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Telephone (435) 888-4000 Fax (435) 888-4002

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

August 1, 2017

Attn: Daron Haddock
Permit Supervisor

Re: West Ridge Mine C/007/041
WR16-002 Midterm Review Task ID# 5449

Dear Mr. Haddock,

Please find attached the application for the West Ridge Midterm Completion Response.

This response includes all previously approved text changes with no edits made to them as part of this submittal, and also includes the revised bonding calculations as prepared by Richard White of EarthFax Engineering, who was recommended by the Division for West Ridge to use as a contractor for the Bonding Calculations.

If you have any questions, or need any additional information regarding this submittal, please contact me directly at 435-888-4000.

Sincerely,

Karin Madsen
Engineering Tech
UtahAmerican Energy, Inc.

APPLICATION FOR PERMIT PROCESSING

<input checked="" type="checkbox"/> Permit Change	<input type="checkbox"/> New Permit	<input type="checkbox"/> Renewal	<input type="checkbox"/> Transfer	<input type="checkbox"/> Exploration	<input type="checkbox"/> Bond Release	Permit Number: ACT/007/41
Title of Proposal: WR 16-002 Midterm Review Task ID #5449						Mine: West Ridge
						Permittee: West Ridge Resources, Inc

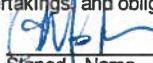
Description, include reason for application and timing required to implement:

Instructions: If you answer yes to any of the first 8 questions (gray), submit the application to the Salt Lake Office. Otherwise, you may submit it to your reclamation

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

X Attach 1 complete digital copy of the application.

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.


 / Karin Madsen / Engineering Tech. / 8-1-17
 Signed Name - Position - Date

Subscribed and sworn to before me this 1st day of August, 2017.


 Notary Public
 My Commission Expires: March 27, 2021
 Attest: STATE OF Utah
 COUNTY OF Carbon



LINDA KERNS
 NOTARY PUBLIC
 STATE OF UTAH
 COMMISSION # 693708
 COMM. EXP. 03-27-2021

Received by Oil, Gas & Mining

ASSIGNED TRACKING NUMBER

WordPerfect Document Compare Summary

Original document: K:\West Ridge\2016\WR16-002 Midterm\Originals\13-001 Chapter 1.wpd

Revised document: K:\West Ridge\2016\WR16-002 Midterm\New Text\Chapter 1.wpd

Deletions are shown with the following attributes and color:

~~Strikeout~~, **Blue** RGB(0,0,255).

Deleted text is shown as full text.

Insertions are shown with the following attributes and color:

Double Underline, Redline, **Red** RGB(255,0,0).

The document was marked with 1 Deletion, 0 Insertion, 0 Moves.

~WEST RIDGE MINE - PERMIT APPLICATION PACKAGE~

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APPENDIX 1-4F(a)	Original Fee Lease
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APPENDIX 1-4G(a)	David P. Hinkins 50%
APPENDIX 1-4G(b)	Emily P. Marston 25%
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MAP 1-1	Location Map	1" = 2000'

R645-301-100 PERMIT APPLICATION REQUIREMENTS: GENERAL CONTENTS

SCOPE

The objective of this chapter is to set forth all relevant information concerning ownership and control of WEST RIDGE Resources, Inc., the ownership and control of the property to be affected by mining activities and all other information and documentation required under Part UMC.

R645-301-112 IDENTIFICATION OF INTERESTS

112.100 WEST RIDGE Resources, Inc. is a corporation organized and existing under the laws of Utah and qualified to do business in Utah.

112.200 The applicant, WEST RIDGE Resources, Inc. will also be the operator.

WEST RIDGE Resources, Inc.
P.O. Box 910
East Carbon, Utah 84520
(435) 888-4000
David Hibbs - President

Employer Identification Number: 87-0585129

112.220 The resident agent of the applicant, WEST RIDGE Resources, Inc., is:

Karin Madsen
WEST RIDGE Resources, Inc.
P.O. Box 910
East Carbon, Utah 84520

(435) 888-4000

112.230 WEST RIDGE Resources, Inc. will pay the abandoned mine land reclamation fee.

112.300 **Ownership and Control** - See Appendix 1-7

WEST RIDGE Resources, Inc. is the permittee and operator of the WEST RIDGE Mine. WEST RIDGE Resources, Inc. is a wholly owned subsidiary of ANDALEX Resources, Inc.. WEST RIDGE Resources, Inc. is a Utah corporation licensed to do business in the State of Utah. All leases associated with the WEST RIDGE Mine are owned by ANDALEX Resources, Inc. ANDALEX Resources, Inc. is a wholly owned subsidiary of UtahAmerican Energy Inc., which in turn is a wholly owned subsidiary of Murray Energy Corporation.

112.340 See Appendix 1-5

112.350 See Appendix 1-5

112.410 See Appendix 1-5

112.420 See Appendix 1-7

112.500 Surface Owners:

Bureau of Land Management
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

Glen Wells
700 West U.S. Hwy 6
Price, Utah 84501

Penta Creek, LLC
140 S. Newton
Albert Lea, MN 56007

David Hinkins
155 West 100 South
Orangeville, Utah 84537

School and Institutional Trust
Lands Administration
355 West North Temple, Suite 400
Salt Lake City, Utah 84180-1204

Matt Rauhala
1236 East Main
Price, Utah 84501

Subsurface Owners:

Bureau of Land Management
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

Penta Creek, LLC
140 S. Newton
Albert Lea, MN 56007

School and Institutional Trust
Lands Administration
355 West North Temple, Suite 400
Salt Lake City, Utah 84180-1204

WEST RIDGE Resources, Inc. is the holder of record for federal lease SL-068754 and UTU 78562 (see Table 1-1), state lease ML 47711 and ML 49287 (see Table 1-2A) and the Penta Creek Fee lease (see Table 1-2B).

Proof of lease assignment for all leases (Federal leases SL-068754 and UTU 78562, and State leases ML 47711 and ML 49287), and the Penta Creek fee lease can be found in Appendix 1-4.

112.600 Contiguous surface owners:

Bureau of Land Management
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

Dave Hinkins
155 West 100 South
Orangeville, Utah 84537

Glen Wells
700 West U.S. Hwy 6
Price, Utah 84501

Penta Creek, LLC
140 S. Newton
Albert Lea, MN 56007

School and Institutional Trust

Lands Administration
355 West North Temple, Suite 400
Salt Lake City, Utah 84180-1204

Contiguous subsurface owners:

School and Institutional Trust
Lands Administration
355 West North Temple, Suite 400
Salt Lake City, Utah 84180-1204

Penta Creek, LLC
140 S. Newton
Albert Lea, MN 56007

David Hinkins
155 West 100 South
Orangeville, Utah 84537

Emily P Marston
843 Genodle Drive
Midvale, Utah 84047

Leonard J. Pagano
55 West main Street
Price, Utah 84501

Bureau of Land Management
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

112.700 See Appendix 1-5

112.800 There are no pending interests or bids existing on lands contiguous to the present leased area.

112.900 After WEST RIDGE Resources, Inc. is notified that the application is approved, but before the permit is issued, WEST RIDGE Resources, Inc. will update, correct or indicate that no change has occurred in the information previously submitted under R645-301-112.100 through R645-301-112.800.

R645-301-113 VIOLATION INFORMATION

- 113.100 The applicant or any subsidiary, affiliate or persons controlled by or under common control with the applicant has not had a federal or state permit to conduct coal mining and reclamation operations suspended or revoked in the five years preceding the date of submission of the application.
- 113.120 The applicant etc. has not forfeited any performance bond or similar security
- 113.200 Not applicable
- 113.300 A listing of violations received by the applicant in connection with any coal mining and reclamation operation during the three year period preceding the application date is provided in Appendix 1-2. MSHA numbers for the operations can be found in Appendix 1-5. There have been no unabated violations or cessation orders issued to any affiliated companies during the previous three years.
- 113.400 After WEST RIDGE Resources, Inc. is notified that the application is approved, but before the permit is issued, WEST RIDGE Resources, Inc. will update, correct or indicate that no change has occurred in the information previously submitted under R645-301-113.

114.100 WEST RIDGE Resources, Inc., currently holds 5,736.36 acres of federal coal (3,130.87 acres leased under SL-068754 and 2,605.49 acres leased under UTU 78562) in the Book Cliffs coal field (refer to Maps 1-0 and 5-3). A complete legal description of all Federal leases held by WEST RIDGE is found in Table 1-1. WEST RIDGE currently holds 2162.34 acres of state coal (801.24 acres under ML 47711, 881.10 under ML 49287, and 480 acres under ML 51744. A complete legal description of all State leases held by WEST RIDGE is found in Table 1-2. WEST RIDGE also holds 1189.84 acres leased on contiguous private (fee) coal lands located along the eastern side of the mineable reserve. A complete legal description of this fee lease is found in Table 1-3. None of these leases are the subject of any pending litigation. Proof of lease assignment for all leases can be found in Appendix 1-4.

WEST RIDGE Resources, Inc. bases its legal right to enter and conduct mining activities in the permit area pursuant to the language contained in the Federal Coal Lease, Part I Lease Rights Granted which reads as follows:

"That the lessor, in consideration of the rents and royalties to be paid and the covenants to be observed as hereinafter set forth, does hereby grant and lease to the lessee the exclusive right and privilege to mine and dispose of all the coal in, upon, or under the following described tracts of land, situated in the State of Utah... together with the right to construct all such works, buildings, plants, structures and appliances as may be necessary and convenient for the mining and preparation of the coal for market, the manufacture of coke or other products of coal, the housing and welfare of employees, and subject to the conditions herein provided, to use so much of the surface as may reasonably be required in the exercise of the rights and privileges herein granted."

In addition to the coal leases, WEST RIDGE also holds several surface use permits as part of the operation, including:

1) SITLA Special Use Lease Agreement No. 1163. The substitute topsoil borrow area, which is also included within the permit area, is located on lands administered by the Utah School and Institutional Trust Lands Administration (SITLA). This area is located within the SE1/4 of section 16, T 14 S, R 13 E. SITLA has issued a long term special use permit to WEST RIDGE Resources, Inc. which provides full assurance that the topsoil resource in this area will be available for (and, indeed dedicated to) final reclamation of the West Ridge minesite if needed. This area is not contiguous with the main coal leasehold. (See Appendix 1-10 for details)

2) BLM Right-of-Way UTU-77120 This right-of-way authorizes the installation and operation of a pumping station used to facilitate the delivery of culinary water to the West Ridge Mine. This area is not contiguous with the main coal leasehold. (See Appendix 1-12 for details)

3) BLM Right-of-Way 87110 This right-of way authorizes the installation of three (3 ea.) catchment structures in the C Canyon drainage below the mine. These catchments are designed to provide containment of unanticipated coal-fines accumulations from the mine discharge water. These catchment structures comprises a total of 0.69 acres (Refer to Appendix 5-15 for details).

The total permit area is 8,080.58 acres. Refer to Map 1-1 for the permit area location. Refer to Table 1-4 for the legal description of the permit area by composite leasehold, and Table 1-5 for the legal description of the permit area in total area. Table 1-6 describes the surface ownership of the permit area.

The permit area consists of the following areas:

- 1) all of federal coal leases SL-068754-U-01215 (3,130.87 acres)
- 2) most of federal coal lease UTU 78562 (2,605.49 acres),
- 3) all of state coal leases ML-47711 (801.24 acres)
- 4) all of state coal lease ML-49287 (881.10 acres)
- 5) much of state coal lease ML-51744 (212.5 acres)
- 6) much of the Penta Creek fee coal lease (650.49 acres)
- 7) SITLA surface lease 1163, for topsoil borrow area (9.6 acres).
- 8) BLM right-of-way UTU-77120, for pumping station (0.23 acres)
- 9) BLM right-of-way UTU-87110, for catchment structures A, C and E (0.69 acres)
- 10) Carbon County authorization, road security gate (0.79 acres). See Appendix 1-13

Disturbed area within the permit area consists of the following:

1)	Minesite surface facilities	29.82 acres
2)	Pumping station	0.23 acres
3)	GVH installation (main pad)	0.24 acres
4)	GVH installation (GVH 5 "pullout")	0.02 acres
5)	GVH topsoil storage	0.1 acres
6)	Catchment structures A	0.12 acres
7)	Catchment structures C	0.23 acres
8)	Catchment structures E	0.23 acres
9)	B Canyon Portal re-opening	<u>0.25 acres</u>
	TOTAL	31.24 acres

See Table 1-7 for complete legal description of disturbed areas.

114.200 Not applicable, the fee lease mineral estate is not severed from the surface estate.

**TABLE 1-1
FEDERAL LEASE and R.O.W. PROPERTIES**

<u>PARCEL</u>	<u>ACREAGE</u>	<u>LEGAL DESCRIPTION</u>
1) <u>FEDERAL COAL LEASE SL-068754</u> (SL-068754-U-01215)	3,130.87	T 14 S, R 13 E
		Section 10: NE, E2NW, N2SE, SESE
		Section 11: All
		Section 12: S2SW, NWSW
		Section 13: S2, NW, S2NE, NWNE
		Section 14: E2, N2NW, SENW, SWNW, N2NWSW, E2SW
		Section 15: NENE, W2NE, E2SENE
		Section 23: Lot 1, N2NE, SWNE, NENW
		Section 24: N2, N2SE, NESW, NWSW
		2) <u>FEDERAL COAL LEASE UTU-78562</u>
Section 34: NESE, S2SE		
Section 35: All		
T 13 S, R 14 E		
Section 31: Lot 4, S2SESW, NESESW, SENWSESW, W2SWSE, S2SESWSE, S2S2SESE		
T 14 S, R 13 E		
Section 1: All		
Section 12: Lots 1 thru 4, S2N2, NESW, SE		
Section 13: NENE		
T 14 S, R 14 E		
Section 5: Lot 4, W2W2SWNW, SWNWSW, W2NWNWSW, W2SWSW		
Section 6: Lot 6, NESW, NESE		
Section 7: Lots 3 and 4		

		Section 8:	W2NWNW, W2SENWNW, SWNENWNW, W2SWNW, W2E2SWNW, W2NWSW, SWSW
		Section 17:	N2NWNWNE
		Section 18:	Lot 1, E2NW
<u>3) PUMPING STATION</u> (BLM R.O.W. UTU-7712)	0.23	T 14 S, R 13 E	
		Section 21:	NENE (0.23 acres thereof)
<u>4) CATCHMENT STRUCTURE A</u> (BLM R.O.W. UTU-87110)	0.23	T 14 S, R 13 E	
		Section 15:	SESW (0.23 acres therein)
<u>5) CATCHMENT STRUCTURE C</u> (BLM R.O.W . UTU-87110)	0.23	T 14 S, R 13 E	
		Section 28:	NWNW (0.23 acres therein)
<u>6) CATCHMENT STRUCTURE E</u> (BLM R.O.W . UTU-87110)	0.23	T 14 S, R 12 E	
		Section 25:	SESE (0.23 acres therein)
 <u>TOTAL FEDERAL</u>	 <u>5,736.36 acres</u>		

**TABLE 1-2
STATE (SITLA) LEASE and SPECIAL USE PROPERTIES**

<u>PARCEL</u>	<u>ACREAGE</u>	<u>LEGAL DESCRIPTION</u>
<u>1) STATE LEASE ML 47711</u>	801.24	T 14 S, R 13 E Section 2: Lots 1 thru 4, S2N2, S2 (i.e. All) T 13 S, R 13 E Section 36: SW
<u>2) STATE COAL LEASE ML 49287</u>	881.10	T 14 S, R 13 E Section 3: Lots 1, 2, 3, S2N2, S2 Section 10: W2NW, SW, SWSE
<u>3) STATE COAL LEASE ML 51744</u>	480	T 13 S, R 13 E Section 36: N2, SE
<u>4) STATE SURFACE LEASE SPECIAL USE PERMIT (Agreement #1163)</u>	9.6	T 14 S, R 13 Section. 16: E2NESE (9.6 acres thereof, containing substitute topsil area)
<u>TOTAL STATE</u>	<u>2171.94</u>	

**TABLE 1-3
FEE LEASE PROPERTIES
(PENTA CREEK)**

<u>PARCEL</u>	<u>ACREAGE</u>	<u>LEGAL DESCRIPTION</u>
1) <u>PENTA CREEK FEE LEASE</u>	382.08	T 14 S, R 14 E Section 6: Lot 7, SESW Section 7*: Lots 1* and 2*, NENW*, E2SW*, SWSE Section 18: Lots 2 and 3, NWNE

*Less and excepting from the portion of the above legal subdivisions in Section 7, those lands under and around Grassy Trail Dam and Reservoir owned by East Carbon City and Sunnyside City, such lands being more accurately described in Appendix 1-15.

2) <u>PENTA CREEK LEASE EXTENSION</u> (Extension 1, August, 2010)	352.36	T 14 S, R 14 E Section 6: Lots 2, 3, 4 and 5, SENW, SWNE, NWSE, S2SE
3) <u>PENTA CREEK LEASE EXTENSION</u> (Extension 2, March, 2011)	295.40	T 14 S, R 14 E Section 6: Lot 1, SENE Section 7: SWNE, NWSE, SESE, SENW Section 18: NENE
4) <u>HINKINS FEE LEASE**</u>	160.00	T 14 S, R 14 E Section 7: N2NE, SENE, NESE

TOTAL FEE LEASES: **1189.84**

** This lease area is held as follows: (individually)	David P. Hinkins, Todd S. Hinkins and Ross D. Hinkins.....50% Emily P. Marston.....25% Leonard Pagano.....25%
--	---

**TABLE 1-4
LEGAL DESCRIPTION OF PERMIT AREA
(BY LEASEHOLD)**

<u>PARCEL</u>	<u>ACREAGE</u>	<u>LEGAL DESCRIPTION</u>
1) <u>FEDERAL LEASE SL-068754</u> (SL-068754-U-01215)	3,130.87	T 14 S, R 13 E
		Section 10: NE, E2NW, N2SE, SESE
		Section 11: All
		Section 12: S2SW, NWSW
		Section 13: S2, NW, S2NE, NWNE
		Section 14: E2, N2NW, SENW, SWNW, N2NWSW, E2SW
		Section 15: NENE, W2NE, E2SENE
		Section 23: Lot 1, N2NE, SWNE, NENW
		Section 24: N2, N2SE, NESW, NWSW
		2) <u>FEDERAL LEASE UTU-78562</u>
Section 34: NESE, S2SE		
Section 35: All		
T 13 S, R 14 E		
Section 31: Lot 4, S2SESW, NESESW, SENWSESW, W2SWSE, S2SESWSE, S2S2SESE		
T 14 S, R 13 E		
Section 1: All		
Section 12: Lots 1 thru 4, S2N2, NESW, SE		
Section 13: NENE		
T 14 S, R 14 E		
Section 5: W2W2SWNW, W2NWNWSW		
Section 6: Lot 6, NESW, N2NESE, SWNESE		
Section 7: Lots 3 and 4		
Section 18: Lot 1, E2NW		

TABLE 1-4 (continued)

<u>3) STATE LEASE ML 47711</u>	801.24	T 14 S, R 13 E Section 2: Lots 1 thru 4, S2N2, S2 T 13 S, R 13 E Section 36: SW
<u>4) STATE LEASE ML 49287</u>	881.10	T 14 S, R 13 E Section 3: Lots 1, 2 and 3, S2N2, S2 Section 10: W2NW, SW, SWSE
<u>5) STATE LEASE ML 51744</u>	212.5	T 13 S, R 13 E Section 36: SW, SWNWSWNW, S2S2NW, S2SWNE, W2SE, SESE, S2NESE, NWNESE
<u>6) PENTA CREEK FEE LEASE</u>	238.17	T 14 S, R 14 E Section 6: Lot 7, SESW Section 7*: Lot 1*, SESW, SWNESW Section 18: Lots 2 and 3
<u>7) PENTA CREEK LEASE EXTENSION</u> (Extension #1, August, 2010)	402.32	T 14 S, R 14 E Section 6 Lots 1, 2, 3, 4 and 5, SENW, SWNE, NWSE, SWSE, SENE, NWSESE
<u>8) PUMPING STATION</u> (BLM R.O.W. UTU-7712)	0.23	T 14 S, R 13 E Section 21 NESENE (0.23 acres thereof, containing pumping station)

TABLE 1-4 (continued)

<u>9) TOPSOIL SALVAGE AREA</u> (SITLA special use agreement #1163)	9.6	T 14 S, R 13 E	Section 16: E2NESE (9.6 acres thereof, containing substitute topsoil area)
<u>10) CATCHMENT STRUCTURE A</u> (BLM R.O.W . UTU-87110)	0.23	T 14 S, R 13 E	Section 15: SESW (0.23 acres thereof, containing catchment structure)
<u>11) CATCHMENT STRUCTURE C</u> (BLM R.O.W . UTU-87110)	0.23	T 14 S, R 13 E	Section 28: NWNW (0.23 acres thereof, containing catchment structure)
<u>12) CATCHMENT STRUCTURE E</u> (BLM R.O.W . UTU-87110)	0.23	T 14 S, R 12 E	Section 25: SESE (0.23 acres thereof, containing catchment structure)
<u>13) SECURITY GATE</u> (Carbon County authorization)	0.79	T 14 S, R 13 E	Section 15: NWSENE (0.79 acres thereof, containing security gate)
<u>TOTAL PERMIT AREA</u>	<u>8080.58 acres</u>		

*Less and excepting from the portion of the above legal subdivisions in Section 7, those lands under and around Grassy Trail Dam and Reservoir owned by East Carbon City and Sunnyside City, such lands being more accurately described in Appendix 1-15.

**TABLE 1-5
LEGAL DESCRIPTION OF PERMIT AREA
(TOTAL AREA)**

T13S, R13E	Section 34	NESE, S2SE
	Section 35	All
	Section 36	SW, SWNWSWNW, S2S2NW, S2SWNE, W2SE, SESE, S2NESE, NWNESE,
T13S, R14E	Section 31:	Lot 4, S2SESW, NESESW, SENWSESW, W2SWSE, S2SESWSE, S2S2SESE
T14S, R12E	Section 25	SESE (part thereof containing catchment structure E)
T14S, R13E	Section 1	All
	Section 2	All
	Section 3	Lots 1, 2 and 3, S2N2, S2
	Section 10	All
	Section 11	All
	Section 12	All
	Section 13	All
	Section 14	E2, N2NW, SENW, SWNW, N2NWSW, E2SW
	Section 15	NENE, NWSENE (part thereof, containing security gate) SESW (part thereof, containing catchment structure A), W2NE, E2SENE
	Section 16	E2NESE (part thereof, containing substitute topsoil area)
	Section 21	NESENE (part thereof, containing pumping station)
	Section 23	Lot 1, N2NE, SWNE, NENW
	Section 24	N2, N2SE, NESW, NWSW
	Section 28	NWNW (part thereof, containing catchment structure C)
	T14S, R14E	Section 5:
Section 6		Lots 1, 2, 3, 4, 5, 6 and 7, SENW, E2SW, W2SE, S2NE, N2NESE, SWNESE, NWSESE
Section 7*		Lots 1*, 3 and 4, SESW, SWNESW
Section 18		Lots 1, 2 and 3, E2NW

TOTAL PERMIT AREA = 8,080.58 acres.

*Less and excepting from the portion of the above legal subdivisions in Section 7, those lands under and around Grassy Trail Dam and Reservoir owned by East Carbon City and Sunnyside City, such lands being more accurately described in Appendix 1-15.

