10: Total cover and composition summary for the Gardner Saltbush Community Reference Area for the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover and composition with standard deviations and sample sizes.

TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZES
Total Living Cover*	25.13	9.65	40
Litter	7.75	4.18	40
Bareground	66.63	10.15	40
Rock	0.50	1.87	40
COMPOSITION			
Trees/Shrubs	100.00	0.00	40
Forbs	0.00	0.00	40
Grasses	0.00	0.00	40

* Sample size insures 80% accuracy within 10% of the true mean or maximum samples suggested by the State of Utah, Division of Oil, Gas and Mining.

TABLE 11: Species cover and frequency summary for the Gardner Saltbush Community Reference Area of the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover, standard deviation, sample size and relative frequency by species.

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
Atriplex gardneri	25.13	9.65	40	100.00
FORBS				
GRASSES				

TABLE 12: Woody species densities for the Gardner Saltbush Community Reference Area of the Cottonwood/Wilberg Waste Rock Site.

	NUMBER/ACRE*
<i>Atriplex gardneri</i>	4,927.60

TOTAL	4,927.60

* Sample size was 36 (n=36) and insured that 80% accuracy within 10% of the true mean.

TABLE 13: Total cover and composition summary for the proposed disturbed Black Sagebrush/Grass Community for the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover and composition with standard deviations and sample sizes.

TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZES
Total Living Cover*	25.25	10.95	40
Litter	6.50	3.57	40
Bareground	53.10	19.07	40
Rock	15.15	14.70	40
COMPOSITION			
Trees/Shrubs	66.63	22.21	40
Forbs	2.88	11.35	40
Grasses	30.49	19.39	40

* Sample size insures 80% accuracy within 10% of the true mean or maximum samples suggested by the State of Utah, Division of Oil, Gas and Mining.

TABLE 14: Species cover and frequency summary for the proposed disturbed Black Sagebrush/Grass Community of the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover, standard deviation, sample size and relative frequency by species.

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
<i>Artemisia nova</i>	10.90	7.36	40	95.00
<i>Atriplex confertifolia</i>	1.88	3.32	40	30.00
<i>Atriplex gardneri</i>	1.63	6.06	40	10.00
<i>Chrysothamnus nauseosus</i>	0.13	0.78	40	2.50
<i>Chrysothamnus viscidiflorus</i>	0.35	1.17	40	10.00
<i>Eriogonum corymbosum</i>	0.63	2.33	40	7.50
<i>Juniperus osteosperma</i>	1.88	10.94	40	5.00
FORBS				
<i>Eriogonum sp.</i>	0.68	3.30	40	10.00
GRASSES				
<i>Elymus salinus</i>	7.08	4.76	40	85.00
<i>Stipa hymenoides</i>	0.13	0.78	40	2.50

TABLE 15: Woody species densities of the proposed disturbed Black Sagebrush/Grass Community of the Cottonwood/Wilberg Waste Rock Site.

	NUMBER/ACRE*
Artemisia nova	3,012.45
Atriplex confertifolia	1,066.91
Atriplex gardneri	156.90
Chrysothamnus viscidiflorus	31.38
Eriogonum corymbosum	156.90
Juniperus osterosperma	31.38
Opuntia polyacantha	31.38
Sclerocactus whipplei	31.38
	<hr/>
TOTAL	4,518.68

* Sample size was 36 (n=36) and insured that 80% accuracy within 10% of the true mean.

TABLE 16: Total cover and composition summary for the Black Sagebrush/Grass Community Reference Area for the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover and composition with standard deviations and sample sizes.

TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZES
Total Living Cover*	24.38	9.95	40
Litter	5.48	2.41	40
Bareground	55.60	15.10	40
Rock	14.55	12.49	40
COMPOSITION			
Trees/Shrubs	81.24	21.05	40
Forbs	0.00	0.00	40
Grasses	16.26	16.75	40

* Sample size insures 80% accuracy within 10% of the true mean or maximum samples suggested by the State of Utah, Division of Oil, Gas and Mining.

TABLE 17: Species cover and frequency summary for the Black Sagebrush/Grass Community Reference Area of the Cottonwood/Wilberg Waste Rock Site. The table shows the mean percent cover, standard deviation, sample size and relative frequency by species.

SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
TREES & SHRUBS				
<i>Artemisia nova</i>	17.53	7.97	40	95.00
<i>Atriplex confertifolia</i>	0.18	0.83	40	5.00
<i>Chrysothamnus viscidiflorus</i>	0.13	0.78	40	2.50
<i>Echinocereus triglochidiatus</i>	1.08	2.93	40	12.50
<i>Juniperus osteosperma</i>	0.63	2.29	40	7.50
<i>Opuntia polyacantha</i>	0.18	0.83	40	5.00
<i>Sclerocactus whipplei</i>	0.05	0.31	40	2.50
FORBS				
GRASSES				
<i>Elymus salinus</i>	3.00	5.79	40	30.00
<i>Stipa hymenoides</i>	1.63	2.77	40	30.00

TABLE 18: Woody species densities for the Black Sagebrush/Grass .
Community Reference Area of the Cottonwood/Wilberg Waste Rock Site.

	NUMBER/ACRE*
Artemisia nova	4,521.91
Atriplex confertifolia	51.98
Chrysothamnus viscidiflorus	51.98
Echinocereus triglochidiatus	51.98
Juniperus osterosperna	207.90
Pinus edulis	103.95

TOTAL	4,989.70

* Sample size was 24 (n=24) and insured that 80% accuracy within 10% of the true mean.

TABLE 19. Statistical summary sheet for the proposed disturbed and reference areas of the Pinyon-Juniper communities of the Cottonwood/Wilberg Waste Rock Site.

PROPOSED DISTURBED

Total Living Cover	x = 33.45	s = 23.15	n = 40	NMin = 78.47
Density	x = 82.99*	s = 30.90	n = 30	NMin = 22.71
Aspect	South			
Slope	3 deg.			

REFERENCE AREA

Total Living Cover	x = 34.08	s = 30.91	n = 40	NMin = 134.78
Density	x = 87.85*	s = 29.16	n = 24	NMin = 18.05
Aspect	South			
Slope	3 deg.			

Jaccard's Similarity Coefficient = 75.00%

Student's t-value (cover) = -0.103
 Degrees of freedom = 78
 Significance level = Nonsignificant

Student's t-value (density) = - 0.609
 Degrees of freedom = 62
 Significance level = Nonsignificant

x = sample mean, s = sample standard deviation,
 n = sample size, NMin = Minimum sample size for statistical adequacy,
 p = significance level, N.S. = nonsignificant, * average distance in
 inches at each sample location.

TABLE 20. Statistical summary sheet for the proposed disturbed and reference areas of the Gardner Saltbush communities of the Cottonwood/Wilberg Waste Rock Site.

PROPOSED DISTURBED

Total Living Cover $x = 24.55$ $s = 9.29$ $n = 40$ $NMin = 23.46$
 Density $x = 30.83^*$ $s = 13.46$ $n = 36$ $NMin = 31.23$
 Aspect East & West
 Slope 25 deg.

REFERENCE AREA

Total Living Cover $x = 25.13$ $s = 9.65$ $n = 40$ $NMin = 24.16$
 Density $x = 33.69^*$ $s = 11.93$ $n = 36$ $NMin = 20.54$
 Aspect East
 Slope 36 deg.

Jaccard's Similarity Coefficient = 20.00%

Student's t-value (cover) = - 0.274
 Degrees of freedom = 78
 Significance level = Nonsignificant

Student's t-value (density) = - 0.954
 Degrees of freedom = 70
 Significance level = Nonsignificant

x = sample mean, s = sample standard deviation,
 n = sample size, $NMin$ = Minimum sample size for statistical adequacy,
 p = significance level, N.S. = nonsignificant, * average distance in
 inches at each sample location.

TABLE 21. Statistical summary sheet for the proposed disturbed and reference areas of the Black Sagebrush/Grass communities of the Cottonwood/Wilberg Waste Rock Site.

PROPOSED DISTURBED

Total Living Cover $x = 25.25$ $s = 10.95$ $n = 40$ $NMin = 30.81$
 Density $x = 34.12^*$ $s = 15.18$ $n = 36$ $NMin = 32.43$
 Aspect South
 Slope 3 deg.