**TABLE 1-6
SURFACE OWNERSHIP OF PERMIT AREA**

T(S)/R(E)	Section	BLM	Penta Creek	Hinkins	Wells	Rauhala	SITLA	Total
13/13	34	-	-	-	120.00	-	-	120.00
13/13	35	40.00	-	448.91	151.09	-	-	640.00
13/13	36	-	372.50	-	-	-	-	372.50
13/14	31	108.82	-	-	-	-	-	108.82
14/12	25	0.23	-	-	-	-	-	0.23
14/13	1	283.75	328.68	-	-	39.92	-	652.35
14/13	2	-	641.24	-	-	-	-	641.24
14/13	3	-	-	-	80.66	-	520.44	601.10
14/13	10	360.00	-	-	-	-	280.00	640.00
14/13	11	650.87	-	-	-	-	-	650.87
14/13	12	-	648.96	-	-	-	-	648.96
14/13	13	640.00	-	-	-	-	-	640.00
14/13	14	580.00	-	-	-	-	-	580.00
14/13	15	141.20	-	-	-	-	-	141.20
14/13	16	-	-	-	-	-	9.60	9.60
14/13	21	0.23	-	-	-	-	-	0.23
14/13	23	200.02	-	-	-	-	-	200.02
14/13	24	480.00	-	-	-	-	-	480.00
14/12	28	0.23	-	-	-	-	-	0.23
14/14	5	-	-	15.00	-	-	-	15.00
14/14	6	76.41	478.88	30.00	-	-	-	585.29
14/14	7	74.08	86.69		-	-	-	160.77
14/14	8	-	-		-	-	-	0.00
14/14	18	117.25	74.92	-	-	-	-	192.17
		3753.09	2631.87	493.91	351.75	39.92	810.04	8080.58

**TABLE 1-7
DISTURBED AREA WITHIN PERMIT AREA**

1) Minesite surface facilities: portions of the following, totaling 29.82 acres (all BLM)

T14S, R13E	Section 10:	SESESE NESESE
T14S, R13E	Section 11:	SWNESW NWSESW NESWSW NWSWSW SWSWSW SESWSW
T14S, R13E	Section 15:	NENENE NWNENE SWNENE SENENE NWSENE

2) Pumphouse: portion thereof of the following, containing 0.23 acres (all BLM)

T14S, R13E	Section 21:	NESENE
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3) Gob gas vent hole (GVH) installation (main pad): portion thereof of the following, containing 0.24 acres (all SITLA)

T14S, R13E	Section 3:	NESWSE
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4) Gob gas vent hole (GVH) installation (GVH 5 “pullout”): portion thereof of the following, containing 0.02 acres (all SITLA)

T14S, R13E	Section 3:	NESWSE
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5) Gob gas vent hole (GVH) topsoil pile: portion thereof of the following, containing 0.1 acres (all SITLA)

T14S, R13E	Section 10:	SENWNW
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6) Catchment Structure A: portion thereof of the following, containing 0.12 acres (all BLM)

T 14 S, R 13 E Section 15: SESW

7) Catchment Structure C: portion thereof of the following, containing 0.23 acres (all BLM)

T 14 S, R 13 E Section 28: NWNW

8) Catchment Structure E: portion thereof of the following, containing 0.23 acres (all BLM)

T 14 S, R 12 E Section 25: SESE

9) B Canyon Portal Re-Opening: portion thereof of the following, containing 0.25 acres (all BLM)*

T 14 S, R 13 E Section 14 SWNE

TOTAL DISTURBED AREA = 31.24 acres

* Note: All disturbance associated with the B Canyon Portal Re-Opening will be within the area of previous (pre-SMCRA) disturbance.

R645-301-115 STATUS OF UNSUITABILITY CLAIMS

115.100 The proposed permit area is not within an area designated as unsuitable for mining. WEST RIDGE Resources, Inc. is not aware of any petitions currently in progress to designate the area as unsuitable for coal mining and reclamation activities.

The area in which the proposed facility will be located has been evaluated within area management plans. It has not been found unsuitable for mining activities under any categories of examination.

115.200 Not applicable.

115.300 WEST RIDGE Resources, Inc. will not be conducting mining operations within 100 feet of an occupied dwelling. WEST RIDGE Resources, Inc. has received permission from Carbon County to construct facilities and operate coal mining activities within 100 feet of a public road. Refer to the letter from Carbon County in Appendix 1-8.

R645-301-116 PERMIT TERM

116.100 The anticipated starting and termination dates of the coal mining and reclamation operation are as follows:

	<u>Begin</u>	<u>Complete</u>
Construction of Mining Pad, Mining Support Structures, and Portals	Apr. 1999	Dec. 1999
Begin Mining	Jan. 2000	
Terminate Longwall Mining		Nov. 2015
Terminate Pillar Mining	July 2018*	July 2019*
Remove Facilities	Jan. 2020*	June 2020*
Regrade Area	July 2020*	Sept. 2020*
Revegetate Site	Oct. 2020*	Nov. 2020*

*This assumes mine life extended through acquisition of adjacent state and federal coal reserves.

116.200 The initial permit application will be for a five year term with successive five year permit renewals.

R645-301-117 INSURANCE, PROOF OF PUBLICATION AND FACILITIES OR STRUCTURES USED IN COMMON

- 117.100 The Certificate of Liability Insurance is included as Attachment 1-1 in Appendix 1-1.
- 117.200 A copy of the newspaper advertisement of the application for a permit and proof of publication are included as Attachment 1-2 and 1-3 respectively, in Appendix 1-1. A copy of the newspaper advertisement for the Whitmore lease revision is included as Attachment 1-3 in Appendix 1-1.
- 117.300 Not applicable.

R645-301-118 FILING FEE

Verification of filing fee payment is included as Attachment 1-4 in Appendix 1-1.

R645-301-123 NOTARIZED STATEMENT

A notarized statement attesting to the accuracy of the information submitted can be referenced as Attachment 1-5 in Appendix 1-1.

R645-301-130 REPORTING OF TECHNICAL DATA

Technical reports prepared by consultants specifically for WEST RIDGE Resources, Inc. are typically presented in an appendix format and, in general, provide the name and address of the person or company (consultant) preparing the report, the name of the report, the date of collection and analysis of the data, and descriptions of the methodology used to collect and analyze the data. The body of the report usually will provide the date the actual field work was conducted and a description of the methodology used to collect and analyze the data. The format of each report may vary depending on the contents of the report and organization preparing it.

For laboratory analyses, such as Appendix 7-2 and 7-3, the company performing the analyses as well as the date of the analyses, is presented on the laboratory report rather than the cover page.

A list of consultants and their appended reports is contained in Appendix 1-6, Consultation and Coordination. Sources used in the preparation of the permit application are referenced in Appendix 1-3. References in all chapters are keyed to this main reference list.

Mining and exploration activities had been conducted in the currently proposed disturbed area prior to August 3, 1977. A road existed into C Canyon in 1952 when drill hole B-6 was drilled in the right fork. A road was also constructed up the left fork of C Canyon to a drill hole site during the same year. In addition to the drill holes, the coal outcrop in the left fork of C Canyon was exposed for sampling purposes. A small pad was built at the outcrop location and it was left in place as were the roads.

In 1986, another drill hole, 86-2, was drilled west of the first drill hole in the right fork. A minor amount of road work was done in conjunction with this second drill hole. Kaiser Coal Company obtained permission from the BLM to grade the existing road and make it passable for the drill rig. The drill hole site was reclaimed but the road, a public road, was left in place.

Through use of aerial photography and site evaluations, it is possible to document previous mining related disturbances in C Canyon. Refer to Map 5-1 for delineation of the disturbance prior to August 3, 1977.

The total of all the previously disturbed areas within the minesite disturbed area is estimated to be as follows:

roads in right and left forks	=	1.27 acres
road culvert	=	.05 acres
water monitoring well	=	.05 acres
material storage pad	=	.05 acres
		1.62 acres

WEST RIDGE Resources, Inc. is proposing to utilize the entire previously disturbed area in their current proposal and to reclaim it upon cessation of mining operations.

In the 1950's a road was constructed in the Right Fork of Bear Canyon to access an exploratory drillhole site. This road now provides access to the site of the Bear Canyon GVH installation. (Refer to Appendix 5-14 for a detailed description of the Bear Canyon GVH facility)

**ATTACHMENT 1-5
VERIFICATION STATEMENT**

I hereby certify that I am a responsible official (Resident Agent) of the applicant (ANDALEX and IPA for WEST RIDGE Resources, Inc.) 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

Jay Marshall, Resident Agent

Signed - Name - Position - Date

Subscribed and sworn to before me this__ day of____, 20_

Notary Public

My commission Expires: _____, 20__)

Attest: STATE OF _____) ss:

COUNTY OF _____)

~WEST RIDGE MINE - PERMIT APPLICATION PACKAGE~

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APPENDIX 1-4A	Federal Lease SL-068754, U-01215
APPENDIX 1-4B	Federal Lease UTU-78562
APPENDIX 1-4B(a)	Federal Lease UTU-78562 Modification
APPENDIX 1-4C	State Lease ML-47711
APPENDIX 1-4D	State Lease ML-49287
APPENDIX 1-4E	State Lease ML-51744
APPENDIX 1-4F:	Penta Creek Fee Lease, which includes
APPENDIX 1-4F(a)	Original Fee Lease
APPENDIX 1-4F(b)	Lease Extension #1, August 24, 2010
APPENDIX 1-4F(c)	Lease Extension #2, March 10, 2011
APPENDIX 1-4G:	Hinkins Fee Lease, which includes:
APPENDIX 1-4G(a)	David P. Hinkins 50%
APPENDIX 1-4G(b)	Emily P. Marston 25%
APPENDIX 1-4G(c)	Leonard J. Pagano 25%
APPENDIX 1-5	Current and Previous Coal Mining Permits
APPENDIX 1-6	Consultation and Coordination
APPENDIX 1-7	Ownership and Control
APPENDIX 1-8	Letter from Carbon County
APPENDIX 1-9	*****Deleted*****
APPENDIX 1-10	SITLA - Special Use Lease (Topsoil Borrow Area)

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APPENDIX 1-11	Material Deposit Special Use Lease Agreement
APPENDIX 1-12	Waterline/Pump House Right of Way
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APPENDIX 1-15	Legal Description of Grassy Trail Reservoir

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MAP NUMBER	DESCRIPTION	SCALE
MAP 1-0	Permit Map	1" = 2000'
MAP 1-1	Location Map	1" = 2000'

R645-301-100 PERMIT APPLICATION REQUIREMENTS: GENERAL CONTENTS

SCOPE

The objective of this chapter is to set forth all relevant information concerning ownership and control of WEST RIDGE Resources, Inc., the ownership and control of the property to be affected by mining activities and all other information and documentation required under Part UMC.

R645-301-112 IDENTIFICATION OF INTERESTS

112.100 WEST RIDGE Resources, Inc. is a corporation organized and existing under the laws of Utah and qualified to do business in Utah.

112.200 The applicant, WEST RIDGE Resources, Inc. will also be the operator.

WEST RIDGE Resources, Inc.
P.O. Box 910
East Carbon, Utah 84520
(435) 888-4000
David Hibbs - President

Employer Identification Number: 87-0585129

112.220 The resident agent of the applicant, WEST RIDGE Resources, Inc., is:

Karin Madsen
WEST RIDGE Resources, Inc.
P.O. Box 910
East Carbon, Utah 84520

(435) 888-4000

112.230 WEST RIDGE Resources, Inc. will pay the abandoned mine land reclamation fee.

112.300 **Ownership and Control** - See Appendix 1-7

WEST RIDGE Resources, Inc. is the permittee and operator of the WEST RIDGE Mine. WEST RIDGE Resources, Inc. is a wholly owned subsidiary of ANDALEX Resources, Inc.. WEST RIDGE Resources, Inc. is a Utah corporation licensed to do business in the State of Utah. All leases associated with the WEST RIDGE Mine are owned by ANDALEX Resources, Inc. ANDALEX Resources, Inc. is a wholly owned subsidiary of UtahAmerican Energy Inc., which in turn is a wholly owned subsidiary of Murray Energy Corporation.

112.340 See Appendix 1-5

112.350 See Appendix 1-5

112.410 See Appendix 1-5

112.420 See Appendix 1-7

112.500 Surface Owners:

Bureau of Land Management
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

Glen Wells
700 West U.S. Hwy 6
Price, Utah 84501

Penta Creek, LLC
140 S. Newton
Albert Lea, MN 56007

David Hinkins
155 West 100 South
Orangeville, Utah 84537

School and Institutional Trust
Lands Administration
355 West North Temple, Suite 400
Salt Lake City, Utah 84180-1204

Matt Rauhala
1236 East Main
Price, Utah 84501

Subsurface Owners:

Bureau of Land Management
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

Penta Creek, LLC
140 S. Newton
Albert Lea, MN 56007

School and Institutional Trust
Lands Administration
355 West North Temple, Suite 400
Salt Lake City, Utah 84180-1204

WEST RIDGE Resources, Inc. is the holder of record for federal lease SL-068754 and UTU 78562 (see Table 1-1), state lease ML 47711 and ML 49287 (see Table 1-2A) and the Penta Creek Fee lease (see Table 1-2B).

Proof of lease assignment for all leases (Federal leases SL-068754 and UTU 78562, and State leases ML 47711 and ML 49287), and the Penta Creek fee lease can be found in Appendix 1-4.

112.600 Contiguous surface owners:

Bureau of Land Management
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

Dave Hinkins
155 West 100 South
Orangeville, Utah 84537

Glen Wells
700 West U.S. Hwy 6
Price, Utah 84501

Penta Creek, LLC
140 S. Newton
Albert Lea, MN 56007

School and Institutional Trust

Lands Administration
355 West North Temple, Suite 400
Salt Lake City, Utah 84180-1204

Contiguous subsurface owners:

School and Institutional Trust
Lands Administration
355 West North Temple, Suite 400
Salt Lake City, Utah 84180-1204

Penta Creek, LLC
140 S. Newton
Albert Lea, MN 56007

David Hinkins
155 West 100 South
Orangeville, Utah 84537

Emily P Marston
843 Genodle Drive
Midvale, Utah 84047

Leonard J. Pagano
55 West main Street
Price, Utah 84501

Bureau of Land Management
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

112.700 See Appendix 1-5

112.800 There are no pending interests or bids existing on lands contiguous to the present leased area.

112.900 After WEST RIDGE Resources, Inc. is notified that the application is approved, but before the permit is issued, WEST RIDGE Resources, Inc. will update, correct or indicate that no change has occurred in the information previously submitted under R645-301-112.100 through R645-301-112.800.

R645-301-113 VIOLATION INFORMATION

- 113.100 The applicant or any subsidiary, affiliate or persons controlled by or under common control with the applicant has not had a federal or state permit to conduct coal mining and reclamation operations suspended or revoked in the five years preceding the date of submission of the application.
- 113.120 The applicant etc. has not forfeited any performance bond or similar security
- 113.200 Not applicable
- 113.300 A listing of violations received by the applicant in connection with any coal mining and reclamation operation during the three year period preceding the application date is provided in Appendix 1-2. MSHA numbers for the operations can be found in Appendix 1-5. There have been no unabated violations or cessation orders issued to any affiliated companies during the previous three years.
- 113.400 After WEST RIDGE Resources, Inc. is notified that the application is approved, but before the permit is issued, WEST RIDGE Resources, Inc. will update, correct or indicate that no change has occurred in the information previously submitted under R645-301-113.

114.100 WEST RIDGE Resources, Inc., currently holds 5,736.36 acres of federal coal (3,130.87 acres leased under SL-068754 and 2,605.49 acres leased under UTU 78562) in the Book Cliffs coal field (refer to Maps 1-0 and 5-3). A complete legal description of all Federal leases held by WEST RIDGE is found in Table 1-1. WEST RIDGE currently holds 2162.34 acres of state coal (801.24 acres under ML 47711, 881.10 under ML 49287, and 480 acres under ML 51744. A complete legal description of all State leases held by WEST RIDGE is found in Table 1-2. WEST RIDGE also holds 1189.84 acres leased on contiguous private (fee) coal lands located along the eastern side of the mineable reserve. A complete legal description of this fee lease is found in Table 1-3. None of these leases are the subject of any pending litigation. Proof of lease assignment for all leases can be found in Appendix 1-4.

WEST RIDGE Resources, Inc. bases its legal right to enter and conduct mining activities in the permit area pursuant to the language contained in the Federal Coal Lease, Part I Lease Rights Granted which reads as follows:

"That the lessor, in consideration of the rents and royalties to be paid and the covenants to be observed as hereinafter set forth, does hereby grant and lease to the lessee the exclusive right and privilege to mine and dispose of all the coal in, upon, or under the following described tracts of land, situated in the State of Utah... together with the right to construct all such works, buildings, plants, structures and appliances as may be necessary and convenient for the mining and preparation of the coal for market, the manufacture of coke or other products of coal, the housing and welfare of employees, and subject to the conditions herein provided, to use so much of the surface as may reasonably be required in the exercise of the rights and privileges herein granted."

In addition to the coal leases, WEST RIDGE also holds several surface use permits as part of the operation, including:

1) SITLA Special Use Lease Agreement No. 1163. The substitute topsoil borrow area, which is also included within the permit area, is located on lands administered by the Utah School and Institutional Trust Lands Administration (SITLA). This area is located within the SE1/4 of section 16, T 14 S, R 13 E. SITLA has issued a long term special use permit to WEST RIDGE Resources, Inc. which provides full assurance that the topsoil resource in this area will be available for (and, indeed dedicated to) final reclamation of the West Ridge minesite if needed. This area is not contiguous with the main coal leasehold. (See Appendix 1-10 for details)

2) BLM Right-of-Way UTU-77120 This right-of-way authorizes the installation and operation of a pumping station used to facilitate the delivery of culinary water to the West Ridge Mine. This area is not contiguous with the main coal leasehold. (See Appendix 1-12 for details)

3) BLM Right-of-Way 87110 This right-of way authorizes the installation of three (3 ea.) catchment structures in the C Canyon drainage below the mine. These catchments are designed to provide containment of unanticipated coal-fines accumulations from the mine discharge water. These catchment structures comprises a total of 0.69 acres (Refer to Appendix 5-15 for details).

The total permit area is 8,080.58 acres. Refer to Map 1-1 for the permit area location. Refer to Table 1-4 for the legal description of the permit area by composite leasehold, and Table 1-5 for the legal description of the permit area in total area. Table 1-6 describes the surface ownership of the permit area.

The permit area consists of the following areas:

- 1) all of federal coal leases SL-068754-U-01215 (3,130.87 acres)
- 2) most of federal coal lease UTU 78562 (2,605.49 acres),
- 3) all of state coal leases ML-47711 (801.24 acres)
- 4) all of state coal lease ML-49287 (881.10 acres)
- 5) much of state coal lease ML-51744 (212.5 acres)
- 6) much of the Penta Creek fee coal lease (650.49 acres)
- 7) SITLA surface lease 1163, for topsoil borrow area (9.6 acres).
- 8) BLM right-of-way UTU-77120, for pumping station (0.23 acres)
- 9) BLM right-of-way UTU-87110, for catchment structures A, C and E (0.69 acres)
- 10) Carbon County authorization, road security gate (0.79 acres). See Appendix 1-13

Disturbed area within the permit area consists of the following:

1)	Minesite surface facilities	29.82 acres
2)	Pumping station	0.23 acres
3)	GVH installation (main pad)	0.24 acres
4)	GVH installation (GVH 5 “pullout”)	0.02 acres
5)	GVH topsoil storage	0.1 acres
6)	Catchment structures A	0.12 acres
7)	Catchment structures C	0.23 acres
8)	Catchment structures E	0.23 acres
9)	B Canyon Portal re-opening	<u>0.25 acres</u>
	TOTAL	31.24 acres

See Table 1-7 for complete legal description of disturbed areas.

114.200 Not applicable, the fee lease mineral estate is not severed from the surface estate.

**TABLE 1-1
FEDERAL LEASE and R.O.W. PROPERTIES**

<u>PARCEL</u>	<u>ACREAGE</u>	<u>LEGAL DESCRIPTION</u>
1) <u>FEDERAL COAL LEASE SL-068754</u> (SL-068754-U-01215)	3,130.87	T 14 S, R 13 E
		Section 10: NE, E2NW, N2SE, SESE
		Section 11: All
		Section 12: S2SW, NWSW
		Section 13: S2, NW, S2NE, NWNE
		Section 14: E2, N2NW, SENW, SWNW, N2NWSW, E2SW
		Section 15: NENE, W2NE, E2SENE
		Section 23: Lot 1, N2NE, SWNE, NENW
		Section 24: N2, N2SE, NESW, NWSW
		2) <u>FEDERAL COAL LEASE UTU-78562</u>
Section 34: NESE, S2SE		
Section 35: All		
T 13 S, R 14 E		
Section 31: Lot 4, S2SESW, NESESW, SENWSESW, W2SWSE, S2SESWSE, S2S2SESE		
T 14 S, R 13 E		
Section 1: All		
Section 12: Lots 1 thru 4, S2N2, NESW, SE		
Section 13: NENE		
T 14 S, R 14 E		
Section 5: Lot 4, W2W2SWNW, SWNWSW, W2NWNWSW, W2SWSW		
Section 6: Lot 6, NESW, NESE		
Section 7: Lots 3 and 4		

		Section 8:	W2NWNW, W2SENWNW, SWNENWNW, W2SWNW, W2E2SWNW, W2NWSW, SWSW
		Section 17:	N2NWNWNE
		Section 18:	Lot 1, E2NW
<u>3) PUMPING STATION</u> (BLM R.O.W. UTU-7712)	0.23	T 14 S, R 13 E	
		Section 21:	NENE (0.23 acres thereof)
<u>4) CATCHMENT STRUCTURE A</u> (BLM R.O.W. UTU-87110)	0.23	T 14 S, R 13 E	
		Section 15:	SESW (0.23 acres therein)
<u>5) CATCHMENT STRUCTURE C</u> (BLM R.O.W . UTU-87110)	0.23	T 14 S, R 13 E	
		Section 28:	NWNW (0.23 acres therein)
<u>6) CATCHMENT STRUCTURE E</u> (BLM R.O.W . UTU-87110)	0.23	T 14 S, R 12 E	
		Section 25:	SESE (0.23 acres therein)
 <u>TOTAL FEDERAL</u>	 <u>5,736.36 acres</u>		

**TABLE 1-2
STATE (SITLA) LEASE and SPECIAL USE PROPERTIES**

<u>PARCEL</u>	<u>ACREAGE</u>	<u>LEGAL DESCRIPTION</u>
<u>1) STATE LEASE ML 47711</u>	801.24	T 14 S, R 13 E Section 2: Lots 1 thru 4, S2N2, S2 (i.e. All) T 13 S, R 13 E Section 36: SW
<u>2) STATE COAL LEASE ML 49287</u>	881.10	T 14 S, R 13 E Section 3: Lots 1, 2, 3, S2N2, S2 Section 10: W2NW, SW, SWSE
<u>3) STATE COAL LEASE ML 51744</u>	480	T 13 S, R 13 E Section 36: N2, SE
<u>4) STATE SURFACE LEASE SPECIAL USE PERMIT (Agreement #1163)</u>	9.6	T 14 S, R 13 Section. 16: E2NESE (9.6 acres thereof, containing substitute topsil area)
<u>TOTAL STATE</u>	<u>2171.94</u>	

**TABLE 1-3
FEE LEASE PROPERTIES
(PENTA CREEK)**

<u>PARCEL</u>	<u>ACREAGE</u>	<u>LEGAL DESCRIPTION</u>
1) <u>PENTA CREEK FEE LEASE</u>	382.08	T 14 S, R 14 E Section 6: Lot 7, SESW Section 7*: Lots 1* and 2*, NENW*, E2SW*, SWSE Section 18: Lots 2 and 3, NWNE

*Less and excepting from the portion of the above legal subdivisions in Section 7, those lands under and around Grassy Trail Dam and Reservoir owned by East Carbon City and Sunnyside City, such lands being more accurately described in Appendix 1-15.