REFERENCE AREA

Total Living Cover $x = 24.38$ $s = 9.95$ $n = 40$ $NMin = 27.29$
 Density $x = 34.48^*$ $s = 8.49$ $n = 24$ $NMin = 9.93$
 Aspect South
 Slope 3 deg.

Jaccard's Similarity Coefficient = 64.29%

Student's t-value (cover) = 0.372
 Degrees of freedom = 78
 Significance level = Nonsignificant

Student's t-value (density) = - 0.106
 Degrees of freedom = 58
 Significance level = Nonsignificant

x = sample mean, s = sample standard deviation,
 n = sample size, $NMin$ = Minimum sample size for statistical adequacy,
 p = significance level, $N.S.$ = nonsignificant, $*$ average distance in
 inches at each sample location.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

350 North 4th East Price, Utah 84501

SUBJECT Information on Waste Rock Sites - Cottonwood Wilberg DATE: January 25, 1990

TO: Val Payne
Utah Power & Light
P.O. Box 310
Huntington, Utah 84528

Dear Mr. Payne:

Below is the information on the new waste rock sites - Cottonwood Wilberg:

Sites That Match The Soils:

Strych very stony loam dry - 3-30% slope, which is the Ustollic Calcic-orthid

<u>Vegetative Type</u>	<u>Ecological Condition</u>	<u>Present Production</u>	<u>Potential Production</u>
Pinyon-Juniper (Waste rock Ref.)	Fair	400 lbs/ac	1200 lbs/ac
Lithic Ustic Torriorthents - 0-5% slopes			
Black Sage (Waste rock Ref.)	Fair	250 lbs/ac	500 lbs/ac
Black Sage (Waste rock)	Fair	300 lbs/ac	500 lbs/ac
Lithic Ustic Torriorthents - 5-30% slopes			
Saltbrush (Waste rock Ref.)	Good	125 lbs/ac	150 lbs/ac

George S Cook
George S. Cook
Range Conservationist
Soil Conservation Service
Price, Utah



PacifiCorp

Energy West Mining Company

Trail Mountain Mine MRP

Deficiency Response

Request for Additional Information, Addition of Waste Rock Site

Task ID #4790

Volume 4, Land Use, Appendix A and B:

Add Appendix A and Appendix B



ARCHEOLOGICAL - ENVIRONMENTAL RESEARCH CORPORATION

P.O. Box 853 Bountiful, Utah 84010

Tel: (801) 292-7061, 292-9668

August 7, 1989

Subject: ADDENDUM REPORT TO "Cultural Resource Evaluation of Potential Subsidence and Escarpment Failure Areas in the East Mountain Locality of Emery County, Utah" dated November 16, 1987 (AERC Project UPL-87-6, Utah State Project No. 87-AF-739b)

To: Mr. Val Payne, Utah Power & Light Company, P.O. Box 1005, Huntington, Utah 84528

Info: Utah State Preservation Office, Division of State History, 300 Rio Grande, Salt Lake City, Utah 84101