2) <u>PENTA CREEK LEASE EXTENSION</u> (Extension 1, August, 2010)	352.36	T 14 S, R 14 E Section 6: Lots 2, 3, 4 and 5, SENW, SWNE, NWSE, S2SE
3) <u>PENTA CREEK LEASE EXTENSION</u> (Extension 2, March, 2011)	295.40	T 14 S, R 14 E Section 6: Lot 1, SENE Section 7: SWNE, NWSE, SESE, SENW Section 18: NENE
4) <u>HINKINS FEE LEASE**</u>	160.00	T 14 S, R 14 E Section 7: N2NE, SENE, NESE

TOTAL FEE LEASES: **1189.84**

** This lease area is held as follows: (individually)	David P. Hinkins, Todd S. Hinkins and Ross D. Hinkins.....50% Emily P. Marston.....25% Leonard Pagano.....25%
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**TABLE 1-4
LEGAL DESCRIPTION OF PERMIT AREA
(BY LEASEHOLD)**

<u>PARCEL</u>	<u>ACREAGE</u>	<u>LEGAL DESCRIPTION</u>
1) <u>FEDERAL LEASE SL-068754</u> (SL-068754-U-01215)	3,130.87	T 14 S, R 13 E
		Section 10: NE, E2NW, N2SE, SESE
		Section 11: All
		Section 12: S2SW, NWSW
		Section 13: S2, NW, S2NE, NWNE
		Section 14: E2, N2NW, SENW, SWNW, N2NWSW, E2SW
		Section 15: NENE, W2NE, E2SENE
		Section 23: Lot 1, N2NE, SWNE, NENW
		Section 24: N2, N2SE, NESW, NWSW
		2) <u>FEDERAL LEASE UTU-78562</u>
Section 34: NESE, S2SE		
Section 35: All		
T 13 S, R 14 E		
Section 31: Lot 4, S2SESW, NESESW, SENWSESW, W2SWSE, S2SESWSE, S2S2SESE		
T 14 S, R 13 E		
Section 1: All		
Section 12: Lots 1 thru 4, S2N2, NESW, SE		
Section 13: NENE		
T 14 S, R 14 E		
Section 5: W2W2SWNW, W2NWNWSW		
Section 6: Lot 6, NESW, N2NESE, SWNESE		
Section 7: Lots 3 and 4		
Section 18: Lot 1, E2NW		

TABLE 1-4 (continued)

<u>3) STATE LEASE ML 47711</u>	801.24	T 14 S, R 13 E Section 2: Lots 1 thru 4, S2N2, S2 T 13 S, R 13 E Section 36: SW
<u>4) STATE LEASE ML 49287</u>	881.10	T 14 S, R 13 E Section 3: Lots 1, 2 and 3, S2N2, S2 Section 10: W2NW, SW, SWSE
<u>5) STATE LEASE ML 51744</u>	212.5	T 13 S, R 13 E Section 36: SW, SWNWSWNW, S2S2NW, S2SWNE, W2SE, SESE, S2NESE, NWNESE
<u>6) PENTA CREEK FEE LEASE</u>	238.17	T 14 S, R 14 E Section 6: Lot 7, SESW Section 7*: Lot 1*, SESW, SWNESW Section 18: Lots 2 and 3
<u>7) PENTA CREEK LEASE EXTENSION</u> (Extension #1, August, 2010)	402.32	T 14 S, R 14 E Section 6 Lots 1, 2, 3, 4 and 5, SENW, SWNE, NWSE, SWSE, SENE, NWSESE
<u>8) PUMPING STATION</u> (BLM R.O.W. UTU-7712)	0.23	T 14 S, R 13 E Section 21 NESENE (0.23 acres thereof, containing pumping station)

TABLE 1-4 (continued)

<u>9) TOPSOIL SALVAGE AREA</u> (SITLA special use agreement #1163)	9.6	T 14 S, R 13 E	
		Section 16:	E2NESE (9.6 acres thereof, containing substitute topsoil area)
<u>10) CATCHMENT STRUCTURE A</u> (BLM R.O.W . UTU-87110)		T 14 S, R 13 E	
	0.23	Section 15:	SESW (0.23 acres thereof, containing catchment structure)
<u>11) CATCHMENT STRUCTURE C</u> (BLM R.O.W . UTU-87110)		T 14 S, R 13 E	
	0.23	Section 28:	NWNW (0.23 acres thereof, containing catchment structure)
<u>12) CATCHMENT STRUCTURE E</u> (BLM R.O.W . UTU-87110)		T 14 S, R 12 E	
	0.23	Section 25:	SESE (0.23 acres thereof, containing catchment structure)
<u>13) SECURITY GATE</u> (Carbon County authorization)	0.79	T 14 S, R 13 E	
		Section 15:	NWSENE (0.79 acres thereof, containing security gate)
<u>TOTAL PERMIT AREA</u>	<u>8080.58 acres</u>		

*Less and excepting from the portion of the above legal subdivisions in Section 7, those lands under and around Grassy Trail Dam and Reservoir owned by East Carbon City and Sunnyside City, such lands being more accurately described in Appendix 1-15.

**TABLE 1-5
LEGAL DESCRIPTION OF PERMIT AREA
(TOTAL AREA)**

T13S, R13E	Section 34	NESE, S2SE
	Section 35	All
	Section 36	SW, SWNWSWNW, S2S2NW, S2SWNE, W2SE, SESE, S2NESE, NWNESE,
T13S, R14E	Section 31:	Lot 4, S2SESW, NESESW, SENWSESW, W2SWSE, S2SESWSE, S2S2SESE
T14S, R12E	Section 25	SESE (part thereof containing catchment structure E)
T14S, R13E	Section 1	All
	Section 2	All
	Section 3	Lots 1, 2 and 3, S2N2, S2
	Section 10	All
	Section 11	All
	Section 12	All
	Section 13	All
	Section 14	E2, N2NW, SENW, SWNW, N2NWSW, E2SW
	Section 15	NENE, NWSENE (part thereof, containing security gate) SESW (part thereof, containing catchment structure A), W2NE, E2SENE
	Section 16	E2NESE (part thereof, containing substitute topsoil area)
	Section 21	NESENE (part thereof, containing pumping station)
	Section 23	Lot 1, N2NE, SWNE, NENW
	Section 24	N2, N2SE, NESW, NWSW
	Section 28	NWNW (part thereof, containing catchment structure C)
	T14S, R14E	Section 5:
Section 6		Lots 1, 2, 3, 4, 5, 6 and 7, SENW, E2SW, W2SE, S2NE, N2NESE, SWNESE, NWSESE
Section 7*		Lots 1*, 3 and 4, SESW, SWNESW
Section 18		Lots 1, 2 and 3, E2NW

TOTAL PERMIT AREA = 8,080.58 acres.

*Less and excepting from the portion of the above legal subdivisions in Section 7, those lands under and around Grassy Trail Dam and Reservoir owned by East Carbon City and Sunnyside City, such lands being more accurately described in Appendix 1-15.

**TABLE 1-6
SURFACE OWNERSHIP OF PERMIT AREA**

T(S)/R(E)	Section	BLM	Penta Creek	Hinkins	Wells	Rauhala	SITLA	Total
13/13	34	-	-	-	120.00	-	-	120.00
13/13	35	40.00	-	448.91	151.09	-	-	640.00
13/13	36	-	372.50	-	-	-	-	372.50
13/14	31	108.82	-	-	-	-	-	108.82
14/12	25	0.23	-	-	-	-	-	0.23
14/13	1	283.75	328.68	-	-	39.92	-	652.35
14/13	2	-	641.24	-	-	-	-	641.24
14/13	3	-	-	-	80.66	-	520.44	601.10
14/13	10	360.00	-	-	-	-	280.00	640.00
14/13	11	650.87	-	-	-	-	-	650.87
14/13	12	-	648.96	-	-	-	-	648.96
14/13	13	640.00	-	-	-	-	-	640.00
14/13	14	580.00	-	-	-	-	-	580.00
14/13	15	141.20	-	-	-	-	-	141.20
14/13	16	-	-	-	-	-	9.60	9.60
14/13	21	0.23	-	-	-	-	-	0.23
14/13	23	200.02	-	-	-	-	-	200.02
14/13	24	480.00	-	-	-	-	-	480.00
14/12	28	0.23	-	-	-	-	-	0.23
14/14	5	-	-	15.00	-	-	-	15.00
14/14	6	76.41	478.88	30.00	-	-	-	585.29
14/14	7	74.08	86.69		-	-	-	160.77
14/14	8	-	-		-	-	-	0.00
14/14	18	117.25	74.92	-	-	-	-	192.17
		3753.09	2631.87	493.91	351.75	39.92	810.04	8080.58

**TABLE 1-7
DISTURBED AREA WITHIN PERMIT AREA**

1) Minesite surface facilities: portions of the following, totaling 29.82 acres (all BLM)

T14S, R13E	Section 10:	SESESE NESESE
T14S, R13E	Section 11:	SWNESW NWSESW NESWSW NWSWSW SWSWSW SESWSW
T14S, R13E	Section 15:	NENENE NWNENE SWNENE SENENE NWSENE

2) Pumphouse: portion thereof of the following, containing 0.23 acres (all BLM)

T14S, R13E	Section 21:	NESENE
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3) Gob gas vent hole (GVH) installation (main pad): portion thereof of the following, containing 0.24 acres (all SITLA)

T14S, R13E	Section 3:	NESWSE
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4) Gob gas vent hole (GVH) installation (GVH 5 “pullout”): portion thereof of the following, containing 0.02 acres (all SITLA)

T14S, R13E	Section 3:	NESWSE
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5) Gob gas vent hole (GVH) topsoil pile: portion thereof of the following, containing 0.1 acres (all SITLA)

T14S, R13E	Section 10:	SENWNW
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6) Catchment Structure A: portion thereof of the following, containing 0.12 acres (all BLM)

T 14 S, R 13 E Section 15: SESW

7) Catchment Structure C: portion thereof of the following, containing 0.23 acres (all BLM)

T 14 S, R 13 E Section 28: NWNW

8) Catchment Structure E: portion thereof of the following, containing 0.23 acres (all BLM)

T 14 S, R 12 E Section 25: SESE

9) B Canyon Portal Re-Opening: portion thereof of the following, containing 0.25 acres (all BLM)*

T 14 S, R 13 E Section 14 SWNE

TOTAL DISTURBED AREA = 31.24 acres

* Note: All disturbance associated with the B Canyon Portal Re-Opening will be within the area of previous (pre-SMCRA) disturbance.

R645-301-115 STATUS OF UNSUITABILITY CLAIMS

115.100 The proposed permit area is not within an area designated as unsuitable for mining. WEST RIDGE Resources, Inc. is not aware of any petitions currently in progress to designate the area as unsuitable for coal mining and reclamation activities.

The area in which the proposed facility will be located has been evaluated within area management plans. It has not been found unsuitable for mining activities under any categories of examination.

115.200 Not applicable.

115.300 WEST RIDGE Resources, Inc. will not be conducting mining operations within 100 feet of an occupied dwelling. WEST RIDGE Resources, Inc. has received permission from Carbon County to construct facilities and operate coal mining activities within 100 feet of a public road. Refer to the letter from Carbon County in Appendix 1-8.

R645-301-116 PERMIT TERM

116.100 The anticipated starting and termination dates of the coal mining and reclamation operation are as follows:

	<u>Begin</u>	<u>Complete</u>
Construction of Mining Pad, Mining Support Structures, and Portals	Apr. 1999	Dec. 1999
Begin Mining	Jan. 2000	
Terminate Longwall Mining		Nov. 2015
Terminate Pillar Mining	July 2018*	July 2019*
Remove Facilities	Jan. 2020*	June 2020*
Regrade Area	July 2020*	Sept. 2020*
Revegetate Site	Oct. 2020*	Nov. 2020*

*This assumes mine life extended through acquisition of adjacent state and federal coal reserves.

116.200 The initial permit application will be for a five year term with successive five year permit renewals.

R645-301-117 INSURANCE, PROOF OF PUBLICATION AND FACILITIES OR STRUCTURES USED IN COMMON

- 117.100 The Certificate of Liability Insurance is included as Attachment 1-1 in Appendix 1-1.
- 117.200 A copy of the newspaper advertisement of the application for a permit and proof of publication are included as Attachment 1-2 and 1-3 respectively, in Appendix 1-1. A copy of the newspaper advertisement for the Whitmore lease revision is included as Attachment 1-3 in Appendix 1-1.
- 117.300 Not applicable.

R645-301-118 FILING FEE

Verification of filing fee payment is included as Attachment 1-4 in Appendix 1-1.

R645-301-123 NOTARIZED STATEMENT

A notarized statement attesting to the accuracy of the information submitted can be referenced as Attachment 1-5 in Appendix 1-1.

R645-301-130 REPORTING OF TECHNICAL DATA

Technical reports prepared by consultants specifically for WEST RIDGE Resources, Inc. are typically presented in an appendix format and, in general, provide the name and address of the person or company (consultant) preparing the report, the name of the report, the date of collection and analysis of the data, and descriptions of the methodology used to collect and analyze the data. The body of the report usually will provide the date the actual field work was conducted and a description of the methodology used to collect and analyze the data. The format of each report may vary depending on the contents of the report and organization preparing it.

For laboratory analyses, such as Appendix 7-2 and 7-3, the company performing the analyses as well as the date of the analyses, is presented on the laboratory report rather than the cover page.

A list of consultants and their appended reports is contained in Appendix 1-6, Consultation and Coordination. Sources used in the preparation of the permit application are referenced in Appendix 1-3. References in all chapters are keyed to this main reference list.

Mining and exploration activities had been conducted in the currently proposed disturbed area prior to August 3, 1977. A road existed into C Canyon in 1952 when drill hole B-6 was drilled in the right fork. A road was also constructed up the left fork of C Canyon to a drill hole site during the same year. In addition to the drill holes, the coal outcrop in the left fork of C Canyon was exposed for sampling purposes. A small pad was built at the outcrop location and it was left in place as were the roads.

In 1986, another drill hole, 86-2, was drilled west of the first drill hole in the right fork. A minor amount of road work was done in conjunction with this second drill hole. Kaiser Coal Company obtained permission from the BLM to grade the existing road and make it passable for the drill rig. The drill hole site was reclaimed but the road, a public road, was left in place.

Through use of aerial photography and site evaluations, it is possible to document previous mining related disturbances in C Canyon. Refer to Map 5-1 for delineation of the disturbance prior to August 3, 1977.

The total of all the previously disturbed areas within the minesite disturbed area is estimated to be as follows:

roads in right and left forks	=	1.27 acres
road culvert	=	.05 acres
water monitoring well	=	.05 acres
material storage pad	=	.05 acres
		<hr/>
		1.62 acres

WEST RIDGE Resources, Inc. is proposing to utilize the entire previously disturbed area in their current proposal and to reclaim it upon cessation of mining operations.

In the 1950's a road was constructed in the Right Fork of Bear Canyon to access an exploratory drillhole site. This road now provides access to the site of the Bear Canyon GVH installation. (Refer to Appendix 5-14 for a detailed description of the Bear Canyon GVH facility)

**ATTACHMENT 1-5
VERIFICATION STATEMENT**

I hereby certify that I am a responsible official (Resident Agent) of the applicant (ANDALEX and IPA for WEST RIDGE Resources, Inc.) 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

Jay Marshall, Resident Agent

Signed - Name - Position - Date

Subscribed and sworn to before me this__ day of____, 20_

Notary Public

My commission Expires: _____, 20__)

Attest: STATE OF _____) ss:

COUNTY OF _____)

*Vegetation Reference Areas
at the
West Ridge Mine
2016*

*in
Carbon County
Utah*



Prepared by

MT. NEBO SCIENTIFIC, INC.

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for

WEST RIDGE RESOURCES

West Ridge Mine

P.O. Box 910

East Carbon, Utah 84520



November 2016

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INTRODUCTION

In the summer of 2016 representatives from the West Ridge Mine, State of Utah, Division of Oil, Gas & Mining (UDOGM) and U.S. Department of Interior, Office of Surface Mining Reclamation and Enforcement (OSMRE) visited the West Ridge Mine site in Carbon County, Utah. The purpose of the site visit was to locate, inspect and review the plant communities that were chosen during the mine permit process to represent future revegetation success standards at the time of final reclamation. These sites were called “reference areas”.

Following the site visit, a recommendation was made to have a qualified botanist re-locate the reference areas, inspect the condition of them and record their GPS coordinates to facilitate future visits.

METHODS

To begin the study, maps that show the locations of the reference areas at the West Ridge Mine were reviewed in the Mining & Reclamation Plan (MRP). The original reports by *Mt. Nebo Scientific, Inc.*^(1,2,3) were also reviewed; they describe the reference areas, when they were chosen and results from quantitatively sampling them. A topographic map program was then employed to place waypoints on a map to be used in the field. The waypoints were transferred to a hand-held GPS unit, also for field use. A trip to the sites was conducted by the author on September 27, 2016 to revisit and re-locate the reference areas using the GPS unit and aforementioned new field maps. Once the reference areas were found, their general conditions were assessed and the GPS coordinates were adjusted when appropriate.

¹ Collins, P.D.. 1997. Plant communities of the West Ridge project mine area. A professional report for Andalex Resources, Price, UT. Mt. Nebo Scientific, Research & Consulting, Springville, UT. 36 pp.

² Collins, P.D.. 1998. Douglas Fir/Maple reference area (new) , West Ridge Mine project. A professional report for Andalex Resources, Price, UT. Mt. Nebo Scientific, Research & Consulting, Springville, UT. 16 pp.

³ Collins, P.D.. 1998. Nonvascular plant cover of the Douglas Fir/Rocky Mtn. Juniper community at the West Ridge project . A professional report for Andalex Resources, Price, UT. Mt. Nebo Scientific, Research & Consulting, Springville, UT. 8 pp.

RESULTS

Table 1 lists the reference areas at the West Ridge Mine along with their respective GPS coordinates. Photographs of the reference areas taken during the visit are also shown below.

All reference areas were in good condition and remain viable as revegetation success standards at the time of final reclamation of the mine site. When the site was visited by OSMRE and UDOGM, it was thought that a rock slide may have covered the Douglas Fir/Maple Reference Area. However, when the site was visited by the author, this reference area was located up-canyon and beyond the rock slide area.

Table 1: Reference Areas at the West Ridge Mine, Carbon County, Utah

REFERENCE AREA	GPS NAME	COORDINATES (UTM NAD 27)
Pinyon-Juniper	WRPJref	12S 547959E 4385364N
Douglas Fir/Rocky Mountain Juniper	WRDFRMJref	12S 548286E 4385192N
Douglas Fir/Maple	WRDFMref	12S 548993E 4385858N

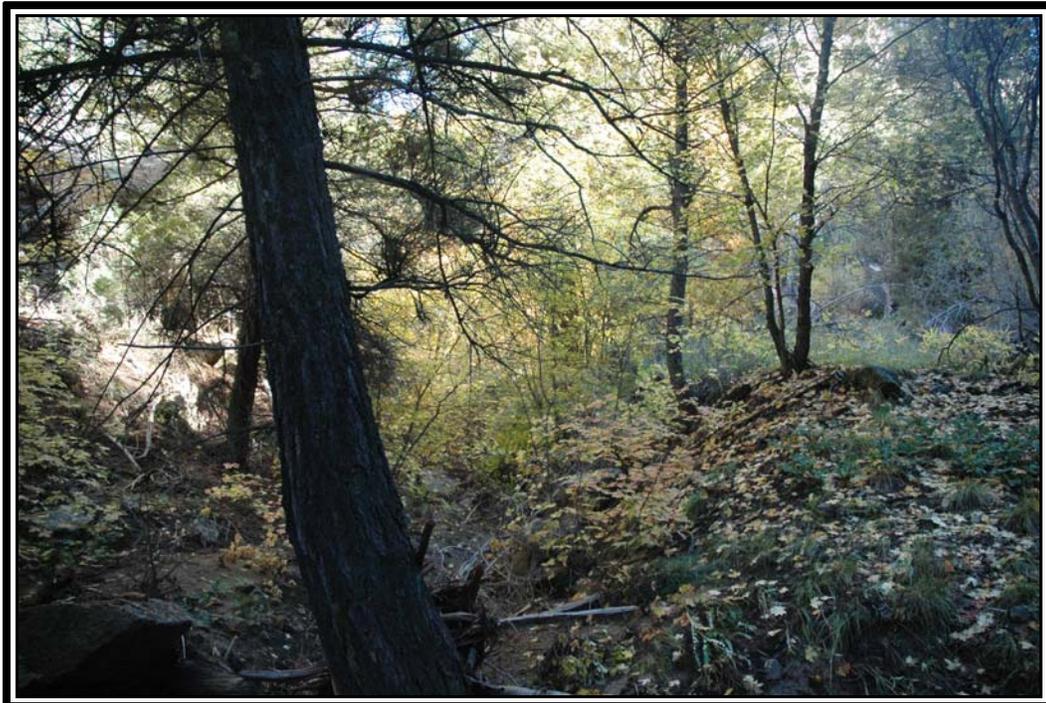
Pinyon-Juniper Reference Area



Douglas Fir/ Rocky Mountain Juniper Reference Area



Douglas Fir/ Maple Reference Area



Name of Operation West Ridge
Identifying Number
Fed/State Permit Number 007/041
MSHA ID Number 42.02233

<u>Date Issued</u>	<u>Violation #</u>	<u>Name of Issuing Agency</u>	<u>Brief Description of Violation</u>	<u>Status</u>	<u>Abatement Action</u>	<u>Appeal Y or N</u>
1/22/2004	NOV4-49-1-1	DOGM	Failure to request renewal	Term		N
4/6/2005	NOV5-39-1-1	DOGM	Failure to submit 4qtr water	Term		N
7/31/2008	10025	DOGM	Coal pushed on topsiol	Term		N
1/29/2009	10033	DOGM	Sediment in Stream	Term		N
4/29/2010	10051	DOGM	Storage shed CO	Term		N
4/29/2010	10052	DOGM	Plugged Culvert	Term		N
7/21/2010	10063	DOGM	Coal Fines in Stream (2nd)	Term		N
9/10/2015	21156	DOGM	Seismic Monitoring	Term		N
9/15/2016	21186	DOGM	Seismic Monitoring	Term		N

Name of Operation West Ridge
Identifying Number
Fed/State Permit Number 007/041
MSHA ID Number 42.02233

<u>Date Issued</u>	<u>Violation #</u>	<u>Name of Issuing Agency</u>	<u>Brief Description of Violation</u>	<u>Status</u>	<u>Abatement Action</u>	<u>Appeal Y or N</u>
1/22/2004	NOV4-49-1-1	DOGM	Failure to request renewal	Term		N
4/6/2005	NOV5-39-1-1	DOGM	Failure to submit 4qtr water	Term		N
7/31/2008	10025	DOGM	Coal pushed on topsiol	Term		N
1/29/2009	10033	DOGM	Sediment in Stream	Term		N
4/29/2010	10051	DOGM	Storage shed CO	Term		N
4/29/2010	10052	DOGM	Plugged Culvert	Term		N
7/21/2010	10063	DOGM	Coal Fines in Stream (2nd)	Term		N
9/10/2015	21156	DOGM	Seismic Monitoring	Term		N
9/15/2016	21186	DOGM	Seismic Monitoring	Term		N

- 3) Straw mulch will be applied over the seed bed of the test plot at a rate of 2,000 pounds per acre. The straw surface will then be sprayed with a mulch and tackifier. This type of application has appeared to be successful at other reclamation sites.

The experimental test plot area will be accessed via the stockpile during late summer or early fall. An effort will be made to stay to the extreme edge of the stockpile and, if possible, utilize a portion of the adjacent cut slope area as part of the access way thus minimizing disturbance to the stockpile. Any compaction or disturbance to the stockpile surface will be ripped and reseeded following completion of the installation of the test plots.

Vegetation monitoring will compare the results of plant growth between the experimental practice in-place soils to replaced topsoil. Monitoring will compare re-vegetation response for each soil type (Strych and Midfork) for each of the two soil surfaces (channel bottom and hillside). For example, comparisons will be made between in-place and replaced soils for the channel bottom soils consisting mainly of Strych; likewise, comparisons will be made for hillside Milfork soils. The experimental test plot area will also be compared with the reference area for the Douglas Fir/Maple vegetation type. Vegetation will be monitored for five years or until a determination of success has been made for the experimental practice. West Ridge will consult closely with the Division regarding the results of the test plot study. Should the results show a need to revise the reclamation plan, West Ridge will work with the Division to amend the plan and incorporate the changes needed to ensure reclamation of the mine yard area will be successful.

It is to be noted that based annual reports prepared by Patrick Collins of Mt. Nebo Scientific, as of 2016 West Ridge Resources has had 10 years of successful revegetation at these test plot sites, and this monitoring commitment has been fulfilled. No further annual monitoring of these sites will be completed.

The proposal to leave the existing topsoil in place and protected by a geotextile barrier or marker strips within the filled areas of the minesite is considered an experimental procedure and defined in section R645-302-210 of the State of Utah Coal Mining Rules and SMCRA. The practice of protecting the topsoil in-place with a geotextile fabric has been previously approved in Utah in steep slope conditions where soil would otherwise not be salvageable (Genwal Resources Crandall Canyon Mine, ACT 015/032).

Based on recommendations from experienced reclamation consultants, there is every reason to believe that this procedure will be successful in meeting the reclamation standards required by SMCRA. However, as an added element of assurance for the success of reclamation at the West Ridge minesite, West Ridge has preserved, under long-term lease, a separate source of high quality topsoil which can be used to reclaim the minesite if needed. This substitute material is located nearby. The sole purpose of this topsoil borrow site is to be used for final reclamation on an as-needed basis in the unlikely event that the left-in-place topsoil at the minesite cannot be sufficiently revitalized and re-utilized at the time of final reclamation. Refer to the following section Reclamation Backup Plan – Topsoil Substitutes and Supplements.

- 3) Straw mulch will be applied over the seed bed of the test plot at a rate of 2,000 pounds per acre. The straw surface will then be sprayed with a mulch and tackifier. This type of application has appeared to be successful at other reclamation sites.

The experimental test plot area will be accessed via the stockpile during late summer or early fall. An effort will be made to stay to the extreme edge of the stockpile and, if possible, utilize a portion of the adjacent cut slope area as part of the access way thus minimizing disturbance to the stockpile. Any compaction or disturbance to the stockpile surface will be ripped and reseeded following completion of the installation of the test plots.

Vegetation monitoring will compare the results of plant growth between the experimental practice in-place soils to replaced topsoil. Monitoring will compare re-vegetation response for each soil type (Strych and Midfork) for each of the two soil surfaces (channel bottom and hillside). For example, comparisons will be made between in-place and replaced soils for the channel bottom soils consisting mainly of Strych; likewise, comparisons will be made for hillside Milfork soils. The experimental test plot area will also be compared with the reference area for the Douglas Fir/Maple vegetation type. Vegetation will be monitored for five years or until a determination of success has been made for the experimental practice. West Ridge will consult closely with the Division regarding the results of the test plot study. Should the results show a need to revise the reclamation plan, West Ridge will work with the Division to amend the plan and incorporate the changes needed to ensure reclamation of the mine yard area will be successful.

It is to be noted that based annual reports prepared by Patrick Collins of Mt. Nebo Scientific, as of 2016 West Ridge Resources has had 10 years of successful revegetation at these test plot sites, and this monitoring commitment has been fulfilled. No further annual monitoring of these sites will be completed.

The proposal to leave the existing topsoil in place and protected by a geotextile barrier or marker strips within the filled areas of the minesite is considered an experimental procedure and defined in section R645-302-210 of the State of Utah Coal Mining Rules and SMCRA. The practice of protecting the topsoil in-place with a geotextile fabric has been previously approved in Utah in steep slope conditions where soil would otherwise not be salvageable (Genwal Resources Crandall Canyon Mine, ACT 015/032).

Based on recommendations from experienced reclamation consultants, there is every reason to believe that this procedure will be successful in meeting the reclamation standards required by SMCRA. However, as an added element of assurance for the success of reclamation at the West Ridge minesite, West Ridge has preserved, under long-term lease, a separate source of high quality topsoil which can be used to reclaim the minesite if needed. This substitute material is located nearby. The sole purpose of this topsoil borrow site is to be used for final reclamation on an as-needed basis in the unlikely event that the left-in-place topsoil at the minesite cannot be sufficiently revitalized and re-utilized at the time of final reclamation. Refer to the following section Reclamation Backup Plan – Topsoil Substitutes and Supplements.

WordPerfect Document Compare Summary

Original document: K:\West Ridge\2016\WR16-002 Midterm\Originals\APPENDIX 5-15 catchment A-C-E response to deficiencies task 3599 and 3661 clean task 3708.wpd

Revised document: K:\West Ridge\2016\WR16-002 Midterm\New Text\Appendix 5-15.wpd

Deletions are shown with the following attributes and color:

~~Strikeout~~, **Blue** RGB(0,0,255).

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Insertions are shown with the following attributes and color:

Double Underline, Redline, **Red** RGB(255,0,0).

The document was marked with 10 Deletions, 11 Insertions, 0 Moves.

APPENDIX 5-15

COAL-FINES CATCHMENT STRUCTURE
C CANYON DRAINAGE

ATTACHMENTS

Attachment 1	Location Map
Attachment 2	BLM NEPA Document (Catagorical Exclusion)
Attachment 3	BLM Right-of-Way Grant
Attachment 4	Div. Water Rights Channel Alteration Permit
Attachment 5	Catchment Structure A, As-Built Drawing
Attachment 6	Catchment Structure A, As-Constructed Photos
Attachment 7	Pre and Post-Reclamation Photos of Catchment Sites C, E and F
Attachment 8	BLM Seed Mix
Attachment 9	Addendum to Address Second Violation #10063, Issued July 21, 2010
Attachment 10	Catchment Structures C and E, As-Constructed Photos (Re-Constructed, 2010)
Attachment 11	Catchment Structures C and E, As-Constructed Drawings (Re-Constructed, 2010)
Attachment 12	MSDS Sheet for Flocculant 83400
Attachment 13	Soils Information, Catchments C and E

COAL-FINES CATCHMENT STRUCTURE **C CANYON DRAINAGE**

1) Introduction:

West Ridge Resources became aware of excessive coal fines in the discharge water from the West Ridge Mine, and subsequent accumulations in the C Canyon drainage beyond the permit area below the minesite, in late January, 2009. The company immediately notified the various state and federal agencies involved, namely Division of Oil, Gas & Mining (DOGGM), Division of Water Quality (DWQ), Bureau of Land Management (BLM), Utah School & Institutional Trust Lands Administration (SITLA), and Utah Division of Water Rights (DWRights). On January 29, 2009, DOGM issued Citation No. 10033 for offsite sediment. After that there were a number of on-site meetings to assess the situation, followed by several planning meetings designed to come to a consensus agreement among all the agencies as to the best plan to mitigate the discharge problem from the mine and the accumulations situation in the drainage. At the request of the various regulatory agencies, the accumulation material was sampled and analyzed for RCRA metals, volatile organic compounds, semi-volatile organics, as well as other analytes requested specifically by DOGM, to make sure that the material was not toxic, hazardous, or acid-forming. These analyses were then factored into the formulation of an acceptable containment and clean-up plan. Based on these site inspections and planning meetings, and the results of the analyses, a conceptual plan was then agreed upon. This plan consisted of an initial containment phase, followed later by a clean-up phase, and finally site reclamation. This plan was then formally submitted to DOGM and DWQ on March 27, 2009, as part of the abatement requirements for the violations issued by those agencies. The plan was subsequently accepted and the cleanup operation implemented accordingly. The elements of this plan are described below.

2) Containment:

Containment was accomplished by constructing four catchment structures at selected locations within the C Canyon drainage below the mine. These catchments were located at various intervals over a seven-mile stretch of the drainage, and all were accessible by way of pre-existing roads. The location of these structures, at sites A, C, E and F, is shown on Attachment 1. (It was subsequently determined that the catchments at sites B and D would not have to be utilized.)

Due to the urgency of the situation, it was agreed early-on by all parties that a containment plan should be implemented as soon as possible in order to prevent the coal-fines material from migrating any further down the C Canyon drainage. Toward this end, BLM, DWRights, and SITLA all issued expedited approvals to allow immediate construction of the catchment structures, and road access thereto. BLM issued a right-of-way for catchment Site A on Feb. 9, and for the other sites and access roads on Feb. 23; DWRights issued channel alteration permits on Feb. 3; and SITLA issued right-of-entry agreements for the access roads on Feb. 17.

In preparation for issuing the necessary rights-of-way for the catchments, BLM determined under the NEPA review that the sites qualified for a Categorical Exclusion (CX), as shown in Attachment 2. The following reasons contributed to this determination:

a) The fact that all catchment construction was to be done within the existing drainage channel and adjacent flood-plain, therefore within the zone that is subject to regular flashflood scouring events. Within this flood-plain, vegetation and topsoil resources were not well developed due to the frequent storm-related scouring within the confines of the flood-plain.

b) The fact that each unit was of relatively small size, i.e., less than 10,000 sq. ft. (0.23 acres).

c) The fact that each site was accessed by an existing road which required no upgrade or additional disturbance.

d) The fact that the BLM's current management plan did not identify any environmental issues in the area, such as T&E, visual resources, recreational resources, etc.

e) The fact that on-site cultural resource surveys determined nothing of significance.

Because of prior road authorizations, work was commenced first at Site A on Feb. 11, 2009. All construction of site A was done within the pre-existing right-of-way UTU-1256 for the adjacent road. Work then moved to Site F, the lowest unit downstream. It was felt that this site represented a reasonable line of defense against future downstream fines migration, and was therefore assigned an elevated priority for construction. This facility was completed on March 16. Construction at Site E was completed on March 23, and Site C was completed in mid-April.

All work on the catchments was done under the appropriate permits, rights-of-way, and other authorizations granted from BLM, SITLA and Division of Water Rights (stream alteration). Archeological clearances were completed where necessary. No cultural resource clearance was required for Site A because it was constructed within the right-of-way of the existing road and the area had already been cleared. Refer to Attachment 3 for BLM right-of-way grant for the catchment site. Refer to Attachment 4 for the DWRights channel alteration permit.

Each catchment structure consisted of a small stilling basin excavated out of the natural drainage channel, a small low-lying impoundment dam to contain the basin, and a series of siltation filtering devices installed within the dam. Therefore, each catchment was designed to employ elements of both settling and filtration. A bypass culvert, consisting of a 12" dia. poly-pipe, was constructed around each unit to allow the stream flow to be diverted around the stilling basin and filter boxes at times when the basins were being cleaned or the filters were being replaced. Refer to Attachment 5 for an as-built drawing of Catchment Structure A, and to Attachment 6 for as-constructed photos of the facility.

The filtration devices consist of a series of excelsior log sediment traps, contained within steel

holding boxes. These boxes are designed to hold the filter logs firmly in place and prevent the streamflow from bypassing under the logs or around the ends. The holding boxes are also designed to allow the logs to be quickly and easily replaced as needed with new ones as they fill up with accumulations.

3) Clean-up:

Prior to clean-up operations, the entire C Canyon drainage channel was inspected by representatives of the various state and federal regulatory agencies and company representatives. This inspection tour took place in late April, 2009, after all the catchment structures were in place. The purpose of this inspection tour was to assess the extent and magnitude of the coal-fines accumulation material as part of formulating the final clean-up plan. Most of the accumulations were observed to be between the mine and Site A. Based on the results of the inspection tour it was determined that active cleaning techniques would be more appropriate in the channel immediately below the mine in the area of highest concentrations, while passive, non-invasive natural cleaning processes would be more appropriate in the remaining channel below Site A where the accumulations were less.

In order to facilitate the clean-up effort, the company utilized a flocculant chemical additive during the active portion of clean-up. This involved metering the chemical into the stream-flow immediately above catchment unit A. The flocculant was metered into the flow at a rate determined by previous bench testing on the material. and was only utilized during active portions of the clean-up

The clean-up operations were conducted under complete oversight from the various regulatory agencies,. Active cleaning began on June 30, 2009, at the minesite and proceeded downstream from there. Cleaning involved hand crews utilizing household sweeping brooms to dislodge and break up the accumulated material. The stream-flow then carried the material down to the first catchment structure at Site A, where it was captured and later removed. On August 26, the cleanup was completed, the channel was inspected by officials from DOGM and DWQ, and the violation was officially abated.

4) Reclamation:

After the clean-up was determined successful by the government agencies involved (DOGM, DWQ and BLM), and the violation was formally abated, it was determined that catchment A should be left in-place to provide an element of insurance against unforeseen upset conditions which might possibly arise in the future involving the mine water discharge. Therefore, since this catchment would continue to remain in service as part of the mine operation, it was decided that it should be included in the SMCRA Mining and Reclamation permit and within the permit area.

It was also determined at that time that catchment structures C, E and F should be reclaimed

since they were no longer needed either for containment or cleanup. The company then applied to BLM for relinquishment of the right-of-way for these sites. Based on BLM authorization, reclamation of sites C, E and F were completed in October 2009 under the terms of the right-of-way UTU-87111, and BLM signed-off on the reclamation of these areas for shortly thereafter, subject to demonstration of successful re-vegetation the following summer (2010).

In reclaiming catchments C, E and F, undisturbed segments of the channel above and below the catchment sites were used as a basis of comparison in restoring the areas to an acceptable reclaimed condition. It should be noted that these sites were originally constructed totally within the natural flood-plain of the drainage channel. This was one of the reasons the BLM issued the right-of-way under Categorical Exclusion (CX), without requiring more extensive environmental analysis. These areas are subject to cyclic regular inundations from high-intensity high volume runoff events which add a natural dynamics toward augmenting successful future reclamation.

Successful reclamation of sites C, D and F can be used as a model for the future reclamation of site A. Therefore the reclamation plan for site A consists of what was done at the other three sites, and is described in more detail below. Pre-reclamation and post-reclamation photos of these sites are included in Attachment 7, since these sites serve as a model for future reclamation of Site A. It should be noted that these photos were taken shortly after reclamation in the fall of 2009. Although reseeding has been done at these sites as per BLM requirements, the vegetation has not yet had a chance to become re-established, but should be evident by the summer of 2010.

Reclamation of site A will begin at such time as the company and the regulatory agencies agree that it is no longer needed as a back-up facility to ensure protection to the drainage channel in the event of a future unforeseen discharge of coal-fines from the mine. This could be when the mine no longer discharges water, or when the mine undergoes final reclamation.

The BLM right-of-way for site A includes 0.23 acres. There is a pre-existing BLM road which runs through the site, which will remain in place after final reclamation. Existing disturbance associated with the installation of site A involves less than 0.12 acres, all located in the stream flood channel north of the existing road. Once started the reclamation will proceed in the following order:

- 1) The channel flow will be temporarily diverted through the by-pass pipe. The impounded water in the stilling basin will then be drained off, and any remaining coal-fines accumulation material will be cleaned out of the basin and hauled off-site to an approved disposal facility (such as ECDC).
- 2) The concrete barriers between the road and the basin, which presently serve as a public safety barricade, will be removed and utilized at another location within the company.
- 3) The steel containment structures for the filter logs will be removed and hauled off-site to an approved disposal site, such as a scrap-metal recycle facility.

- 4) The low-lying outlet dams (where the filter boxes were located) will be excavated out to the original stream bottom elevation and configuration. The excavated material will be used to help fill up the stilling basin.
- 5) The rest of the stilling basin will be backfilled with the material from the adjacent equipment storage area, and from the “excess fill storage area” located between the basin and the steep bank immediately to the north. This is the material that was originally dug out of the channel to construct the stilling basin. Additional material from the small material storage pad will also be used to blend back into the excavated channel area. In this manner the stream channel surface can be restored as it is filled back up, and the configuration of the adjacent channel flanks will also be restored at the same time.
- 6) As the re-contouring process continues, boulders and large rocks will be arranged within the channel and along the channel flanks in an attempt to mimic the pre-existing channel morphology as much as possible, and to blend in with the visual appearance of the natural channel above and below the reclamation site.
- 7) The boulder placement will be done not only for visual appearance, but also for erosional control. This will be done by placing boulders in and along the reclaimed channel to slow and control the water-flow velocity. Additional armoring will be placed along the outer bank of the curved section of channel in the area where the filter boxes were removed. The boulder placement will be done to match the natural appearance of the area.
- 8) After the channel has been restored, and the channel flanks have been reclaimed by removing the material storage pad, the by-pass pipe will be removed. The bypass pipe has been installed more-or-less parallel with the channel and buried under the pad and the existing road. Therefore, after the material pad have been reclaimed, the bypass pipe will be easily accessible. Once the channel water-flow has been returned to the newly-reclaimed channel, and the bypass pipe removed, the final re-contouring of the channel flanks will be done.
- 9) All reconstructed bank areas and flanks will be roughened and scarified in preparation for re-seeding. It should be noted that since the site was constructed within the channel and the immediate flood plain, there was no topsoil salvaging done during initial construction. There was little definable topsoil in the pre-existing site, which consisted primarily of flash-flood alluvial debris, and vegetation was sparse. However, after the pad material is removed, and the excess fill material from the “excess fill material area” is backfilled into the basin area as part of the channel restoration, the original pre-existing flood-plain contour will be re-established.
- 10) The disturbed areas will then be re-seeded using a seed mix recommended by the

BLM. See Attachment 8 for the proposed seed mix. This is the same seed mix that was used on the reclamation of catchment site C located nearby. Seed will be hand-broadcast and then raked in. After the areas have been re-seeded, a layer of wood straw will be scattered over the reclaimed areas. As required by BLM, re-seeding will be done in to fall of the year (after November) to increase the potential for successful germination.

- 11) Upon final reclamation, the reclaimed surface soils in the vicinity of the former catchments will be tested for pH, EC and SAR to allow for the evaluation of the salinity and the need for a revision or addition to the final seed mix to enhance germination and establishment.

Note: Catchment A is being left in place as a contingency for potential future cleanup events. In the meantime, the basin is likely to fill up with natural sediment material from normal precipitation events. This material will not be cleaned out unless and until the basin needs to be pressed back into service in the unlikely event of a future coal fines cleanup resulting from an inadvertent discharge. Also, the excelsior logs will not be maintained in the filter boxes until such time as they may be needed for future cleanup efforts.

5) Bonding:

The following bonding calculations are provided:

1) Demolition: a) Remove the steel filter boxes. There are a total of 22 of these filter boxes at the catchment site. They measure 13' long x 2' wide x 2.5' high. They are equipped with lifting lugs and can easily be removed from the site, loaded on a flatbed truck, and hauled off. They are valuable for scrap, and can easily be properly disposed of. Demolition cost is estimated to be about the same as for the powder magazines (bond item 04) at the West Ridge Mine, which have been determined at \$154 each. Therefore, the demolition cost associated with the filter boxes is estimated at $22 \times \$154 = \$3,388$.

2) Demolition: b) Removal of the bypass pipe. There is a total of 50' of 12" poly pipe installed at this site. This pipe is put together in 20' lengths with removable couplers. It is easy to dis-assemble, and can be re-used after being removed from the sites. Demolition and removal cost of this pipe is estimated to be about the same as for similar culverts (bond item 27) at the West Ridge Mine, which has been determined to be \$442.

3) Earthwork: Based on the estimated quantity of backfill required to reclaim comparable sites C, E and F, the estimated time required to backfill and grade the site is about 12 days or 96 working hours. Similar earthwork cost for the West Ridge Mine (i.e., "establish rubbleland surface" bond item) is estimated to be

\$19,230/111 hrs = \$173/hr. Therefore, it is estimated to cost about \$173 x 96 hrs = \$16,608 for earthwork reclamation of the catchment site. This is in line with historical costs incurred in reclaiming the lower catchment sites.

4) Revegetation: The total area of the catchment site is 0.92 acres. The existing West Ridge pumphouse, which is located nearby in a similar is 0.9 acres, or 0.21 times larger, and its re-vegetation cost is presently bonded at \$4506. Therefore, the re-vegetation cost for the catchment site is estimated to be about \$4506.

The total reclamation cost for the catchment site is estimated at:

Demolition	\$3,830
Earthwork	\$16,608
Re-vegetation	\$4,506
Direct Cost	\$24,944
Indirect Cost (26.8%)	\$6,685
<u>TOTAL</u>	<u>\$31,628</u>

The present West Ridge Mine reclamation bond amount is \$1,966,000 (as of November 12, 2008), and the bond posted is \$2,117,000. In other words, there is presently \$151,000 excess bonding currently in place. Therefore, the existing bond should be adequate to include the reclamation of the catchment site.

6) Second Violation:

On July 21, 2010, the company incurred a second violation for additional coal fines accumulations in the drainage below the mine. A complete discussion of this situation is included in Attachment 9 of this Appendix, "Addendum to Address Second Violation #10063, Issued July 21, 2010".

ATTACHMENT 9

ADDENDUM TO ADDRESS SECOND VIOLATION

VIOLATION #10063
ISSUED JULY 21, 2010

ATTACHMENT 9: ADDENDUM TO ADDRESS SECOND VIOLATION VIOLATION 10063, ISSUED JULY 21, 2010

Historical Note: The preceding discussion was approved by the Division and was incorporated into the Mining and Reclamation Plan on May, 2010. Shortly thereafter, on July, 2010, the company incurred a second violation for coal fines accumulations from the mine. The following narrative has been submitted in response to this most recent violation. It is presented in the same format as the preceding discussion.

1a) Introduction:

On July 21, 2010, the company received a second violation for additional accumulations of coal fines in the C Canyon drainage below the West Ridge Mine. The accumulations were the result of non-compliance discharge which occurred after the successful channel cleanup of the previous summer (2009). Representatives from the Division and DWQ inspected the drainage and determined that the coal fines must be cleaned up from the mine down to and including Catchment E. This is a distance of about five miles measured straight-line, and perhaps seven miles total, considering channel meander and sinuosity.

As part of the violation abatement requirements, the Division determined that Catchments C and E would have to be permitted as part of the MRP. It also determined that these catchments could be re-constructed and utilized as part of the required cleanup process prior to having the approval of the MRP amendment. Reconstruction work on the catchments was completed in August, 2010, and cleanup began in September, 2010.

2a) Containment:

After the channel was cleaned in the summer of 2009 and the initial violation was formally abated, the company reclaimed Catchments C and E in November, 2009. The BLM was in the final stages of approving the reclamation when the second violation occurred.

Fortunately, the BLM right-of-way for Catchment C and E is still in place (refer to Attachment 3). Also, Division of Water Rights has approved an Emergency Authorization for the catchments (identical to the one issued previously, refer to Attachment 4) and is proceeding with the extension of the previously-issued stream alteration permit for catchments C and E.

The company reconstructed catchments C and E similar to what was done in 2009 (as described above), and to utilize these re-constructed catchments, as well as existing Catchment A, in the clean-up response to the second violation #10063. As-constructed photos of the catchments during the 2009 clean-up are included as part of this attachment. Photos of the re-constructed catchments are also shown in this attachment. As-built drawings and cross-sections of these catchment structures are included in Attachment 10.

3a) Clean-up:

Based on previous successful clean-up efforts in this drainage during the preceding summer of 2009, the company is utilizing an identical cleaning procedure for the 2010 cleanup. Much of this cleanup has already been accomplished. In summary, this procedure consists of the following:

a) Prior to cleaning, catchment structures will be in place at downstream locations A, C and E, as shown on attachment 1. These structures will all include settling basins and filter containment boxes, as previously described.

b) During cleaning operations, the downstream receiving catchment will be equipped with a flocculant chemical injection system identical to the one used in the previous cleanup. This would include a flocculant storage tote, a metering pump, a make-up water pump, and an application apparatus to inject the floc into the stream. This system would be installed immediately above the inlet of the catchment ponds. The flocculant to be used is Nalco 83400, and the MSDS sheet for this chemical is provided in Attachment 12.

c) Clean-up will be performed by 4-5 man crews using ordinary bristle sweep brooms. Crewmen will sweep the accumulations from the sides of the channel using a swirling sweeping motion. The dislodged accumulations will then be carried downstream by the stream-flow. Crewmen will be instructed to stay within the channel during cleaning operations, rather than sweeping from the banks, in order to minimize damage the riparian plant-life along the channel banks. The brooming method has been previously approved by the regulatory agencies because it is effective in removing the accumulations but is gentle enough not to damage the natural channel armoring.

d) When the dislodged accumulations suspended in the streamflow reaches the downstream catchment structure, the chemical flocculant will be injected into the water. Experience has shown this method to be very effective in quickly dropping out the suspended coal fines. Filter logs will also be maintained at the catchment outlets to provide a secondary means of capturing the coal fines.

e) After the catchment basins have filled up with fines, the stream cleaning operations will be temporarily halted. The channel flow will be diverted around the catchment basin, and the solids allowed to dry out for several days. Experience has demonstrated that within a couple of days the coal fines can then be easily handled. A back-hoe will scoop the fines out of the basin and load it into a dump truck. The material will then be hauled to the West Ridge mine where it will be disposed of at the main coal pile. It will later be blended back into the run-of-mine coal as part of the commercial product.

f) During cleanup operations, crews will exercise caution to prevent damage to riparian vegetation growing along the banks and edges of the channel, based on the protocol established by the regulatory agencies in the previous cleanup efforts. The same contractor involved with the 2009 cleanup, using the same foreman and crew, and familiar with the protocol, will perform the

cleanup.

4a) Reclamation:

The catchments will remain as permitted structures until the Division determines they are no longer required. The catchments ~~have been~~were constructed and ~~are being~~were utilized during the violation 10063 cleanup operations during August, September and October, 2010. The C Canyon drainage in the area of catchments C and E is subject to violent flash-flooding, especially during late-summer thunderstorm conditions. ~~Therefore, any structures left in the channel for any length of time would be quickly destroyed. Therefore, there is a high probability that the catchments will be reduced to a state of non-functionality at some time after the 2010 cleanup is completed. However, they can easily be re-stored to functionality in a matter of three or four days in the future if the need arises. Under the current mine-plan (July, 2010) the down-dip longwall panels area within the mine are scheduled to be completed by May, 2012. After that time the mine water can be allowed to impound in the lower area of the mine and there will no longer be any need to pump any water out to the surface. In other words, in less than two years there may no longer be any future need for the cleanup catchments, and final reclamation can then be performed. Therefore, the interim "non-functional" period would be relatively short. During this interim period the catchments will not be maintained against natural flood events and normal siltation, since their only function is to serve as part of another possible active cleanup process in the future. However, during this interim period, the disturbed areas of the sites will be roughened and re-vegetated with the approved seed mix in order to provide interim erosional control. If the catchments are needed in the future they will then be returned to functionality according to this plan.~~

~~Final reclamation of the sites will be conducted after the Division determines they are no longer required. Reclamation will proceed as described in the narrative above, Item 4. It should be noted that, after the initial cleanup, catchments~~Catchment structures B, D, and F were never constructed. Catchment Structures C and E were fully reclaimed in the fall of 2009, including re-seeding in November, 2009. In July, 2010, officials from BLM inspected the sites and were satisfied that all components of reclamation had been adequately met according to the terms of the right-of-way grant, including channel restoration, stabilization, and re-vegetation. Based on the success of the previous reclamation of these sites, the company ~~would propose to reclaim the sites~~ed Catchment Structure A in a similar manner,~~under as~~ the terms outlined above, ~~upon final reclamation~~in October of 2016. The BLM was notified, and will inspect the site at their convenience. The same seed mix ~~would~~will be used (see Attachment 8) if the BLM deems it necessary to reseed the site. Photos of the sites during operation and after reclamation are included as part of this attachment. It should be noted that during final reclamation of these sites, large boulders will be placed in the bottom of basin areas during backfilling operations. This ~~will be~~was done to insure long-term stability of the reclaimed channel against potential erosional effects of normal flash-flooding events in the future. However, they can easily be re-stored to functionality in a matter of three or four days in the future if the need arises. If the catchments are needed in the future they will then be returned to functionality according to this plan.