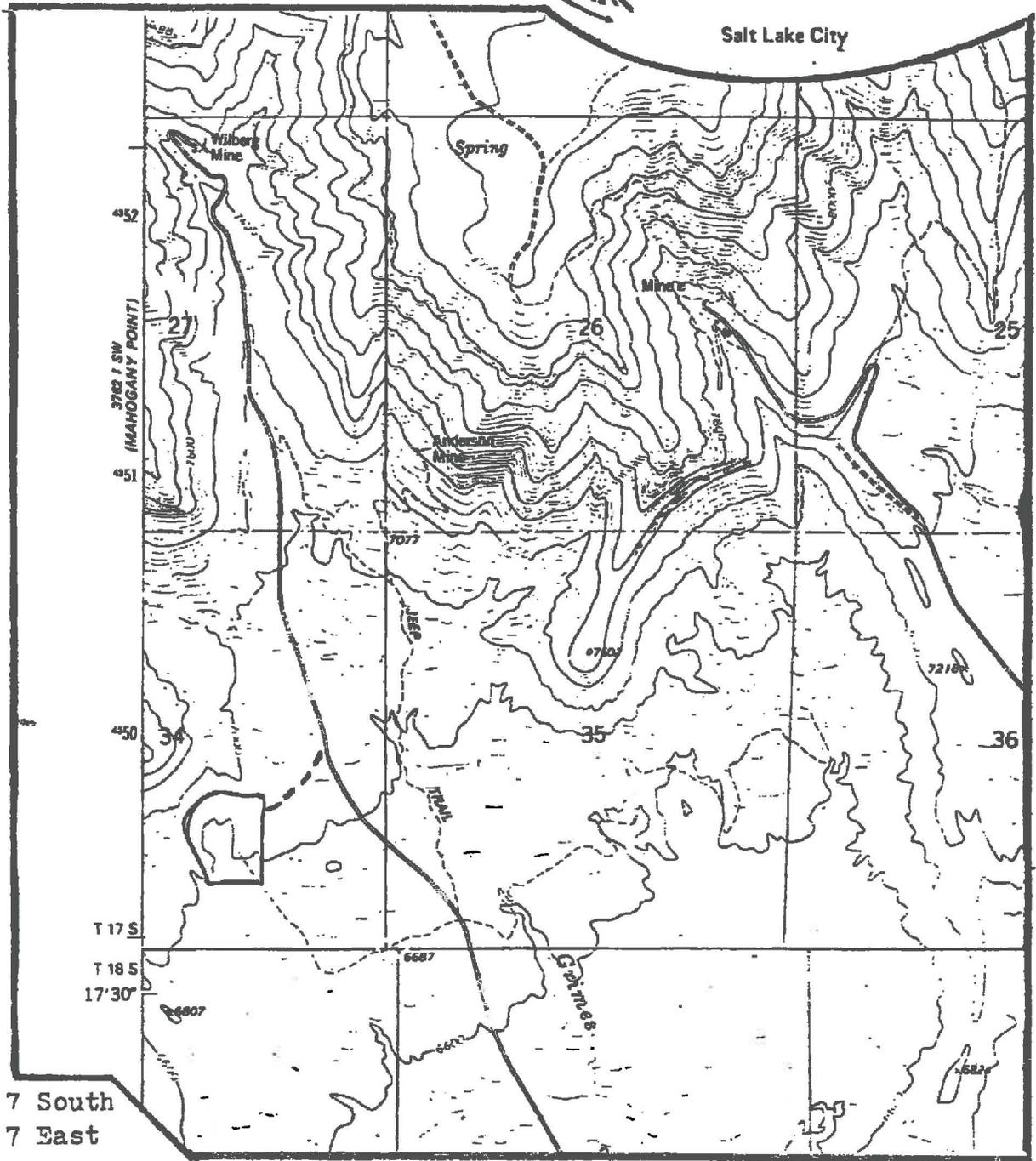
In April, 1987, during the evaluations conducted for Utah Power & Light Company relative to the referenced report, F. Richard Hauck of AERC accompanied Mr. Val Payne to a possible waste rock disposal site adjacent to Grimes Creek. Mr. Payne was uncertain at the time whether the site would be needed by Utah Power & Light Company and requested that a report on the archaeological evaluations of the location be deferred to a future date.

This addendum to the 1987 report is prepared as a statement that an intensive archaeological evaluation was conducted by AERC of the waste rock disposal location and access route as shown in the attached map. No cultural resource sites or isolated cultural material were observed during the evaluation.

AERC recommends that a cultural resource clearance for the development and use of this site be granted to Utah Power & Light Company based upon adherence to the standard stipulations.

A handwritten signature in black ink, appearing to read "F. Richard Hauck". The signature is written in a cursive style with a large initial "F" and a long horizontal stroke at the end.

F. Richard Hauck, Ph.D.
President



T. 17 South
R. 7 East

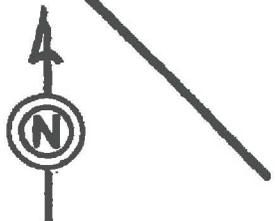
Meridian: Salt Lake E. & M.