Since the time of the first construction/reclamation additional information has been obtained

regarding the soils of the sites. A sampling program was agreed upon in consultation with Division specialist. Composite samples (taken from six individual locations, and then mixed together) were taken from the bottom of the excavated settling basins to approximate the soil characteristic of the disturbed areas. Also, soil samples were taken in undisturbed areas at the perimeter of the sites to better approximate the undisturbed soil characteristics at the site. The undisturbed samples were taken from 0"-7" depth, and from 7"-24" depth. Locations of the sample test pits and lab analysis results are presented in Attachment 13. This soils information will help provide additional guidance for future reclamation efforts if needed.

Upon final reclamation, the reclaimed surface soils in the vicinity of the former catchments will be tested for pH, EC and SAR to allow for the evaluation of the salinity and the need for a revision or addition to the final seed mix to enhance germination and establishment.

5a) Bonding:

As detailed in the above narrative, the bonding costs for the catchments is determined to be \$31,628 for each site, which includes demolition, earthwork, re-vegetation and indirect costs. This bonding cost has been approved previously by the Division. Therefore, the additional bonding cost associated with reclaiming Catchments C and E would be \$63,256. The present West Ridge Mine reclamation cost is \$1,998,000 (as of July 27, 2010) and the bond is posted in the amount of \$2,184,000. In other words, there is presently \$218,000 excess bonding currently in place. Therefore the existing bond should be adequate to include the reclamation of Catchment sites C and E.

6a) Mapping Designations:

The location of Catchment Structures C and E are shown on Map 1-0/1-1. These catchments are located beyond the general area of resource mapping used for the permitting of the primary mining operation. Therefore, pertinent resource mapping information for the catchments is given on the As-Constructed drawings appearing in Attachment 11, and provided herein as well. This information corresponds to the mapping designations for the primary permitting area, as follows:

<u>Map Number</u>	<u>Resource</u>	<u>Designation</u>
Map 2-1	Soils	Catchment C: Soil Unit 36 Catchment E: Soil Unit 49
Map 3-4B	Wildlife-Deer	Catchment C: Winter Range Catchment E: Unclassified
Map 3-4C	Wildlife-Elk	Catchment C: Winter Range Catchment E: Winter Range

Map 3-4D	Wildlife-Antelope	Catchment C: Unclassified Catchment E: Year-long Range
Map 3-1	General Vegetation	Catchment C: Pinyon/Juniper Catchment E: Sagebrush
Map 4-1	Land Use	Catchment C: Mud Springs Allotment Catchment E: Mud Springs Allotment
Map 5-2	Surface Ownership	Catchment C: U.S.A. (BLM) Catchment E: U.S.A. (BLM)
Map 5-3	Sub-Surface Ownership	Catchment C: U.S.A. (BLM) Catchment E: U.S.A. (BLM)
Map 6-1	Regional Geology	Catchment C: Qsw-Slope wash deposits-Quaternary Catchment E: Qsw-Slope wash deposits-Quaternary
Map 7-3	Water Rights	Catchment C: None Catchment E: None
Map 7-5	Seep and Spring Survey	Catchment C: None Catchment E: None

APPENDIX 5-15

COAL-FINES CATCHMENT STRUCTURE
C CANYON DRAINAGE

ATTACHMENTS

Attachment 1	Location Map
Attachment 2	BLM NEPA Document (Catagorical Exclusion)
Attachment 3	BLM Right-of-Way Grant
Attachment 4	Div. Water Rights Channel Alteration Permit
Attachment 5	Catchment Structure A, As-Built Drawing
Attachment 6	Catchment Structure A, As-Constructed Photos
Attachment 7	Pre and Post-Reclamation Photos of Catchment Sites C, E and F
Attachment 8	BLM Seed Mix
Attachment 9	Addendum to Address Second Violation #10063, Issued July 21, 2010
Attachment 10	Catchment Structures C and E, As-Constructed Photos (Re-Constructed, 2010)
Attachment 11	Catchment Structures C and E, As-Constructed Drawings (Re-Constructed, 2010)
Attachment 12	MSDS Sheet for Flocculant 83400
Attachment 13	Soils Information, Catchments C and E

COAL-FINES CATCHMENT STRUCTURE **C CANYON DRAINAGE**

1) Introduction:

West Ridge Resources became aware of excessive coal fines in the discharge water from the West Ridge Mine, and subsequent accumulations in the C Canyon drainage beyond the permit area below the minesite, in late January, 2009. The company immediately notified the various state and federal agencies involved, namely Division of Oil, Gas & Mining (DOGGM), Division of Water Quality (DWQ), Bureau of Land Management (BLM), Utah School & Institutional Trust Lands Administration (SITLA), and Utah Division of Water Rights (DWRights). On January 29, 2009, DOGGM issued Citation No. 10033 for offsite sediment. After that there were a number of on-site meetings to assess the situation, followed by several planning meetings designed to come to a consensus agreement among all the agencies as to the best plan to mitigate the discharge problem from the mine and the accumulations situation in the drainage. At the request of the various regulatory agencies, the accumulation material was sampled and analyzed for RCRA metals, volatile organic compounds, semi-volatile organics, as well as other analytes requested specifically by DOGGM, to make sure that the material was not toxic, hazardous, or acid-forming. These analyses were then factored into the formulation of an acceptable containment and clean-up plan. Based on these site inspections and planning meetings, and the results of the analyses, a conceptual plan was then agreed upon. This plan consisted of an initial containment phase, followed later by a clean-up phase, and finally site reclamation. This plan was then formally submitted to DOGGM and DWQ on March 27, 2009, as part of the abatement requirements for the violations issued by those agencies. The plan was subsequently accepted and the cleanup operation implemented accordingly. The elements of this plan are described below.

2) Containment:

Containment was accomplished by constructing four catchment structures at selected locations within the C Canyon drainage below the mine. These catchments were located at various intervals over a seven-mile stretch of the drainage, and all were accessible by way of pre-existing roads. The location of these structures, at sites A, C, E and F, is shown on Attachment 1. (It was subsequently determined that the catchments at sites B and D would not have to be utilized.)

Due to the urgency of the situation, it was agreed early-on by all parties that a containment plan should be implemented as soon as possible in order to prevent the coal-fines material from migrating any further down the C Canyon drainage. Toward this end, BLM, DWRights, and SITLA all issued expedited approvals to allow immediate construction of the catchment structures, and road access thereto. BLM issued a right-of-way for catchment Site A on Feb. 9, and for the other sites and access roads on Feb. 23; DWRights issued channel alteration permits on Feb. 3; and SITLA issued right-of-entry agreements for the access roads on Feb. 17.

In preparation for issuing the necessary rights-of-way for the catchments, BLM determined under the NEPA review that the sites qualified for a Categorical Exclusion (CX), as shown in Attachment 2. The following reasons contributed to this determination:

a) The fact that all catchment construction was to be done within the existing drainage channel and adjacent flood-plain, therefore within the zone that is subject to regular flashflood scouring events. Within this flood-plain, vegetation and topsoil resources were not well developed due to the frequent storm-related scouring within the confines of the flood-plain.

b) The fact that each unit was of relatively small size, i.e., less than 10,000 sq. ft. (0.23 acres).

c) The fact that each site was accessed by an existing road which required no upgrade or additional disturbance.

d) The fact that the BLM's current management plan did not identify any environmental issues in the area, such as T&E, visual resources, recreational resources, etc.

e) The fact that on-site cultural resource surveys determined nothing of significance.

Because of prior road authorizations, work was commenced first at Site A on Feb. 11, 2009. All construction of site A was done within the pre-existing right-of-way UTU-1256 for the adjacent road. Work then moved to Site F, the lowest unit downstream. It was felt that this site represented a reasonable line of defense against future downstream fines migration, and was therefore assigned an elevated priority for construction. This facility was completed on March 16. Construction at Site E was completed on March 23, and Site C was completed in mid-April.

All work on the catchments was done under the appropriate permits, rights-of-way, and other authorizations granted from BLM, SITLA and Division of Water Rights (stream alteration). Archeological clearances were completed where necessary. No cultural resource clearance was required for Site A because it was constructed within the right-of-way of the existing road and the area had already been cleared. Refer to Attachment 3 for BLM right-of-way grant for the catchment site. Refer to Attachment 4 for the DWRights channel alteration permit.

Each catchment structure consisted of a small stilling basin excavated out of the natural drainage channel, a small low-lying impoundment dam to contain the basin, and a series of siltation filtering devices installed within the dam. Therefore, each catchment was designed to employ elements of both settling and filtration. A bypass culvert, consisting of a 12" dia. poly-pipe, was constructed around each unit to allow the stream flow to be diverted around the stilling basin and filter boxes at times when the basins were being cleaned or the filters were being replaced. Refer to Attachment 5 for an as-built drawing of Catchment Structure A, and to Attachment 6 for as-constructed photos of the facility.

The filtration devices consist of a series of excelsior log sediment traps, contained within steel

holding boxes. These boxes are designed to hold the filter logs firmly in place and prevent the streamflow from bypassing under the logs or around the ends. The holding boxes are also designed to allow the logs to be quickly and easily replaced as needed with new ones as they fill up with accumulations.

3) Clean-up:

Prior to clean-up operations, the entire C Canyon drainage channel was inspected by representatives of the various state and federal regulatory agencies and company representatives. This inspection tour took place in late April, 2009, after all the catchment structures were in place. The purpose of this inspection tour was to assess the extent and magnitude of the coal-fines accumulation material as part of formulating the final clean-up plan. Most of the accumulations were observed to be between the mine and Site A. Based on the results of the inspection tour it was determined that active cleaning techniques would be more appropriate in the channel immediately below the mine in the area of highest concentrations, while passive, non-invasive natural cleaning processes would be more appropriate in the remaining channel below Site A where the accumulations were less.

In order to facilitate the clean-up effort, the company utilized a flocculant chemical additive during the active portion of clean-up. This involved metering the chemical into the stream-flow immediately above catchment unit A. The flocculant was metered into the flow at a rate determined by previous bench testing on the material. and was only utilized during active portions of the clean-up

The clean-up operations were conducted under complete oversight from the various regulatory agencies,. Active cleaning began on June 30, 2009, at the minesite and proceeded downstream from there. Cleaning involved hand crews utilizing household sweeping brooms to dislodge and break up the accumulated material. The stream-flow then carried the material down to the first catchment structure at Site A, where it was captured and later removed. On August 26, the cleanup was completed, the channel was inspected by officials from DOGM and DWQ, and the violation was officially abated.

4) Reclamation:

After the clean-up was determined successful by the government agencies involved (DOGM, DWQ and BLM), and the violation was formally abated, it was determined that catchment A should be left in-place to provide an element of insurance against unforeseen upset conditions which might possibly arise in the future involving the mine water discharge. Therefore, since this catchment would continue to remain in service as part of the mine operation, it was decided that it should be included in the SMCRA Mining and Reclamation permit and within the permit area.

It was also determined at that time that catchment structures C, E and F should be reclaimed

since they were no longer needed either for containment or cleanup. The company then applied to BLM for relinquishment of the right-of-way for these sites. Based on BLM authorization, reclamation of sites C, E and F were completed in October 2009 under the terms of the right-of-way UTU-87111, and BLM signed-off on the reclamation of these areas for shortly thereafter, subject to demonstration of successful re-vegetation the following summer (2010).

In reclaiming catchments C, E and F, undisturbed segments of the channel above and below the catchment sites were used as a basis of comparison in restoring the areas to an acceptable reclaimed condition. It should be noted that these sites were originally constructed totally within the natural flood-plain of the drainage channel. This was one of the reasons the BLM issued the right-of-way under Categorical Exclusion (CX), without requiring more extensive environmental analysis. These areas are subject to cyclic regular inundations from high-intensity high volume runoff events which add a natural dynamics toward augmenting successful future reclamation.

Successful reclamation of sites C, D and F can be used as a model for the future reclamation of site A. Therefore the reclamation plan for site A consists of what was done at the other three sites, and is described in more detail below. Pre-reclamation and post-reclamation photos of these sites are included in Attachment 7, since these sites serve as a model for future reclamation of Site A. It should be noted that these photos were taken shortly after reclamation in the fall of 2009. Although reseeding has been done at these sites as per BLM requirements, the vegetation has not yet had a chance to become re-established, but should be evident by the summer of 2010.

Reclamation of site A will begin at such time as the company and the regulatory agencies agree that it is no longer needed as a back-up facility to ensure protection to the drainage channel in the event of a future unforeseen discharge of coal-fines from the mine. This could be when the mine no longer discharges water, or when the mine undergoes final reclamation.

The BLM right-of-way for site A includes 0.23 acres. There is a pre-existing BLM road which runs through the site, which will remain in place after final reclamation. Existing disturbance associated with the installation of site A involves less than 0.12 acres, all located in the stream flood channel north of the existing road. Once started the reclamation will proceed in the following order:

- 1) The channel flow will be temporarily diverted through the by-pass pipe. The impounded water in the stilling basin will then be drained off, and any remaining coal-fines accumulation material will be cleaned out of the basin and hauled off-site to an approved disposal facility (such as ECDC).
- 2) The concrete barriers between the road and the basin, which presently serve as a public safety barricade, will be removed and utilized at another location within the company.
- 3) The steel containment structures for the filter logs will be removed and hauled off-site to an approved disposal site, such as a scrap-metal recycle facility.

- 4) The low-lying outlet dams (where the filter boxes were located) will be excavated out to the original stream bottom elevation and configuration. The excavated material will be used to help fill up the stilling basin.
- 5) The rest of the stilling basin will be backfilled with the material from the adjacent equipment storage area, and from the “excess fill storage area” located between the basin and the steep bank immediately to the north. This is the material that was originally dug out of the channel to construct the stilling basin. Additional material from the small material storage pad will also be used to blend back into the excavated channel area. In this manner the stream channel surface can be restored as it is filled back up, and the configuration of the adjacent channel flanks will also be restored at the same time.
- 6) As the re-contouring process continues, boulders and large rocks will be arranged within the channel and along the channel flanks in an attempt to mimic the pre-existing channel morphology as much as possible, and to blend in with the visual appearance of the natural channel above and below the reclamation site.
- 7) The boulder placement will be done not only for visual appearance, but also for erosional control. This will be done by placing boulders in and along the reclaimed channel to slow and control the water-flow velocity. Additional armoring will be placed along the outer bank of the curved section of channel in the area where the filter boxes were removed. The boulder placement will be done to match the natural appearance of the area.
- 8) After the channel has been restored, and the channel flanks have been reclaimed by removing the material storage pad, the by-pass pipe will be removed. The bypass pipe has been installed more-or-less parallel with the channel and buried under the pad and the existing road. Therefore, after the material pad have been reclaimed, the bypass pipe will be easily accessible. Once the channel water-flow has been returned to the newly-reclaimed channel, and the bypass pipe removed, the final re-contouring of the channel flanks will be done.
- 9) All reconstructed bank areas and flanks will be roughened and scarified in preparation for re-seeding. It should be noted that since the site was constructed within the channel and the immediate flood plain, there was no topsoil salvaging done during initial construction. There was little definable topsoil in the pre-existing site, which consisted primarily of flash-flood alluvial debris, and vegetation was sparse. However, after the pad material is removed, and the excess fill material from the “excess fill material area” is backfilled into the basin area as part of the channel restoration, the original pre-existing flood-plain contour will be re-established.
- 10) The disturbed areas will then be re-seeded using a seed mix recommended by the

BLM. See Attachment 8 for the proposed seed mix. This is the same seed mix that was used on the reclamation of catchment site C located nearby. Seed will be hand-broadcast and then raked in. After the areas have been re-seeded, a layer of wood straw will be scattered over the reclaimed areas. As required by BLM, re-seeding will be done in to fall of the year (after November) to increase the potential for successful germination.

- 11) Upon final reclamation, the reclaimed surface soils in the vicinity of the former catchments will be tested for pH, EC and SAR to allow for the evaluation of the salinity and the need for a revision or addition to the final seed mix to enhance germination and establishment.

Note: Catchment A is being left in place as a contingency for potential future cleanup events. In the meantime, the basin is likely to fill up with natural sediment material from normal precipitation events. This material will not be cleaned out unless and until the basin needs to be pressed back into service in the unlikely event of a future coal fines cleanup resulting from an inadvertent discharge. Also, the excelsior logs will not be maintained in the filter boxes until such time as they may be needed for future cleanup efforts.

5) Bonding:

The following bonding calculations are provided:

1) Demolition: a) Remove the steel filter boxes. There are a total of 22 of these filter boxes at the catchment site. They measure 13' long x 2' wide x 2.5' high. They are equipped with lifting lugs and can easily be removed from the site, loaded on a flatbed truck, and hauled off. They are valuable for scrap, and can easily be properly disposed of. Demolition cost is estimated to be about the same as for the powder magazines (bond item 04) at the West Ridge Mine, which have been determined at \$154 each. Therefore, the demolition cost associated with the filter boxes is estimated at $22 \times \$154 = \$3,388$.

2) Demolition: b) Removal of the bypass pipe. There is a total of 50' of 12" poly pipe installed at this site. This pipe is put together in 20' lengths with removable couplers. It is easy to dis-assemble, and can be re-used after being removed from the sites. Demolition and removal cost of this pipe is estimated to be about the same as for similar culverts (bond item 27) at the West Ridge Mine, which has been determined to be \$442.

3) Earthwork: Based on the estimated quantity of backfill required to reclaim comparable sites C, E and F, the estimated time required to backfill and grade the site is about 12 days or 96 working hours. Similar earthwork cost for the West Ridge Mine (i.e., "establish rubbleland surface" bond item) is estimated to be

\$19,230/111 hrs = \$173/hr. Therefore, it is estimated to cost about \$173 x 96 hrs = \$16,608 for earthwork reclamation of the catchment site. This is in line with historical costs incurred in reclaiming the lower catchment sites.

4) Revegetation: The total area of the catchment site is 0.92 acres. The existing West Ridge pumphouse, which is located nearby in a similar is 0.9 acres, or 0.21 times larger, and its re-vegetation cost is presently bonded at \$4506. Therefore, the re-vegetation cost for the catchment site is estimated to be about \$4506.

The total reclamation cost for the catchment site is estimated at:

Demolition	\$3,830
Earthwork	\$16,608
Re-vegetation	\$4,506
Direct Cost	\$24,944
Indirect Cost (26.8%)	\$6,685
<u>TOTAL</u>	<u>\$31,628</u>

The present West Ridge Mine reclamation bond amount is \$1,966,000 (as of November 12, 2008), and the bond posted is \$2,117,000. In other words, there is presently \$151,000 excess bonding currently in place. Therefore, the existing bond should be adequate to include the reclamation of the catchment site.

6) Second Violation:

On July 21, 2010, the company incurred a second violation for additional coal fines accumulations in the drainage below the mine. A complete discussion of this situation is included in Attachment 9 of this Appendix, "Addendum to Address Second Violation #10063, Issued July 21, 2010".

ATTACHMENT 9

ADDENDUM TO ADDRESS SECOND VIOLATION

VIOLATION #10063
ISSUED JULY 21, 2010

ATTACHMENT 9: ADDENDUM TO ADDRESS SECOND VIOLATION VIOLATION 10063, ISSUED JULY 21, 2010

Historical Note: The preceding discussion was approved by the Division and was incorporated into the Mining and Reclamation Plan on May, 2010. Shortly thereafter, on July, 2010, the company incurred a second violation for coal fines accumulations from the mine. The following narrative has been submitted in response to this most recent violation. It is presented in the same format as the preceding discussion.

1a) Introduction:

On July 21, 2010, the company received a second violation for additional accumulations of coal fines in the C Canyon drainage below the West Ridge Mine. The accumulations were the result of non-compliance discharge which occurred after the successful channel cleanup of the previous summer (2009). Representatives from the Division and DWQ inspected the drainage and determined that the coal fines must be cleaned up from the mine down to and including Catchment E. This is a distance of about five miles measured straight-line, and perhaps seven miles total, considering channel meander and sinuosity.

As part of the violation abatement requirements, the Division determined that Catchments C and E would have to be permitted as part of the MRP. It also determined that these catchments could be re-constructed and utilized as part of the required cleanup process prior to having the approval of the MRP amendment. Reconstruction work on the catchments was completed in August, 2010, and cleanup began in September, 2010.

2a) Containment:

After the channel was cleaned in the summer of 2009 and the initial violation was formally abated, the company reclaimed Catchments C and E in November, 2009. The BLM was in the final stages of approving the reclamation when the second violation occurred.

Fortunately, the BLM right-of-way for Catchment C and E is still in place (refer to Attachment 3). Also, Division of Water Rights has approved an Emergency Authorization for the catchments (identical to the one issued previously, refer to Attachment 4) and is proceeding with the extension of the previously-issued stream alteration permit for catchments C and E.

The company reconstructed catchments C and E similar to what was done in 2009 (as described above), and to utilize these re-constructed catchments, as well as existing Catchment A, in the clean-up response to the second violation #10063. As-constructed photos of the catchments during the 2009 clean-up are included as part of this attachment. Photos of the re-constructed catchments are also shown in this attachment. As-built drawings and cross-sections of these catchment structures are included in Attachment 10.

3a) Clean-up:

Based on previous successful clean-up efforts in this drainage during the preceding summer of 2009, the company is utilizing an identical cleaning procedure for the 2010 cleanup. Much of this cleanup has already been accomplished. In summary, this procedure consists of the following:

a) Prior to cleaning, catchment structures will be in place at downstream locations A, C and E, as shown on attachment 1. These structures will all include settling basins and filter containment boxes, as previously described.

b) During cleaning operations, the downstream receiving catchment will be equipped with a flocculant chemical injection system identical to the one used in the previous cleanup. This would include a flocculant storage tote, a metering pump, a make-up water pump, and an application apparatus to inject the floc into the stream. This system would be installed immediately above the inlet of the catchment ponds. The flocculant to be used is Nalco 83400, and the MSDS sheet for this chemical is provided in Attachment 12.

c) Clean-up will be performed by 4-5 man crews using ordinary bristle sweep brooms. Crewmen will sweep the accumulations from the sides of the channel using a swirling sweeping motion. The dislodged accumulations will then be carried downstream by the stream-flow. Crewmen will be instructed to stay within the channel during cleaning operations, rather than sweeping from the banks, in order to minimize damage the riparian plant-life along the channel banks. The brooming method has been previously approved by the regulatory agencies because it is effective in removing the accumulations but is gentle enough not to damage the natural channel armoring.

d) When the dislodged accumulations suspended in the streamflow reaches the downstream catchment structure, the chemical flocculant will be injected into the water. Experience has shown this method to be very effective in quickly dropping out the suspended coal fines. Filter logs will also be maintained at the catchment outlets to provide a secondary means of capturing the coal fines.

e) After the catchment basins have filled up with fines, the stream cleaning operations will be temporarily halted. The channel flow will be diverted around the catchment basin, and the solids allowed to dry out for several days. Experience has demonstrated that within a couple of days the coal fines can then be easily handled. A back-hoe will scoop the fines out of the basin and load it into a dump truck. The material will then be hauled to the West Ridge mine where it will be disposed of at the main coal pile. It will later be blended back into the run-of-mine coal as part of the commercial product.

f) During cleanup operations, crews will exercise caution to prevent damage to riparian vegetation growing along the banks and edges of the channel, based on the protocol established by the regulatory agencies in the previous cleanup efforts. The same contractor involved with the 2009 cleanup, using the same foreman and crew, and familiar with the protocol, will perform the

cleanup.

4a) Reclamation:

The catchments will remain as permitted structures until the Division determines they are no longer required. The catchments were constructed and were utilized during the violation 10063 cleanup operations during August, September and October, 2010. The C Canyon drainage in the area of catchments C and E is subject to violent flash-flooding, especially during late-summer thunderstorm conditions. Catchment structures B, D, and F were never constructed. Catchment Structures C and E were fully reclaimed in the fall of 2009, including re-seeding in November, 2009. In July, 2010, officials from BLM inspected the sites and were satisfied that all components of reclamation had been adequately met according to the terms of the right-of-way grant, including channel restoration, stabilization, and re-vegetation. Based on the success of the previous reclamation of these sites, the company reclaimed Catchment Structure A in a similar manner as the terms outlined above, in October of 2016. The BLM was notified, and will inspect the site at their convenience. The same seed mix will be used (see Attachment 8) if the BLM deems it necessary to reseed the site. Photos of the sites during operation and after reclamation are included as part of this attachment. It should be noted that during final reclamation of these sites, large boulders will be placed in the bottom of basin areas during backfilling operations. This was done to insure long-term stability of the reclaimed channel against potential erosional effects of normal flash-flooding events in the future. However, they can easily be re-stored to functionality in a matter of three or four days in the future if the need arises. If the catchments are needed in the future they will then be returned to functionality according to this plan.

Since the time of the first construction/reclamation additional information has been obtained regarding the soils of the sites. A sampling program was agreed upon in consultation with Division specialist. Composite samples (taken from six individual locations, and then mixed together) were taken from the bottom of the excavated settling basins to approximate the soil characteristic of the disturbed areas. Also, soil samples were taken in undisturbed areas at the perimeter of the sites to better approximate the undisturbed soil characteristics at the site. The undisturbed samples were taken from 0"-7" depth, and from 7"-24" depth. Locations of the sample test pits and lab analysis results are presented in Attachment 13. This soils information will help provide additional guidance for future reclamation efforts if needed.

Upon final reclamation, the reclaimed surface soils in the vicinity of the former catchments will be tested for pH, EC and SAR to allow for the evaluation of the salinity and the need for a revision or addition to the final seed mix to enhance germination and establishment.

5a) Bonding:

As detailed in the above narrative, the bonding costs for the catchments is determined to be \$31,628 for each site, which includes demolition, earthwork, re-vegetation and indirect costs. This bonding cost has been approved previously by the Division. Therefore, the additional

bonding cost associated with reclaiming Catchments C and E would be \$63,256. The present West Ridge Mine reclamation cost is \$1,998,000 (as of July 27, 2010) and the bond is posted in the amount of \$2,184,000. In other words, there is presently \$218,000 excess bonding currently in place. Therefore the existing bond should be adequate to include the reclamation of Catchment sites C and E.

6a) Mapping Designations:

The location of Catchment Structures C and E are shown on Map 1-0/1-1. These catchments are located beyond the general area of resource mapping used for the permitting of the primary mining operation. Therefore, pertinent resource mapping information for the catchments is given on the As-Constructed drawings appearing in Attachment 11, and provided herein as well. This information corresponds to the mapping designations for the primary permitting area, as follows:

<u>Map Number</u>	<u>Resource</u>	<u>Designation</u>
Map 2-1	Soils	Catchment C: Soil Unit 36 Catchment E: Soil Unit 49
Map 3-4B	Wildlife-Deer	Catchment C: Winter Range Catchment E: Unclassified
Map 3-4C	Wildlife-Elk	Catchment C: Winter Range Catchment E: Winter Range
Map 3-4D	Wildlife-Antelope	Catchment C: Unclassified Catchment E: Year-long Range
Map 3-1	General Vegetation	Catchment C: Pinyon/Juniper Catchment E: Sagebrush
Map 4-1	Land Use	Catchment C: Mud Springs Allotment Catchment E: Mud Springs Allotment
Map 5-2	Surface Ownership	Catchment C: U.S.A. (BLM) Catchment E: U.S.A. (BLM)
Map 5-3	Sub-Surface Ownership	Catchment C: U.S.A. (BLM) Catchment E: U.S.A. (BLM)
Map 6-1	Regional Geology	Catchment C: Qsw-Slope wash deposits-Quaternary Catchment E: Qsw-Slope wash deposits-Quaternary
Map 7-3	Water Rights	Catchment C: None

Map 7-5

Seep and Spring Survey

Catchment E: None

Catchment C: None

Catchment E: None

WordPerfect Document Compare Summary

Original document: K:\West Ridge\2016\WR16-002 Midterm\Originals\Appendix 5-19 B Canyon portal.wpd

Revised document: K:\West Ridge\2016\WR16-002 Midterm\New Text\Appendix 5-19.wpd

Deletions are shown with the following attributes and color:

~~Strikeout~~, **Blue** RGB(0,0,255).

Deleted text is shown as full text.

Insertions are shown with the following attributes and color:

Double Underline, Redline, **Red** RGB(255,0,0).

The document was marked with 27 Deletions, 29 Insertions, 0 Moves.

APPENDIX 5-19

B CANYON PORTAL OPENING

ATTACHMENTS:

- ATTACHMENT 1 MAP OF B CANYON PORTAL REHABILITATION PROJECT
- ATTACHMENT 2 AML RECLAMATION INFORMATION FROM DOGM FILES
(INCLUDES PRE-RECLAMATION PHOTOS)
- ATTACHMENT 3 PHOTOS OF EXISTING PORTAL AREA
- ATTACHMENT 4 ORDER 2 SOILS SURVEY (RELEVANT EXCERPTS),
LONG RESOURCE CONSULTANTS
- ATTACHMENT 5 INSPECTION REPORT AND SOILS RECOMMENDATION
- ATTACHMENT 6 APPROVED SEED MIX FROM AML RECLAMATION
OPERATION
- ATTACHMENT 7 VEGETATION AND SENSITIVE SPECIES REPORT,
MT NEBO SCIENTIFIC
- ATTACHMENT 8 CULTURAL REPORT, SENCO-PHENIX ARCHEOLOGICAL
- ATTACHMENT 9 2011 RAPTOR SURVEY AND AGENCY CORRESPONDENCE
REGARDING GOLDEN EAGLE NEST
- ATTACHMENT 10 ENGINEERING DRAWINGS:
EXISTING PORTAL AREA TOPOGRAPHY
PROPOSED PORTAL OPENING PROJECT

INTRODUCTION:

~~The company needs~~In early 2013, it became necessary to uncover the B Canyon Portal in order to gain access to the old Kaiser mine works. As shown on Map 5-4A, there is a two-entry set of exploratory entries which extend from the old Kaiser mine works and was driven into the coal reserve block now controlled by West Ridge Resources. These entries were mined in the early 1960's, prior to the development of the West Ridge mine. These entries were driven from the underground works basically along a strike. However, Kaiser also drove a short set of entries to the surface in order to assist the mine ventilation. These entries broke out to the surface in a

single opening in B canyon, where a steel portal canopy was constructed, which still remains intact (see photo in Attachment 2). After the exploratory project was completed, Kaiser sealed the portal with a concrete barricade and a steel fence across the opening of the steel structure.

In 1998, the Utah Division of Oil, Gas and Mining's Abandoned Mine Lands (AML) group reclaimed the portal site. This was small isolated part of a much larger reclamation project involving the entire Sunnyside Mine site in nearby Whitmore Canyon. Reclamation of the B Canyon portal consisted primarily of backfilling the steel canopy and re-vegetating the site. The steel fence at the end of the canopy was removed, but the main portal structure, consisting of circular steel multi-plate arch sets, was left in place. Part of the steel arch remains visible at present. According to AML records, approximately 10 cubic yards of earthen material was used to backfill the portal. This material was obtained by excavation the nearby bank. Relevant documentation regarding the AML reclamation of the B Canyon Portal, obtained from the Division's public records, is presented in Attachment 2.

As part of the planned West Ridge Mine development, the company ~~is now proposing then proposed~~ to extend longwall gate entries across these old Kaiser mine exploratory entries (see map in Attachment 1). In order to assess the conditions of the old works, the company ~~proposes to uncover~~ed the B Canyon portal and breach the seal. This work ~~will be was~~ done under the necessary approvals from US Mine Enforcement and Safety Administration (MSHA). The company ~~will then inspect~~ed the old works and ~~conduct any conducted~~ needed re-habilitation work, such as re-bolting the roof in selected areas, and ~~perhaps~~ erecting an additional seal in the underground portion of the old works.

Re-opening of the B canyon Portal ~~will be was~~ a temporary action. It is estimated that it ~~will take~~took no longer than two-three days to uncover the portal and breach the seal. To provide the necessary ventilation, a small auxiliary face fan ~~will be was~~ used, along with a portable generator to provide electrical power. These units ~~will be were~~ supported by crib blocks. All installation of components ~~will be were~~ temporary, ~~and~~ there ~~will be was~~ no concrete foundations used. The drawings in Attachment 10 show the existing area and the reclaimed topographic contours, as well as the proposed equipment layout during the re-habilitation work.

~~Re-hab of the mine entries could take from several weeks to several months, depending on the roof conditions encountered in the old entries. However, a~~ After the mine re-hab work ~~is was~~ completed ~~in late 2014~~, the portal ~~will be was~~ re-sealed, and the site ~~will be was~~ reclaimed to the same standard as the ~~existing previous~~ AML reclamation.

The following discussion provides greater detail of the portal re-opening plan ~~that was proposed~~.

All reclamation work is completed and vegetation has grown in satisfactorily as of Mid 2016.

CHAPTER 1; LEGAL

The B Canyon portal is located approximately one-half mile southeast of the main mine surface

facilities in C Canyon, as shown on Map 1-0/1-1. The area has been previously disturbed when Kaiser Coal Company installed the portal in the early 1960's, and again when AML reclaimed the site in 1998. The site is accessed by an existing unimproved dirt road which was initially installed in the 1950's by US Steel to reach a drill site located up-canyon from the portal site. The road has been sufficiently maintained by local usage, and will not need to be upgraded as part of the portal re-opening project.

The portal site is located on BLM land, and is within federal coal lease SL-068754 which is held by West Ridge Resources (see Maps 5-3 and 5-4). Right of entry to do the portal work is granted under the terms and authority of this lease (see Appendix 1-4A). The site is located within the existing DOGM SMCRA permit area for the West Ridge Mine C/007/041). Total disturbance associated with the previous activities is approximately 0.62 acres, based on ground surveys of the area (see map in Attachment 10). Total disturbance associated with the proposed portal-opening project is estimated at about 0.25 acres, all within the previous disturbed area. Chapter 1 has been updated to reflect the additional disturbance associated with this proposal.

CHAPTER 2: SOILS

As stated above, the site has been previously disturbed on two separate occasions; initially in the early 1960's when Kaiser constructed the portals, and then again in 1998 when DOGM/AML did the partial reclamation. Because of this previous activity, there is no native topsoil remaining in the small area immediately in front of the portal, the area now proposed for disturbance as part of the portal re-opening project. DOGM soils scientist has reviewed the site and concluded that adequate reclamation should be obtained by removing the existing vegetation from the area to be disturbed, and then removing the top 12" of material from this area. The vegetation would be stockpiled separately in a nearby location, and the "topsoil" would likewise be stored in its own separate pile located nearby. The proposed location of these stockpiles is shown on the drawing in Attachment 10. The Division has provided its assessment of the topsoil situation in the form of a pre-construction inspection report, which is included in Attachment 5.

Even though this area has been previously disturbed, the company has recently conducted an on-site soils survey of the area associated with a proposed GVH project in the vicinity. In May, 2010, Long Resource Consultants prepared an Order 2 soils survey of the entire B Canyon road, which included soil samples taken at the portal site, as well as samples taken immediately above and below the site. Relevant sections of this survey report are presented in Attachment 4. In reviewing this report, it may be helpful to note that sample B-06 was taken directly at the portal site, while sample B-05 was taken approximately 300' up-canyon from the site, and sample B-07 was taken about 600' below the site. Therefore, the report is able to give a very accurate description of the soils existing in the area.

It should also be noted that the revegetation that was established at the site after the AML reclamation seems to have been successful, despite the fact that the AML team did not at the time have a designated topsoil resource to re-apply to the backfilled portal site. As the photos in

Attachment 3 show, subsequent re-vegetation appears healthy and diverse. Also, Mt Nebo Scientific has conducted an on-site vegetation report (see Attachment 7), which lists the plant species (shrubs, forbs and grasses) which have successfully re-established themselves at the site over the last 12 years since the AML reclamation.

Based on these observations, the company proposes to remove all existing vegetation from the area in front of the portal and store this material in a separate pile. A minimum of 12" of surface "topsoil" material will then be salvaged and stored in a nearby pile. The remaining earthen material in front of portal will be pulled down to construct the access ramp leading to the portal opening. As mentioned previously, the portal re-opening project will be temporary. The company estimates that it should be able to complete all the underground mine safety work in less than six months, at which time the portal would be re-sealed, and the site would then be backfilled and reclaimed to its existing (AML) condition and contour. At the time of reclamation, after the ramp has been removed and the portal has been backfilled, the "topsoil" material will be placed back over-top the backfill, and the vegetation material will then be spread back over the disturbed area as mulch. A 1 T/ac straw mulch will be incorporated into the surface soil and a 1 Ton/ac mulch will be scattered over the surface after the seed and mulch application and scattering of slash on the seeded and mulched surface.

The company proposes to re-seed the disturbed area with the same seed mix which was used by the AML reclamation team in 1998. Attachment 6 includes this seed mix, which was obtained from the Division's public records. As shown on the engineering drawing in Attachment 10, the maximum extent of new disturbance is about 0.25 acres. However, this area includes all the area potentially involved in the re-opening project. Much of this area will not be subject to any earthwork or excavation-type disturbance, but may be involved by placing portable equipment directly on the ground, or by parking vehicles at the existing vehicle turn-around area. In this sense, it could be disturbed, but there would be no vegetation removed nor any kind of invasive earthwork. The area of actual disturbance would be much smaller, and is estimated at about 0.07 acres. This is the area immediately in front of the portal associated with the access ramp. Assuming a salvage depth of 12", approximately 113 cubic yards of topsoil would be removed and stored in the adjacent stockpile. Another 50 cubic yards of underlying earth material would then be reworked to expose the portal and construct the access ramp. These quantities are estimates only, and could vary upon final construction, but it can be safely stated that the quantities involved in this project are small, and the project can be completed with minimal disturbance. For example, records from the previous AML backfill efforts indicate that the volume of material used in backfilling the portal was only about 10 cubic yards.

CHAPTER 3: BIOLOGY

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Scientific has conducted an on-site vegetation report (see Attachment 7), which lists the plant species (shrubs, forbs and grasses) which have successfully re-established themselves at the site over the last 12 years since the AML reclamation.

Included in the Mt Nebo report is an updated list of Threatened, Endangered and Sensitive Species for Carbon County, Utah. The report concludes that there should be no impacts to any of the listed species as a result of re-opening the B Canyon portal.

Based on the 2011 raptor survey, there are several eagle nests in the B Canyon area. In particular, nest 395 (tended in 2011) is located immediately above, and is visible from, the portal site. Nest 1056 (inactive in 2011) is located down-canyon about 2000' from and in line-of-sight of the portal. Nest 398 (tended in 2011) is located about a mile from the portal, but is around the cliff face out of line of site of the portal and the access road leading to the portal. A copy of the 2011 raptor survey is included in Attachment 9.

Due to the proximity of the eagle nests in the B Canyon area, the company has initiated discussions with DOGM biologist, US Fish & Wildlife Service (FWS) officials, and consulting wildlife specialist to determine to best approach to conduct the portal re-opening project so as to minimize the impact to any eagle activity in the area. A record of this correspondence is included in Attachment 9 as well. In summary, there has been eagle activity noted currently (February, 2012) in the vicinity of Nest 395 located above the portal. The current plan is to employ a trained wildlife biologist to monitor eagle activity in the area while the permitting process is underway. At such time as the permit is approved, the biologist would conduct a ground survey of the nests in question. This may also coincide with the regular annual helicopter raptor survey of the area. If there is no activity at the time (eggs, chicks, fledglings), the company would formally seek approval (from the Division and FWS) to begin construction activities at the portal site. However, if there is any eagle activity at that time, the company will wait until subsequent ground surveys of the nests verify that any fledglings have reached maturity and have left the nest.

CHAPTER 4: LAND USE

After the portal re-opening project has been completed (estimated six months after beginning), the site will be reclaimed. Present land use includes wildlife habitat and limited cattle grazing. Recreation use includes hunting and 4-wheeling. All existing land-use activities can continue during and after the completion of the portal project.

As mentioned previously, the site has been disturbed on several occasions in the past. It is assumed that AML provided the necessary cultural clearances prior to there 1998 reclamation work. However, in September, 2009, the company contracted Senco-Phenix Archeological Consultants to conduct an intensive cultural survey of the area as part of a GVH project that was being proposed nearby. The survey included the portal site, and as expected, recommended a finding of no effect and cultural clearance. A copy of this report is included in Attachment 8.

CHAPTER 5: ENGINEERING

Before any construction starts an identification sign will be posted at the site. This sign will list the company name as permit holder, the permit number, address and phone number. Disturbed area perimeter markers and stream buffer zone signs will also be established around the construction site prior to any disturbance.

As mentioned above, construction activities associated with the portal re-opening will be minimal. Up to 113 cubic yards of topsoil material will be removed and stockpiled adjacent to the portal. Another 50 cubic yards of earth material will be rework to make a small equipment access ramp leading from the road up to the portal, a distance of about 50'-60'. According to AML records, about 10 cubic yards of material was placed in front of the portal during the 1998 backfill (reclamation) effort. It should be noted that all earth quantities given here are conservatively estimated on the high side. All earthwork can be done using a single small trackhoe, and can be done in less than a day.

After the portal is uncovered, the mining crews, working under strict oversight from the federal Mine Safety and Health Administration (MSHA) will remove the existing seal and begin to slowly and methodically work their way into the old works. In order to provide the necessary ventilation, a small portable face fan will be set up on the surface and vent tubing will be extended from the fan into the mine opening to provide fresh air. The crews will then advance into the mine, making sure the roof control is adequate as they proceed. This may require installing additional timbers and/or supplemental roof bolts. As shown on the underground drawing in Attachment 1, there are three areas where the West Ridge mine development entries are projected to cross the old Kaiser mine works; two longwall gate entries and one set of bleeder entries. Due to the additional abutment loads imposed during future longwall mining, these areas in particular may require supplemental roof support installed ahead of time, such as roof bolts, cable bolts, cribs and/or cans. Also as shown on the drawing, a set of seals will need to be installed to isolate to remaining old works from the new development district.

All facilities associated with the portal re-opening project will be temporary. The only equipment utilized will be a temporary ventilation fan and associated vent tubing, and a small electrical generator to provide power to the fan. This generator will also provide the power for the roof bolting machine. All equipment will be portable, and will be placed on crib blocks for support and leveling. There will be no concrete used. Equipment can be set along the existing roadway or turn-around area, with no excavation required.

The underground re-habilitation project is expected to require no more than six months to complete. During this time the only day-to-day activity at the B Canyon site will consist of several trips in and out of the portal for the work crew, and to deliver consumable supplies, such as roof bolts, timbers and concrete blocks needed for the re-habilitation work, and to deliver fuel for the generator. All of this deliver of men and materials can be accomplished using small mine-approved diesel pick-up trucks. There will be no storage of supplies or materials on the

surface at the site: all materials will be hauled directly underground for storage.

After the underground re-hab work is complete, the seal will be re-constructed at the B Canyon portal. All portable equipment (fan, generator, vent tubing, etc.) will be removed. The steel canopy will be left in place, just as it is now. The portal opening will be backfilled from the portal opening to a minimum of 25 feet (see Plate 2 of 2), the access ramp will be obliterated, the topsoil material will be laid back, and the stockpiled vegetation mulch material will be spread over the reclaimed area. This will result in achieving approximate original (AML) contour. The surface will be roughened (gouged/pocked) to aid in water retention and to minimize soil loss to erosion. The area will then be re-seeded with the seed mix approved by the previous AML reclamation project. A 1 T/ac straw mulch will be incorporated into the surface soil and a 1 Ton/ac mulch will be scattered over the surface after the seed and mulch application and scattering of slash on the seeded and mulched surface. A row of excelsior logs (sediment control structures) will then be placed around the down-slope toe of the disturbed area for additional erosion control. This row of excelsior logs will be in addition to the excelsior logs placed at the stream buffer prior to initial construction, which will also be left in place after reclamation until the Division has determined that re-vegetation has been established sufficient to provide adequate sediment control.

Due to the small size of the project site, it is estimated that the reclamation work can be completed in 2-3 days. According to AML records, an identification monument was placed on top of the backfill during the 1998 reclamation. If the monument is still there, the company will save it, and replace it after the re-opening reclamation has been completed.

Bonding calculations for reclamation of the site include earthwork and revegetation. Since all equipment used will be mobile, and since the existing steel portal canopy will remain in place (although backfilled and covered), there will be no demolition costs.

- 1) Earthwork.....Total earthwork volumes are liberally estimated to be no more than 163 cubic yards, including 113 yds for topsoil removal/replacement and 50 yards for ramp construction and portal backfill.
- 2) Revegetation....The total area to be re-vegetated is about 0.07 acres.

Given the small size of the reclamation requirements for this project, perhaps the most straight-forward means of determining an adequate reclamation cost amount is to compare it to a similar approved amount for a somewhat comparable installation. For example, in November, 2008, the Division approved the Bear Canyon GVH site, which is small isolated disturbed area located nearby within the West Ridge Mine permit area. The total reclamation cost of the Bear Canyon GVH site associated with earthwork is \$2143, and for revegetation is \$2461, for a total of \$4604. This is for a 0.34 disturbed acre site, involving 842 cy of back fill, and 515 cy of topsoil replacement. In comparison the B Canyon portal disturbed area is 0.07 acres, involving 50 cy of backfill, and 113 cy of topsoil replacement. Again, there are no demolition costs associated with the B Canyon project. The Bear Canyon GVH site is obviously a much larger site to reclaim

than the B Canyon portal site, with quantities generally about five times greater than for the B Canyon portal site. Therefore, in the interest of expediency, the company would agree to a \$4604 reclamation cost for the B Canyon portal job, as determined for the similar but more expansive Bear Canyon GVH installation.

~~At present (February, 2012), the total reclamation cost estimate for the entire West Ridge Mine is \$1,998,000 (escalated to 2013), and the posted bond amount is \$2,184,000. The difference between the current bond amount and the estimated reclamation cost is \$218,000. Therefore, there is currently ample bonding in place for the West Ridge Mine to include the additional reclamation cost associated with the B Canyon portal re-opening project. —~~

The updated bond information has been included in Attachment #17 of the MRP.

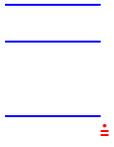
CHAPTER 6: GEOLOGY

The geology of the B Canyon portal area is nearly identical to the geology of the West Ridge minesite surface facilities located about a half mile away in nearby C Canyon. This geology is ~~is~~ described in detail in Chapter 6 of the MRP.

CHAPTER 7: HYDROLOGY

As shown in the drawings in Attachments 1 and 10, and the photos in Attachment 3, the B Canyon portal is located in the bottom canyon near the drainage channel. B Canyon is an ephemeral drainage, typical of the Book Cliffs, and similar to the drainages of nearby C Canyon and Bear canyon described in greater detail in Chapter 7 of the MRP. All construction work associated with the re-opening of the B Canyon portal will be done with the area of previous disturbance, including the AML reclamation of 1998. There will be no activity within the drainage channel. In fact, there is an existing sediment-control berm, presumably constructed by AML, that separates the portal site from the drainage. This berm will remain in place during and after the portal re-opening project to provide adequate sediment control protection to the drainage channel. In addition, the company will install additional temporary sediment control protection between the construction area and the drainage, in the form of a continuous row of excelsior logs, as shown in Attachment 10. The company will also install a row of excelsior log sediment control around the base of the topsoil storage pile, even though this pile is temporary and should itself be reclaimed within six months of the re-opening project.

After the re-opening project is completed, the site will be reclaimed to its approximate original (AML) contour, will be covered back over with the topsoil material, and then re-seeded. An additional row of excelsior logs will be installed along the down-slope edge of the reclaimed area. In addition, the row of perimeter excelsior logs (installed during the initial construction) will also remain in place after reclamation of the site until it has been determined that the revegetation has been established sufficiently to provide sediment control. The existing AML berm will not be disturbed—



canyon, where a steel portal canopy was constructed, which still remains intact (see photo in Attachment 2). After the exploratory project was completed, Kaiser sealed the portal with a concrete barricade and a steel fence across the opening of the steel structure.

In 1998, the Utah Division of Oil, Gas and Mining's Abandoned Mine Lands (AML) group reclaimed the portal site. This was small isolated part of a much larger reclamation project involving the entire Sunnyside Mine site in nearby Whitmore Canyon. Reclamation of the B Canyon portal consisted primarily of backfilling the steel canopy and re-vegetating the site. The steel fence at the end of the canopy was removed, but the main portal structure, consisting of circular steel multi-plate arch sets, was left in place. Part of the steel arch remains visible at present. According to AML records, approximately 10 cubic yards of earthen material was used to backfill the portal. This material was obtained by excavation the nearby bank. Relevant documentation regarding the AML reclamation of the B Canyon Portal, obtained from the Division's public records, is presented in Attachment 2.

As part of the planned West Ridge Mine development, the company then proposed to extend longwall gate entries across these old Kaiser mine exploratory entries (see map in Attachment 1). In order to assess the conditions of the old works, the company uncovered the B Canyon portal and breach the seal. This work was done under the necessary approvals from US Mine Enforcement and Safety Administration (MSHA). The company then inspected the old works and conducted needed re-habilitation work, such as re-bolting the roof in selected areas, and erecting an additional seal in the underground portion of the old works.

Re-opening of the B canyon Portal was a temporary action. It is estimated that it took no longer than two-three days to uncover the portal and breach the seal. To provide the necessary ventilation, a small auxiliary face fan was used, along with a portable generator to provide electrical power. These units were supported by crib blocks. All installation of components were temporary, and there was no concrete foundations used. The drawings in Attachment 10 show the existing area and the reclaimed topographic contours, as well as the proposed equipment layout during the re-habilitation work.