Quad:
Red Point, Utah
7.5 minute-USGS

Project: UPL-87-6
Series: Central Utah
Date: 11-16-87

MAP 3A
Cultural Resource Survey
of Potential Disturbance
Areas in the East Mountain
Locality of Emery County

Legend:
Waste Rock Disposal Site
Access Route



2.64" = 1 mile
Scale

Cultural Resources Stipulations

1. All Vehicular traffic, personnel movement, and construction should be confined to the locations examined as referenced in this report, and to the existing roadways and/or evaluated access routes.

2. All personnel should refrain from collecting artifacts and from disturbing any cultural resources in the area.

3. The authorized official should be consulted should cultural remains from subsurface deposits be exposed during construction work or if the need arises to relocate or otherwise alter the location of the construction area.



State of Utah
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY

Norman H. Bangerter
Governor
Kenneth L. Alkema
Executive Director
P. Bernell Cordner
Director

1950 West North Temple
Salt Lake City, Utah
(801) 536-4000
(801) 536-4099 Fax

Reply to State of Utah
Division of Air Quality
Department of Environmental Quality
Salt Lake City, Utah 84114-4820

DAQE-835-91

December 16, 1991

David Smaldone
Pacifcorp
P. O. Box 26128
Salt Lake City, Utah 84126-0128

Re: Approval Order for Waste Rock Storage Site near the Cottonwood Mine
Emery County CDS B ATT

Dear Mr. Smaldone:

The above-referenced project has been evaluated and found to be consistent with the requirements of the Utah Air Conservation Rules (UACR) and the Utah Air Conservation Act. A 30-day public comment period was held and all comments received were evaluated. The conditions of this Approval Order (AO) reflect any changes to the proposed conditions which resulted from the evaluation of the comments received. This air quality AO authorizes the project with the following conditions and failure to comply with any of the conditions may constitute a violation of this order:

1. Utah Power & Light Company, with offices located at P. O. Box 310, Huntington, Utah, shall install and operate the Cottonwood/Wilberg Waste Rock Storage Facility in Emery County according to the information submitted in the NOI dated February 26, 1990, and additional information submitted to the Executive Secretary to the date of this AO.

A copy of this AO shall be posted on site and shall be available to the employees who operate the air emission producing equipment. All employees who operate the air emission producing equipment shall receive instruction as to their responsibilities in operating the equipment in compliance with all of the relevant conditions.

2. The approved installations shall consist of the following equipment:
 - A. One Bulldozer
 - B. One Diesel Truck, 24 ton capacity (approximate)
3. Visible emissions from any point or fugitive emission source associated with the installation or control facilities shall not exceed 20% opacity. Opacity observations of emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. Visible emissions from intermittent sources shall use procedures similar to Method 9, but the requirement for observations to be made at 15 second intervals over a six minute period shall not apply. Any time interval with no visible emissions shall not be included.

1-20.1
Added 1|8|93

4. The quantity of waste rock hauled to the site shall not exceed 50,000 tons per 12-month period, and the bulldozer shall not operate more than 200 hours per 12-month period without prior approval in accordance with R446-1-3.1, UAC. Compliance with the annual limitations shall be determined on a rolling 12-month total. Based on the first day of each month a new 12-month total shall be calculated using the previous 12 months. Records of haulage and hours of operation shall be kept for all periods when in operation. Records of haulage and hours of operation shall be made available to the Executive Secretary or his representative upon request and shall include a period of two years ending with the date of the request. Records shall be available by the 10th of the month for the preceding month.

The quantity of waste rock hauled to the site shall be determined by examination of company records. The quantity of waste rock hauled to the site may be determined by multiplying the designed capacity (number of tons) hauled by each truck and the number of trips made by that truck during each time period. The records shall be kept on a daily basis. Hours of operation of the bulldozer shall be determined by supervisor monitoring and maintaining of an operations log.