After the mine re-hab work was completed in late 2014, the portal was re-sealed, and the site was reclaimed to the same standard as the previous AML reclamation.

The following discussion provides greater detail of the portal re-opening plan that was proposed. All reclamation work is completed and vegetation has grown in satisfactorily as of Mid 2016.

CHAPTER 1; LEGAL

The B Canyon portal is located approximately one-half mile southeast of the main mine surface facilities in C Canyon, as shown on Map 1-0/1-1. The area has been previously disturbed when Kaiser Coal Company installed the portal in the early 1960's, and again when AML reclaimed the site in 1998. The site is accessed by an existing unimproved dirt road which was initially installed in the 1950's by US Steel to reach a drill site located up-canyon from the portal site.

The road has been sufficiently maintained by local usage, and will not need to be upgraded as part of the portal re-opening project.

The portal site is located on BLM land, and is within federal coal lease SL-068754 which is held by West Ridge Resources (see Maps 5-3 and 5-4). Right of entry to do the portal work is granted under the terms and authority of this lease (see Appendix 1-4A). The site is located within the existing DOGM SMCRA permit area for the West Ridge Mine C/007/041). Total disturbance associated with the previous activities is approximately 0.62 acres, based on ground surveys of the area (see map in Attachment 10). Total disturbance associated with the proposed portal-opening project is estimated at about 0.25 acres, all within the previous disturbed area. Chapter 1 has been updated to reflect the additional disturbance associated with this proposal.

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As stated above, the site has been previously disturbed on two separate occasions; initially in the early 1960's when Kaiser constructed the portals, and then again in 1998 when DOGM/AML did the partial reclamation. Because of this previous activity, there is no native topsoil remaining in the small area immediately in front of the portal, the area now proposed for disturbance as part of the portal re-opening project. DOGM soils scientist has reviewed the site and concluded that adequate reclamation should be obtained by removing the existing vegetation from the area to be disturbed, and then removing the top 12" of material from this area. The vegetation would be stockpiled separately in a nearby location, and the "topsoil" would likewise be stored in its own separate pile located nearby. The proposed location of these stockpiles is shown on the drawing in Attachment 10. The Division has provided its assessment of the topsoil situation in the form of a pre-construction inspection report, which is included in Attachment 5.

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CHAPTER 4: LAND USE

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As mentioned above, construction activities associated with the portal re-opening will be minimal. Up to 113 cubic yards of topsoil material will be removed and stockpiled adjacent to the portal. Another 50 cubic yards of earth material will be reworked to make a small equipment access ramp leading from the road up to the portal, a distance of about 50'-60'. According to AML records, about 10 cubic yards of material was placed in front of the portal during the 1998 backfill (reclamation) effort. It should be noted that all earth quantities given here are conservatively estimated on the high side. All earthwork can be done using a single small trackhoe, and can be done in less than a day.

After the portal is uncovered, the mining crews, working under strict oversight from the federal Mine Safety and Health Administration (MSHA) will remove the existing seal and begin to slowly and methodically work their way into the old works. In order to provide the necessary ventilation, a small portable face fan will be set up on the surface and vent tubing will be extended from the fan into the mine opening to provide fresh air. The crews will then advance into the mine, making sure the roof control is adequate as they proceed. This may require installing additional timbers and/or supplemental roof bolts. As shown on the underground drawing in Attachment 1, there are three areas where the West Ridge mine development entries are projected to cross the old Kaiser mine works; two longwall gate entries and one set of bleeder entries. Due to the additional abutment loads imposed during future longwall mining, these areas in particular may require supplemental roof support installed ahead of time, such as roof bolts, cable bolts, cribs and/or cans. Also as shown on the drawing, a set of seals will need to be installed to isolate the remaining old works from the new development district.

All facilities associated with the portal re-opening project will be temporary. The only equipment utilized will be a temporary ventilation fan and associated vent tubing, and a small electrical generator to provide power to the fan. This generator will also provide the power for the roof bolting machine. All equipment will be portable, and will be placed on crib blocks for support and leveling. There will be no concrete used. Equipment can be set along the existing roadway or turn-around area, with no excavation required.

The underground re-habilitation project is expected to require no more than six months to complete. During this time the only day-to-day activity at the B Canyon site will consist of several trips in and out of the portal for the work crew, and to deliver consumable supplies, such as roof bolts, timbers and concrete blocks needed for the re-habilitation work, and to deliver fuel for the generator. All of this delivery of men and materials can be accomplished using small mine-approved diesel pick-up trucks. There will be no storage of supplies or materials on the surface at the site: all materials will be hauled directly underground for storage.

After the underground re-hab work is complete, the seal will be re-constructed at the B Canyon portal. All portable equipment (fan, generator, vent tubing, etc.) will be removed. The steel

canopy will be left in place, just as it is now. The portal opening will be backfilled from the portal opening to a minimum of 25 feet (see Plate 2 of 2), the access ramp will be obliterated, the topsoil material will be laid back, and the stockpiled vegetation mulch material will be spread over the reclaimed area. This will result in achieving approximate original (AML) contour. The surface will be roughened (gouged/pocked) to aid in water retention and to minimize soil loss to erosion. The area will then be re-seeded with the seed mix approved by the previous AML reclamation project. A 1 T/ac straw mulch will be incorporated into the surface soil and a 1 Ton/ac mulch will be scattered over the surface after the seed and mulch application and scattering of slash on the seeded and mulched surface. A row of excelsior logs (sediment control structures) will then be placed around the down-slope toe of the disturbed area for additional erosion control. This row of excelsior logs will be in addition to the excelsior logs placed at the stream buffer prior to initial construction, which will also be left in place after reclamation until the Division has determined that re-vegetation has been established sufficient to provide adequate sediment control.

Due to the small size of the project site, it is estimated that the reclamation work can be completed in 2-3 days. According to AML records, an identification monument was placed on top of the backfill during the 1998 reclamation. If the monument is still there, the company will save it, and replace it after the re-opening reclamation has been completed.

Bonding calculations for reclamation of the site include earthwork and revegetation. Since all equipment used will be mobile, and since the existing steel portal canopy will remain in place (although backfilled and covered), there will be no demolition costs.

1) Earthwork.....Total earthwork volumes are liberally estimated to be no more than 163 cubic yards, including 113 yds for topsoil removal/replacement and 50 yards for ramp construction and portal backfill.

2) Revegetation....The total area to be re-vegetated is about 0.07 acres.

Given the small size of the reclamation requirements for this project, perhaps the most straightforward means of determining an adequate reclamation cost amount is to compare it to a similar approved amount for a somewhat comparable installation. For example, in November, 2008, the Division approved the Bear Canyon GVH site, which is small isolated disturbed area located nearby within the West Ridge Mine permit area. The total reclamation cost of the Bear Canyon GVH site associated with earthwork is \$2143, and for revegetation is \$2461, for a total of \$4604. This is for a 0.34 disturbed acre site, involving 842 cy of back fill, and 515 cy of topsoil replacement. In comparison the B Canyon portal disturbed area is 0.07 acres, involving 50 cy of backfill, and 113 cy of topsoil replacement. Again, there are no demolition costs associated with the B Canyon project. The Bear Canyon GVH site is obviously a much larger site to reclaim than the B Canyon portal site, with quantities generally about five times greater than for the B Canyon portal site. Therefore, in the interest of expediency, the company would agree to a \$4604 reclamation cost for the B Canyon portal job, as determined for the similar but more expansive Bear Canyon GVH installation.

The updated bond information has been included in Attachment #17 of the MRP.

CHAPTER 6: GEOLOGY

The geology of the B Canyon portal area is nearly identical to the geology of the West Ridge minesite surface facilities located about a half mile away in nearby C Canyon. This geology is described in detail in Chapter 6 of the MRP.

CHAPTER 7: HYDROLOGY

As shown in the drawings in Attachments 1 and 10, and the photos in Attachment 3, the B Canyon portal is located in the bottom canyon near the drainage channel. B Canyon is an ephemeral drainage, typical of the Book Cliffs, and similar to the drainages of nearby C Canyon and Bear canyon described in greater detail in Chapter 7 of the MRP. All construction work associated with the re-opening of the B Canyon portal will be done with the area of previous disturbance, including the AML reclamation of 1998. There will be no activity within the drainage channel. In fact, there is an existing sediment-control berm, presumably constructed by AML, that separates the portal site from the drainage. This berm will remain in place during and after the portal re-opening project to provide adequate sediment control protection to the drainage channel. In addition, the company will install additional temporary sediment control protection between the construction area and the drainage, in the form of a continuous row of excelsior logs, as shown in Attachment 10. The company will also install a row of excelsior log sediment control around the base of the topsoil storage pile, even though this pile is temporary and should itself be reclaimed within six months of the re-opening project.

After the re-opening project is completed, the site will be reclaimed to its approximate original (AML) contour, will be covered back over with the topsoil material, and then re-seeded. An additional row of excelsior logs will be installed along the down-slope edge of the reclaimed area. In addition, the row of perimeter excelsior logs (installed during the initial construction) will also remain in place after reclamation of the site until it has been determined that the revegetation has been established sufficiently to provide sediment control. The existing AML berm will not be disturbed.

West Ridge Mine Reclamation Bond Estimate**Bonding Calculations****Direct Costs**

Subtotal Demolition and Removal	\$716,135.22
Subtotal Backfilling and Grading	\$489,479.68
Subtotal Revegetation	\$196,779.00

Direct Costs in 2017 Dollars	\$1,402,393.90
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Indirect Costs

Mob/Demob	\$140,239.00	10.0%
Contingency	\$70,120.00	5.0%
Engineering Redesign	\$35,060.00	2.5%
Main Office Expense	\$95,363.00	6.8%
Project Management Fee	\$35,060.00	2.5%

Subtotal Indirect Costs 2017 Dollars	\$375,842.00	0.268
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Total Cost	\$1,778,235.90
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Escalation factor		0.007
Number of years		4
Escalation	\$50,316.00	

Total Reclamation Cost 2021 Dollars	\$1,828,551.90
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Bond Amount (rounded to nearest \$1,000) **\$1,829,000.00**

2021 dollars

Bond Posted \$2,184,000.00

Difference Between Posted Bond and Cost Estimate **\$355,000.00**

Percent Difference **19.41%**

Note: The midterm review of this permit began in 2016. However, this bond estimate was not updated until 2017. Therefore, this estimate is based on 2017 unit costs published by RS Means (or others, as noted herein) but, at the request of the Utah Division of Oil, Gas and Mining, the 2016 escalation factor was used to project the bond amount over the term of the bond (to 2021 - a 5 year projection from the 2016 beginning of the midterm review).

West Ridge Mine Reclamation Bond Estimate

Demolition Cost Summary

<i>Ref.</i>	<i>Task</i>	<i>Description</i>	<i>Cost 2017</i>
		Shop Warehouse 01	\$152,450
		Bathhouse 02	\$35,330
		Administration Office 03	\$28,127
		Powder Magazines 04	\$550
		Overhead Conveyor 05	\$10,470
		Conveyor Bents 06	\$2,802
		Drive Unit 07	\$3,149
		Discharge Structure 08	\$6,094
		Bent Angle Bracing 09	\$1,368
		Reclaim Conveyor Stringers 10	\$25,362
		Crusher Building 11	\$19,061
		Reclaim Tunnel Headwall 12	\$3,383
		Loadout Conveyor 13	\$1,741
		Loadout Conveyor Bent 14	\$442
		Mine Fan 15	\$23,787
		Ductwork Airlock 16	\$13,813
		Motor Room 17	\$1,821
		MCC 18	\$1,606
		Portals 19	\$39,074
		Rock Dust Tanks 20	\$6,218
		Oil Grease Storage 21	\$1,876
		Dumpster Bay 22	\$5,429
		Monitoring Well 23	\$3,215
		Hilfiker Wall 24	\$13,905
		Guard Rail 25	\$14,787
		Bypass Culvert 26	\$133,749
		Culverts 27	\$4,603
		Water Tanks 28	\$6,397
		Reclaim Vaults 29	\$11,874
		Reclaim Tunnel Semisphere 30	\$14,783
		Escape Tunnel Vent 31	\$1,322
		Truck Loadout 32	\$6,035
		Substation Electrical 33	\$50,190
		Powerline 69 KV 34	\$367
		Powerline Yard Distribution 35	\$428
		Pavement Truck Loadout 36	\$13,993
		Pumphouse 37	\$7,445
		Riprap 38	\$12,037
		Gob Gas Vent Hole	\$12,497
		Storage Shed	\$24,555
		Total	\$716,135

UNIT COSTS

All unit costs obtained from RS Means 2017 Site Work and Landscape Costs or RS Means 2017 Heavy Construction costs, except as noted. RS Means costs include overhead and profit.

18" CMP removal	Culvert Demolition Cost	02 41 13.40 0160	3.90	LF
18" culvert backfill	Backfill Trench Minimal Haul 2 1/4 CY	31 23 16 13 3080	2.50	LCY
18" culvert excavation	Excavation Bulk Bank 2 CY (322BL)	31 23 16 42 0260	1.81	BCY
24" CMP removal	Culvert Demolition Cost	02 41 13.40 0170	14.70	LF
24" culvert backfill	Backfill Trench Minimal Haul 2 1/4 CY	31 23 16 13 3080	2.50	LCY
24" culvert excavation	Excavation Bulk Bank 2 CY (322BL)	31 23 16 42 0260	1.81	BCY
36" CMP removal	Culvert Demolition Cost	02 41 13.40 0180	17.65	LF
36" culvert backfill	Backfill Trench Minimal Haul 2 1/4 CY	31 23 16 13 3080	2.50	LCY
36" culvert excavation	Excavation Bulk Bank 2 CY (322BL)	31 23 16 42 0260	1.81	BCY
48" CMP removal	Culvert Demolition Cost	02 41 13.40 0190	22.00	LF
48" culvert backfill	Backfill Trench Minimal Haul 2 1/4 CY	31 23 16 13 3080	2.50	LCY
48" culvert excavation	Excavation Bulk Bank 2 CY (322BL)	31 23 16 42 0260	1.81	BCY
Concrete demolition, reinforcing <1% of xsec area	General Concrete Demolition Cost	03 05 05.10 0050	111.00	CY
Concrete demolition, footings & foundation, 1'-6", reinf	Footings and foundation, 1'-6" thick, 3' wide, reinf	02 41 16 17 1080	19.64	LF
Concrete wall demolition, 8" thick, not reinforced	Guard rail demolition	02 41 16.17 2080	0.89	SF
Concrete wall demolition, 12" thick, reinforced	Concrete wall demolition	02 41 16.17 2100	1.55	SF
Concrete floor demolition, 4" thick, wire mesh reinf	Concrete floor demolition	02 41 16.17 0280	0.89	SF
Concrete floor demolition, 6" thick, wire mesh reinf	Concrete floor demolition	02 41 16.17 0420	1.11	SF
Concrete floor demolition, 8" thick, average reinforcing	Concrete floor demolition	02 41 16.17 2420	1.12	SF
Concrete floor demolition, 12" thick, average reinforcing	Concrete floor demolition	02 41 16.17 2500	1.57	SF
Electrical Demolition, #2 wire, from conduit	Electrical Demolition Cost	26 05 05.10 1910	30.50	CLF
Steel tank removal, above ground, 30,000 gallon	Water storage tank demolition	13 05 05.75 0540	3275.00	EA
Chain link fence removal 8'-10' high	Fence removal	02 41 13 60 1700	4.44	LF
Laborer, general purpose	Common Laborer	01 31 13 20 0160	60.00	HR
Dozer, track-mounted, 80 HP	Dozer, 80 HP, with operator and spotter	Crew B-10L	1403.46	Day
Dozer, track-mounted, 300 HP	Dozer, 300 HP, with operator and spotter	Crew B-10M	2978.00	Day
Dozer, track-mounted, 410 HP	Dozer, 410 HP, with operator and spotter	Crew B-10X	3492.80	Day
5,000 Gal Water Truck with crew	Water Truck	Crew B-9A	2041.01	Day
Front End Loader, 10 CY capacity	Front End Loader, with operator and spotter	Crew B-14K	4434.40	Day
Hydraulic excavator, 2 CY, with crew	Trackhoe with operator and spotter	Crew B-12C	2389.30	Day
Hydraulic excavator, 2 CY (322BL)	Trackhoe, 2 CY capacity	31 23 16.42 0260	1.81	CY
Hydraulic crane, 25 ton, with operator	Hydraulic crane	Crew A-3I	1669.28	Day
Demolition debris, haul and off-site disposal	Demolition debris, off-site haul and disposal	Scamp	6.00	Ton
Disposal on site	Disposal on site	02 41 16 17 4200	11.40	CY
12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	On-site Haul Cost	31 23 23.20 1014	3.74	CY
Front End Loader 3 CY	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY
Power mulcher, large, hay 1" deep	Mulch equipment, materials, and labor	32 91 13.16 0350	55.50	MSF
Hydroseeder (equipment and labor)	Hydroseeder	32 92 19.14 4600	22.00	MSF
Portal seal site preparation crew	Portal seal site preparaton crew	Crew B-1	1464.50	Day
Block wall, reinforced, 4" thick	Portal seal form	04 22 10.34 1500	8.50	SF
JennChem - Labor	Mine seal installation	JennChem	265.00	HR
Seal Portals, materials	Portal sealing	JennChem	4320.00	EA
Machine placed rip-rap slope protection	Place Riprap	31 37 13 10 0100	65.00	LCY
Mechanical equipment demolition, heavy	Mechanical equipment demolition	23 05 05 10 3600	1225.00	Ton
Building demolition, mixed materials	Building Demolition, mixed	02 41 16 13 0100	0.40	CF
Off Highway Rear Dump Truck, 65 Ton	Off highway truck with driver	Crew B-34H	2820.00	Day
Pick-up Truck 4x4, 3/4 Ton, with driver	Pickup truck and driver	Crew A-3A	771.20	Day
1.5-ton truck and driver	Light-haul crew	Crew A-2B	771.94	Day
Concrete pressure grouting, 1:2 cement/sand mix	Plug monitor well	31 43 13.13 0310	24.00	CF
Building demolition, steel	Building Demolition, steel	02 41 16 13 0020	0.38	CF
Demolition, interlocking segmental retaining wall	Hilficker retaining wall demolition	02 41 13.90 0900	2.21	SF
Silt Fence, install maintain and remove	Silt fence	31 25 14.16 1000	1.96	LF
West Ridge Douglas Fir/Juniper seed mix	Douglas Fir/Juniper reclamation seed mix	Great Basin Seed	640.00	AC
West Ridge Douglas Fir/Maple seed mix	Douglas Fir/Maple reclamation seed mix	Great Basin Seed	611.00	AC
West Ridge Pinyon/Juniper seed mix	Pinyon/Juniper reclamation seed mix	Great Basin Seed	541.00	AC
West Ridge Sagebrush/Grass seed mix	Sagebrush/Grass reclamation seed mix	Great Basin Seed	717.00	AC
Serviceberry, containerized	Serviceberry	Lawyer Nursery	4.69	EA
Douglas Fir, containerized	Douglals Fir	Lawyer Nursery	4.34	EA
Mountain Mahogany, containerized	Mountain Mahogany	Lawyer Nursery	4.84	EA

Unit cost increase 10% for reinforcing (see 02 41 16.17 1200)

Unit cost increase 30% for reinforcing (see 02 41 16.17 2200 & 2220)

Unit cost increase 10% for reinforcing (see 02 41 16.17 2600)

Unit cost increase 10% for reinforcing (see 02 41 16.17 2600)

Based on weekly burdened rate

See Scamp estimate

Based on labor and equipment costs only (see seed costs below)

Based on 4 technicians and 1 supervisor (see JennChem estimate)

See JennChem estimate

See prices in the attachment, as downloaded July 2017 from the Great Basin Seed web site

Based on the attached seeding cost, plus \$1.00 each shipping (UPS) and labor (\$2.64 each, Means 32 93 43.10 0712)

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
		Shop Warehouse 01																				
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	160	60	30								FT		288000	CF	\$115,200.00	
		Structure's Vol. Demolished																0.33	3520	CY		
		Rubble's Weight (exclude steel)																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Non Steel Truck																				
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		3520	ton	\$21,120.00	
		Disposal Cost Non Steel																				
		Steel's Weight																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Steel Truck																				
		Transportation Cost Steel Truck Drive																				
		Disposal Cost Steel																				
		Subtotal																			\$136,320.00	
		Equipment's Disposal Cost																				
		Dismantling Cost																				
		Equipment's Vol. Demolished																				
		Loading Costs																				
		Transport Costs																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost	Concrete floor demolition, 8" thick, average reinforcing	02 41 16.17 2420	1.12	SF	160	60	0.67								SF		9600	SF	\$10,752.00	
		Concrete's Vol. Demolished																1.3	310	CY		
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													310	CY	\$685.00	
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													310	CY	\$1,159.00	
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													310	CY	\$3,534.00	
		Subtotal																			\$16,130.00	
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Total																			\$152,450.00	

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Bathroom 02																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	40	120	12								FT		57600	CF	\$23,040.00
		Structure's Vol. Demolished																0.33	19008	CF	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		704	ton	\$4,224.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$27,264.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 8" thick, average reinforcing	02 41 16.17 2420	1.12	SF	40	120	0.67								SF		4800	SF	\$5,376.00
		Concrete's Vol. Demolished																1.3	155	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													155	CY	\$343.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													155	CY	\$580.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													155	CY	\$1,767.00
		Subtotal																			\$8,066.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$35,330.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Administration Office 03																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	40	70	18								FT		50400	CF	\$20,160.00
		Structure's Vol. Demolished																0.33	16632	CF	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		616	ton	\$3,696.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$23,856.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 6" thick, wire mesh reinf	02 41 16.17 0420	1.11	SF	40	70	0.5								SF		2800	SF	\$3,108.00
		Concrete's Vol. Demolished																1.3	67	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													67	CY	\$148.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													67	CY	\$251.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													67	CY	\$764.00
		Subtotal																			\$4,271.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$28,127.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
		Powder Magazines 04																				
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	8	8	8								FT		512	CF	\$205.00	
		Structure's Vol. Demolished																0.33	6	CY		
		Rubble's Weight (exclude steel)																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Non Steel Truck																				
		Transportation Cost Non Steel Drive																				
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		6	ton	\$36.00	
		Steel's Weight																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Steel Truck																				
		Transportation Cost Steel Truck Drive																				
		Disposal Cost Steel																				
		Subtotal																			\$241.00	
		Equipment 's Disposal Cost																				
		Dismantling Cost																				
		Equipment 's Vol. Demolished																				
		Loading Costs																				
		Transport Costs																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost	Concrete floor demolition, 6" thick, wire mesh reinf	02 41 16.17 0420	1.11	SF	10	10	0.5								2	SF		200	SF	\$222.00
		Concrete's Vol. Demolished																	1.3	5.0	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY														5.0	CY	\$11.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY														5.0	CY	\$19.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY														5.0	CY	\$57.00
		Subtotal																				\$309.00
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Total																				\$550.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Overhead Conveyor 05																			
		Structure's Demolition Cost	Building Demolition, steel	02 41 16 13 0020	0.38	CF	550	7	6								FT		23100	CF	\$8,778.00
		Structure's Vol. Demolished																0.33	7623	CF	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		282	ton	\$1,692.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$10,470.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$10,470.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Conveyor Bents 06																			
		Structure's Demolition Cost	Building Demolition, steel	02 41 16 13 0020	0.38	CF	50	15	1.5							4	FT		4500	CF	\$1,710.00
		Structure's Vol. Demolished																0.33	1485	CF	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		55	ton	\$330.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$2,040.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcing	02 41 16.17 2500	1.57	SF	4	20	1							4	SF		320	SF	\$502.00
		Concrete's Vol. Demolished																1.3	15	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													15	CY	\$33.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													15	CY	\$56.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													15	CY	\$171.00
		Subtotal																			\$762.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$2,802.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Drive Unit 07																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	20	30	6								FT		3600	CF	\$1,440.00
		Structure's Vol. Demolished																0.33	1188	CF	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		44	ton	\$264.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$1,704.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcing	02 41 16.17 2500	1.57	SF	20	30	1								SF		600	SF	\$942.00
		Concrete's Vol. Demolished																1.3	29	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													29	CY	\$64.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													29	CY	\$108.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													29	CY	\$331.00
		Subtotal																			\$1,445.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$3,149.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Discharge Structure 08																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	230	7	8								FT		12880	CF	\$5,152.00
		Structure's Vol. Demolished																0.33	4250	CF	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		157	ton	\$942.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$6,094.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$6,094.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Bent Angle Bracing 09																			
		Structure's Demolition Cost	Building Demolition, steel	02 41 16 13 0020	0.38	CF	70	20	2								FT		2800	CF	\$1,064.00
		Structure's Vol. Demolished																0.33	34	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		34	ton	\$204.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$1,268.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 8" thick, average reinforcing	02 41 16.17 2420	1.12	SF	2	30	0.67								SF		60	SF	\$67
		Concrete's Vol. Demolished																1.3	1.9	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY														1.9	\$4.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY														1.9	\$7.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY														1.9	\$22.00
		Subtotal																			\$100.20
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$1,368.20