5. All unpaved roads and other unpaved operational areas which are used by mobile equipment shall be water sprayed and/or chemically treated to reduce fugitive dust. Control is required at all times (24 hours per day every day) for the duration of the project/operation. The application rate of water shall be a minimum of 0.25 gallons per square yard. Application shall be made at least once every two hours during all times the installation is in use unless daily rainfall exceeds 0.10 of an inch or unless the road is in a muddy/damp/moist condition or unless it is below freezing. The use of "Perma-Zyme" chemical treatment for dust control, when applied according to manufactures instructions, is approved by the Executive Secretary. Records of water or chemical treatment shall be kept for all periods when the waste rock storage area is in operation. The records shall include the following items:

- A. Date
- B. Number of treatments made, dilution ratio, and quantity
- C. Rainfall received, if any, and approximate amount
- D. Time of day treatments were made

Records of treatment shall be made available to the Executive Secretary upon request and shall include a period of two years ending with the date of the request.

The haul road length shall not exceed 1500 feet without prior approval in accordance with R446-1-3.1, UAC. The speed of vehicles on the haul road shall not exceed 10 miles per hour without prior approval in accordance with R446-1-3.1, UAC.

6. Visible emissions from haul road traffic shall not exceed 20% opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9, but the requirement for observations to be made at 15 second intervals over a six minute period shall not apply. Six points, distributed along the length of the haul road, shall be chosen by the Executive Secretary or his representative. An opacity reading shall be made at each point when a vehicle passes the selected points. Opacity readings

shall be made $\frac{1}{4}$ vehicle length behind the vehicle. The accumulated six readings shall be averaged for the compliance value.

7. The amount of disturbed area at any time shall not exceed 16.9 acres without prior approval in accordance with R446-1-3.1, UAC.
8. The moisture content of the material shall be maintained at a value of no less than 7.0% by weight until the material is in place and stabilized. The moisture content shall be tested if directed by the Executive Secretary using the appropriate ASTM method.
9. The silt content of the waste rock material shall not exceed 15% by weight without prior approval in accordance with R446-1-3.1, UAC. The silt content shall be determined if directed by the Executive Secretary using the appropriate ASTM method. The silt content is defined as all material passing a #200 U. S. Standard Sieve.
10. Emissions from the exposed areas shall be minimized through the operating practice of watering and revegetation. During the operation of waste rock storage facility, the disturbances of exposed areas shall be minimized as much as possible, and water shall be applied to exposed areas to the extent necessary to prevent the generation of fugitive dusts as dry conditions warrant or as determined necessary by the Executive Secretary. Once the waste rock facility is filled to capacity or mining operations have ceased, natural area vegetation shall be placed as soon as possible to prevent the generation of fugitive dusts.
11. All records referenced in this AO which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or his representative upon request.
12. All installations and facilities authorized by this Approval Order shall be adequately and properly maintained. The owner/operator shall comply with R446-1-3.5 and 4.7, UAC. R446-1-3.5, UAC addresses emission inventory reporting requirements. R446-1-4.7, UAC addresses unavoidable breakdown reporting requirements. The owner/operator shall calculate/estimate the excess emissions whenever a breakdown occurs. The sum total of excess emissions shall be reported to the Executive Secretary for each calendar year no later than January 31 of the following year.
13. The Executive Secretary shall be notified in writing upon start-up of the installation, as an initial compliance inspection is required. Eighteen months from the date of this Approval Order the Executive Secretary shall be notified in writing of the status of construction/installation if construction/installation is not completed. At that time the Executive Secretary shall require documentation of the continuous construction/installation of the operation and may revoke the Approval Order in accordance with R446-1-3.1.5, UAC.

Mr. Smaldone
December 16, 1991
Page 4

Any future modifications to the equipment approved by this order must also be approved in accordance with R446-1-3.1.1, UAC.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including the Utah Air Conservation Rules.

Annual emissions for this source (the waste rock hauling and storage) are currently calculated at the following values:

Particulate	8.13 tons/yr
PM ₁₀	3.89
SO ₂	0.16
NO _x	1.93
CO	0.77
VOC non meth	0.17
VOC meth	0.0

These calculations are for the purposes of determining the applicability of PSD and nonattainment area major source requirements of the UACR.

Sincerely,

F. Burnell Cordner, Executive Secretary
Utah Air Quality Board

FBC:HGN:cl

cc: EPA Region VIII, Mike Owens
SouthEastern Utah District Health Department