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Reclaim Conveyor Stringers 10																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	320	5	3								FT		4800	CF	\$1,920.00
		Structure's Vol. Demolished																0.33	59	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		59	ton	\$354.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$2,274.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcement	02 41 16.17 2500	1.57	SF	60	160	1								SF		9600	SF	\$15,072.00
		Concrete's Vol. Demolished																1.3	462	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													462	CY	\$1,021.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													462	CY	\$1,728.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													462	CY	\$5,267.00
		Subtotal																			\$23,088.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$25,362.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Crusher Building 11																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	24	50	30								FT		36000	CF	\$14,400.00
		Structure's Vol. Demolished																0.33	440	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		440	ton	\$2,640.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$17,040.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 8" thick, average reinforcing	02 41 16.17 2420	1.12	SF	24	50	0.67								SF		1200	SF	\$1,344.00
		Concrete's Vol. Demolished																1.3	39	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													39	CY	\$86.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													39	CY	\$146.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													39	CY	\$445.00
		Subtotal																			\$2,021.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$19,061.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
		Reclaim Tunnel Headwall 12																				
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	20	15	15								FT		4500	CF	\$1,800.00	
		Structure's Vol. Demolished																0.33	55	CY		
		Rubble's Weight (exclude steel)																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Non Steel Truck																				
		Transportation Cost Non Steel Drive																				
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		55	ton	\$330.00	
		Steel's Weight																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Steel Truck																				
		Transportation Cost Steel Truck Drive																				
		Disposal Cost Steel																				
		Subtotal																			\$2,130.00	
		Equipment's Disposal Cost																				
		Dismantling Cost																				
		Equipment's Vol. Demolished																				
		Loading Costs																				
		Transport Costs																				
		Disposal Costs																				
		Subtotal																				
		Floor																				
		Concrete Demolition																				
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcement	02 41 16.17 2500	1.57	SF	20	15	1								SF		300	SF	\$471.00	
		Concrete's Vol. Demolished																1.3	14	CY		
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY														14	CY	\$31.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY														14	CY	\$52.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY														14	CY	\$160.00
		Subtotal																			\$714.00	
		Wall's Demo. Cost																				
		Concrete Demolition																				
		Demolition Cost	Concrete wall demolition, 12" thick, reinforced	02 41 16.17 2100	1.55	SF	15	15	1								SF		225	SF	\$349.00	
		Concrete's Vol. Demolished																1.3	11	CY		
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY														11	CY	\$24.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY														11	CY	\$41.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY														11	CY	\$125.00
		Subtotal																			\$539.00	
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Total																			\$3,383.00	

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
		Loadout Conveyor 13																				
		Structure's Demolition Cost	Building Demolition, steel	02 41 16 13 0020	0.38	CF	160	4	6								FT		3840	CF	\$1,459.00	
		Structure's Vol. Demolished																0.33	47	CY		
		Rubble's Weight (exclude steel)																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Non Steel Truck																				
		Transportation Cost Non Steel Drive																				
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		47	ton	\$282.00	
		Steel's Weight																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Steel Truck																				
		Transportation Cost Steel Truck Drive																				
		Disposal Cost Steel																				
		Subtotal																			\$1,741.00	
		Equipment's Disposal Cost																				
		Dismantling Cost																				
		Equipment's Vol. Demolished																				
		Loading Costs																				
		Transport Costs																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Total																			\$1,741.00	

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Loadout Conveyor Bent 14																			
		Structure's Demolition Cost	Building Demolition, steel	02 41 16 13 0020	0.38	CF	20	8	1.5								FT		240	CF	\$91.00
		Structure's Vol. Demolished																0.33	9	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		9	ton	\$54.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			ton
		Subtotal																			\$145.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete demolition, footings & foundation, 1'-6", reinf	02 41 16 17 1080	19.64	LF	12	4	1.5								LF		12	LF	\$236.00
		Concrete's Vol. Demolished																1.3	3.5	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY														3.5	CY
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY														3.5	CY
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY														3.5	CY
		Subtotal																			\$297.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$442.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Mine Fan 15																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	50	12	12								FT		7200	CF	\$2,880.00
		Structure's Vol. Demolished																0.1	27	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		27	ton	\$162.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$3,042.00
		Mine Fan Demolition	Mechanical equipment demolition, heavy	23 05 05 10 3600	1225.00	Ton							15				ton		15	ton	\$18,375.00
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs	Hydraulic crane, 25 ton, with operator	Crew A-3I	1669.28	Day									0.5		Day		0.5	Day	\$834.64
		Transport and Disposal Costs	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton							15				ton		15	ton	\$90.00
		Disposal Costs																			
		Subtotal																			\$19,299.64
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcing	02 41 16.17 2500	1.57	SF	50	12	1								SF		600	SF	\$942.00
		Concrete's Vol. Demolished																1.3	29	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													29	CY	\$64.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													29	CY	\$108.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													29	CY	\$331.00
		Subtotal																			\$1,445.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$23,786.64

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Ductwork Airlock 16																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	70	20	12								FT		16800	CF	\$6,720.00
		Structure's Vol. Demolished																0.33	622	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		622	ton	\$3,732.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$10,452.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcement	02 41 16.17 2500	1.57	SF	70	20	1								SF		1400	SF	\$2,198.00
		Concrete's Vol. Demolished																1.3	67	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													67	CY	\$148.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													67	CY	\$251.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													67	CY	\$764.00
		Subtotal																			\$3,361.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$13,813.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Motor Room 17																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	16	16	10								FT		2560	CF	\$1,024.00
		Structure's Vol. Demolished																0.33	31	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		31	ton	\$186.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$1,210.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcement	02 41 16.17 2500	1.57	SF	16	16	1								SF		256	SF	\$401.92
		Concrete's Vol. Demolished																1.3	12	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													12	CY	\$27.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													12	CY	\$45.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													12	CY	\$137.00
		Subtotal																			\$610.92
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$1,820.92

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		MCC 18																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	12	20	9								FT		2160	CF	\$864.00
		Structure's Vol. Demolished																0.33	26	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		26	ton	\$156.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$1,020.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcing	02 41 16.17 2500	1.57	SF	12	20	1								SF		240	SF	\$377.00
		Concrete's Vol. Demolished																1.3	12	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													12	CY	\$27.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													12	CY	\$45.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													12	CY	\$137.00
		Subtotal																			\$586.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$1,606.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Portals 19																			
		Portal seal site preparation crew	Portal seal site preparation crew	Crew B-1	1464.50	Day									1	4	Day		4	Day	\$5,858.00
		Block retaining walls (2 each seal)	Block wall, reinforced, 4" thick	04 22 10.34 1500	8.50	SF		20	8.6						344	4	SF		1376	SF	\$11,696.00
		Seal Installation Labor	JennChem - Labor	JennChem	265.00	HR									4	4	HR		16	CY	\$4,240.00
		Seal Materials	Seal Portals, materials	JennChem	4320.00	EA.									1	4	EA		4		\$17,280.00
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Disposal Cost Non Steel																			
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$39,074.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$39,074.00

Note: operator needs to list RS Means number and units.

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Rock Dust Tanks 20																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF			40	12						2	FT		9048	CF	\$3,619.00
		Structure's Vol. Demolished																0.33	111	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		111	ton	\$666.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$4,285.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcing	02 41 16.17 2500	1.57	SF	20	40	1							1	EA		800	SF	\$1,256.00
		Concrete's Vol. Demolished																1.3	39	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY															\$86.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY															\$146.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY															\$445.00
		Subtotal																			\$1,933.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$6,218.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Oil Grease Storage 21																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	10	30	10								FT		3000	CF	\$1,200.00
		Structure's Vol. Demolished																0.33	37	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		37	ton	\$222.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$1,422.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 6" thick, wire mesh reinf	02 41 16.17 0420	1.11	SF	10	30	0.5								SF		300	SF	\$333.00
		Concrete's Vol. Demolished																1.3	7	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													7	CY	\$15.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													7	CY	\$26.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													7	CY	\$80.00
		Subtotal																			\$454.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$1,876.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
		Dumpster Bay 22																				
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	30	40	6								FT		7200	CF	\$2,880.00	
		Structure's Vol. Demolished																0.33	88	CY		
		Rubble's Weight (exclude steel)																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Non Steel Truck																				
		Transportation Cost Non Steel Drive																				
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		88	ton	\$528.00	
		Steel's Weight																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Steel Truck																				
		Transportation Cost Steel Truck Drive																				
		Disposal Cost Steel																				
		Subtotal																			\$3,408.00	
		Equipment 's Disposal Cost																				
		Dismantling Cost																				
		Equipment 's Vol. Demolished																				
		Loading Costs																				
		Transport Costs																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost	Concrete floor demolition, 8" thick, average reinforcing	02 41 16.17 2420	1.12	SF	30	40	0.67								SF		1200	SF	\$1,344.00	
		Concrete's Vol. Demolished																1.3	39	CY		
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY														39	CY	\$86.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY														39	CY	\$146.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY														39	CY	\$445.00
		Subtotal																			\$2,021.00	
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Total																			\$5,429.00	

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Monitoring Well 23																			
		Structure's Demolition Cost	Concrete presure grouting, 1:2 cement/sand mix	31 43 13.13 0310	24.00	CF				380	0.67					1	EA		134	CF	\$3,215.00
		Structure's Vol. Demolished																			
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Disposal Cost Non Steel																			
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$3,215.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$3,215.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Hilfiker Wall 24																			
		Structure's Demolition Cost	Demolition, interlocking segmental retaining wall	02 41 13.90 0900	2.21	SF	150	12	30								FT		4500	SF	\$9,945.00
		Structure's Vol. Demolished																0.33	660	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		660	ton	\$3,960.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$13,905.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$13,905.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Guard Rail 25																			
		Structure's Demolition Cost																			
		Structure's Vol. Demolished																			
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Disposal Cost Non Steel																			
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete wall demolition, 8" thick, not reinforced	02 41 16.17 2080	0.89	SF	3400	3	0.67								FT		10200	SF	\$9,078.00
		Concrete's Vol. Demolished																1.3	329	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													329	CY	\$727.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													329	CY	\$1,231.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													329	CY	\$3,751.00
		Subtotal																			\$14,787.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$14,787.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Bypass Culvert 26																			
		48" CMP removal	48" CMP removal	02 41 13.40 0190	22.00	LF	4314										ft		4314	LF	\$94,908.00
		48" culvert backfill	48" culvert backfill	31 23 16 13 3080	2.50	LCY	4314	4	2	4							ft		3286	LCY	\$8,215.00
		48" culvert excavation	48" culvert excavation	31 23 16 42 0260	1.81	BCY	4314	4	2								ft		1278	BCY	\$2,314.00
		36" CMP removal	36" CMP removal	02 41 13.40 0180	17.65	LF	962										ft		962	LF	\$16,979.00
		36" culvert backfill	36" culvert backfill	31 23 16 13 3080	2.50	LCY	962	3	2	3							ft		466	LCY	\$1,164.00
		36" culvert excavation	36" culvert excavation	31 23 16 42 0260	1.81	BCY	962	3	2								ft		214	BCY	\$387.00
		24" CMP removal	24" CMP removal	02 41 13.40 0170	14.70	LF	594										ft		594	LF	\$8,732.00
		24" culvert backfill	24" culvert backfill	31 23 16 13 3080	2.50	LCY	594	2	2	2							ft		157	LCY	\$393.00
		24" culvert excavation	24" culvert excavation	31 23 16 42 0260	1.81	BCY	594	2	2								ft		88	BCY	\$159.00
		Subtotal																			\$133,251.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Culvert Demolition																			
		48" CMP off-site disposal	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton							lb/ft			31	lb		67	Ton	\$402.00
		36" CMP off-site disposal	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton							lb/ft			24	lb		12	Ton	\$72.00
		24" CMP off-site disposal	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton							lb/ft			15	lb		4	Ton	\$24.00
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			\$498.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$133,749.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Water Tanks 28																			
		Structure's Demolition Cost	Steel tank removal, above ground, 30,000 gallon	13 05 05.75 0540	3275.00	EA		30	12							1	EA		1	EA	\$3,275.00
		Structure's Vol. Demolished																			
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton							6				tons		6	tons	\$36.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$3,311.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcing	02 41 16.17 2500	1.57	SF	16	40	1							2	SF		1280	SF	\$2,010.00
		Concrete's Vol. Demolished																1.3	62	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													62	CY	\$137.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													62	CY	\$232.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													62	CY	\$707.00
		Subtotal																			\$3,086.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$6,397.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
		Reclaim Vaults 29																				
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	15	20	13								FT		3900	CF	\$1,560.00	
		Structure's Vol. Demolished																0.33	1287	CF		
		Rubble's Weight (exclude steel)																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Non Steel Truck																				
		Transportation Cost Non Steel Drive																				
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton								1			ton/CY		48	ton	\$288.00	
		Steel's Weight																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Steel Truck																				
		Transportation Cost Steel Truck Drive																				
		Disposal Cost Steel																				
		Subtotal																			\$1,848.00	
		Equipment's Disposal Cost																				
		Dismantling Cost																				
		Equipment's Vol. Demolished																				
		Loading Costs																				
		Transport Costs																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost	Concrete demolition, reinforcing <1% of xsec area	03 05 05.10 0050	111.00	CY	15	30	1.5								3	FT		75	CY	\$8,325.00
		Concrete's Vol. Demolished																1.3		98	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY														98	CY	\$217.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY														98	CY	\$367.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY														98	CY	\$1,117.00
		Subtotal																			\$10,026.00	
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Total																			\$11,874.00	

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Reclaim Tunnel Semisphere 30																			
		Structure's Demolition Cost																			
		Structure's Vol. Demolished																			
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Disposal Cost Non Steel																			
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete demolition, reinforcing <1% of xsec area	03 05 05.10 0050	111.00	CY	210	0.5		13							FT		79	CY	\$8,769.00
		Concrete's Vol. Demolished																1.3	103	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													103	CY	\$228.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													103	CY	\$385.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													103	CY	\$1,174.00
		Subtotal																			\$10,556.00
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 8" thick, average reinforcing	02 41 16.17 2420	1.12	SF	210	12	0.67								FT		2520	SF	\$2,822.00
		Concrete's Vol. Demolished																1.3	81	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													81	CY	\$179.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													81	CY	\$303.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													81	CY	\$923.00
		Subtotal																			\$4,227.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$14,783.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
		Escape Tunnel Vent 31																				
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF			250	3.5							FT		2405	CF	\$962.00	
		Structure's Vol. Demolished																0.33	794	CF		
		Rubble's Weight (exclude steel)																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Non Steel Truck																				
		Transportation Cost Non Steel Drive																				
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton														60	CY	\$360.00
		Steel's Weight																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Steel Truck																				
		Transportation Cost Steel Truck Drive																				
		Disposal Cost Steel																				
		Subtotal																				\$1,322.00
		Equipment's Disposal Cost																				
		Dismantling Cost																				
		Equipment's Vol. Demolished																				
		Loading Costs																				
		Transport Costs																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Total																				\$1,322.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
		Truck Loadout 32																				
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	20	20	30								FT		12000	CF	\$4,800.00	
		Structure's Vol. Demolished																0.33	147	CY		
		Rubble's Weight (exclude steel)																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Non Steel Truck																				
		Transportation Cost Non Steel Drive																				
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton														147	CY	\$882.00
		Steel's Weight																				
		Truck's Capacity																				
		Haulage																				
		Transportation Cost Steel Truck																				
		Transportation Cost Steel Truck Drive																				
		Disposal Cost Steel																				
		Subtotal																				\$5,682.00
		Equipment's Disposal Cost																				
		Dismantling Cost																				
		Equipment's Vol. Demolished																				
		Loading Costs																				
		Transport Costs																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcement	02 41 16.17 2500	1.57	SF	20	20	1								FT		15	CY	\$23.26	
		Concrete's Vol. Demolished																1.3	19	CY		
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY														19	CY	\$42.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY														19	CY	\$71.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY														19	CY	\$217.00
		Subtotal																				\$353.26
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Concrete Demolition																				
		Demolition Cost																				
		Concrete's Vol. Demolished																				
		Loading Cost																				
		Transportation Cost																				
		Disposal Costs																				
		Subtotal																				
		Total																				\$6,035.26

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Substation Electrical 33																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	50	100	20								FT		100000	CF	\$40,000.00
		Structure's Vol. Demolished																0.33	1222	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton													1222	CY	\$7,332.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$47,332.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 12" thick, average reinforcement	02 41 16.17 2500	1.57	SF	40	80	1								FT		119	CY	\$186.00
		Concrete's Vol. Demolished																1.3	154	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													154	CY	\$340.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													154	CY	\$576.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													154	CY	\$1,756.00
		Subtotal																			\$2,858.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$50,190.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Powerline 69KV 34																			
		Structure's Demolition Cost	Electrical Demolition, #2 wire, from conduit	26 05 05.10 1910	30.50	CLF	1200										LF		12	CLF	\$366.00
		Structure's Vol. Demolished																			
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton	1200							201			lb/MF		0.12	ton	\$1.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$367.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$367.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Powerline Yard Distribution 35																			
		Structure's Demolition Cost	Electrical Demolition, #2 wire, from conduit	26 05 05.10 1910	30.50	CLF	1400										LF		14	CLF	\$427.00
		Structure's Vol. Demolished																			
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton	1400							201			lb/MF		0.14	ton	\$1.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																		0	ton
		Subtotal																			\$428.00
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$428.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Pavement Truck Loadout 36																			
		Structure's Demolition Cost																			
		Structure's Vol. Demolished																			
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Disposal Cost Non Steel																			
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 4" thick, wire mesh reinf	02 41 16.17 0280	0.89	SF	100	120	0.33								SF		12000	SF	\$10,680.00
		Concrete's Vol. Demolished																1.3	191	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													191	CY	\$422.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													191	CY	\$714.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													191	CY	\$2,177.00
		Subtotal																			\$13,993.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$13,993.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Pumphouse 37																			
		Structure's Demolition Cost	Building demolition, mixed materials	02 41 16 13 0100	0.40	CF	20	20	8								FT		3200	CF	\$1,280.00
		Structure's Vol. Demolished																0.33	39	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton													39	CY	\$234.00
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$1,514.00
		Equipment's Disposal Cost	Chain link fence removal 8'-10' high	02 41 13 60 1700	4.44	LF	250										FT		250	FT	\$1,110.00
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			\$1,110.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			\$1,110.00
		Asphalt																			
		Asphalt Demolition																			
		Demolition Cost	Concrete demolition, reinforcing <1% of xsec area	03 05 05.10 0050	111.00	CY						31.48					CY		31	CY	\$3,494.00
		Concrete's Vol. Demolished																1.3	41	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													41	CY	\$90.00
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													41	CY	\$153.00
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													41	CY	\$467.00
		Subtotal																			\$4,204.00
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 6" thick, wire mesh reinf	02 41 16.17 0420	1.11	SF	20	20	0.5								SF		400	SF	444
		Concrete's Vol. Demolished																1.3	10	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													10	CY	22
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													10	CY	37
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													10	CY	\$114.00
		Subtotal																			\$617.00
		Total																			\$7,445.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	2233	Riprap 38																			
		Structure's Demolition Cost																			
		Structure's Vol. Demolished																			
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Disposal Cost Non Steel																			
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			
		Riprap									10						sq ft				
		Place Riprap	Machine placed rip-rap slope protection	31 37 13 10 0100	65.00	LCY	500										ft		185	CY	\$12,037.00
		Subtotal																			\$12,037.00
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$12,037.00

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Gob Gas Vent Hole																			
		Structure's Demolition Cost	1.5-ton truck and driver	Crew A-2B	771.94	Day										2	Days		2	Days	\$1,543.88
		Structure's Vol. Demolished																			
		Abandon 9" hole	Concrete presure grouting, 1:2 cement/sand mix	31 43 13.13 0310	24.00	CF	450			0.75						1	EA		199	CF	\$4,776.00
		Abandon 7" holes	Concrete presure grouting, 1:2 cement/sand mix	31 43 13.13 0310	24.00	CF	450			0.58						2	EA		238	CF	\$5,712.00
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation Cost																			
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$12,031.88
		Equipment 's Disposal Cost																			
		Dismantling Cost																			
		Equipment 's Vol. Demolished																			
		Loading Costs	Hydraulic crane, 25 ton, with operator	Crew A-3I	1669.28	Day									0.5		Day		0.5	Day	\$834.64
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton										4	tons		4	tons	\$96.00
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$12,497.20

Ref.	Task	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
		Storage Sheed																			
		Structure's Demolition Cost	Building Demolition, steel	02 41 16 13 0020	0.38	CF	40	60	20			48000					CF		48000	CF	\$18,240.00
		Structure's Vol. Demolished										1778					CY	0.33	587	CY	
		Rubble's Weight (exclude steel)																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Non Steel Truck																			
		Transportation Cost Non Steel Drive																			
		Transportation and Disposal Cost All	Demolition debris, haul and off-site disposal	Scamp	6.00	Ton						1778						0.33	587	CY	\$3,520
		Steel's Weight																			
		Truck's Capacity																			
		Haulage																			
		Transportation Cost Steel Truck																			
		Transportation Cost Steel Truck Drive																			
		Disposal Cost Steel																			
		Subtotal																			\$21,760.00
		Equipment's Disposal Cost																			
		Dismantling Cost																			
		Equipment's Vol. Demolished																			
		Loading Costs																			
		Transport Costs																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost	Concrete floor demolition, 4" thick, wire mesh reinf	02 41 16.17 0280	0.89	SF	40	60	0.33			792					SF		2400	SF	\$2,136.00
		Concrete's Vol. Demolished																1.3	38	CY	
		Loading Cost	Front End Loader 3 CY	31 23 16.42 1300	2.21	CY													38	CY	\$84
		Transportation Cost	12 CY (16 Ton) Dump Truck, 1/2 mi. rd Trip	31 23 23.20 1014	3.74	CY													38	CY	\$142
		Disposal Costs	Disposal on site	02 41 16 17 4200	11.40	CY													38	CY	\$433
		Subtotal																			\$2,795
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Concrete Demolition																			
		Demolition Cost																			
		Concrete's Vol. Demolished																			
		Loading Cost																			
		Transportation Cost																			
		Disposal Costs																			
		Subtotal																			
		Total																			\$24,555.00

West Ridge Mine Reclamation Bond Estimate

Cost Summary

Earthwork Costs	<i>Cost</i>
Remove Cap Layer	\$ 10,232
Remove Excess Pad Fill	\$ 253,904
Remove Remaining Backfill	\$ 56,558
Backfill Highwall	\$ 2,389
Place Topsoil	\$ 38,575
Expose Topsoil	\$ 44,684
Establish Rubbleland Surface	\$ 33,450
Pump House Regrading	\$ 1,746
Gob Hole Regrading	\$ 7,120
Support	\$ 40,820
TOTAL	\$ 489,480

Remove Excess Pad Fill

Ref.	Task	Description	Quantity	Units	Production Rate	Units	Production Time	Units	Materials/Equipment/Labor	Cost Reference RSMeans Ref #	Unit Cost	Units	Quantity	Cost
		Left Fork												
		6X4 70,000lbs 12-18 CY (20-11) (2nd2006)	13614	CY	380	CY/HR	35.8	HR	Off Highway Rear Dump Truck, 65 Ton	Crew B-34H	2820.00	Day	4	\$11,280.00
		988G EROPS (9-34) (2nd2006) 2005							Front End Loader, 10 CY capacity	Crew B-14K	4434.40	Day	4	\$17,737.60
		Right Fork												
		6X4 70,000lbs 12-18 CY (20-11) (2nd2006)	3916	CY	380	CY/HR	10.3	HR	Off Highway Rear Dump Truck, 65 Ton	Crew B-34H	2820.00	Day	1.5	\$4,230.00
		988G EROPS (9-34) (2nd2006) 2005							Front End Loader, 10 CY capacity	Crew B-14K	4434.40	Day	1.5	\$6,651.60
		Main Canyon												
		6X4 70,000lbs 12-18 CY (20-11) (2nd2006)	88829	CY	380	CY/HR	233.8	HR	Off Highway Rear Dump Truck, 65 Ton	Crew B-34H	2820.00	Day	29.5	\$83,190.00
		988G EROPS (9-34) (2nd2006) 2005							Front End Loader, 10 CY capacity	Crew B-14K	4434.40	Day	29.5	\$130,814.80
		Subtotal												\$253,904.00

Remove Remaining Backfill

Ref.	Task	Description	Quantity	Units	Production Rate	Units	Production Time	Units	Materials/Equipment/Labor	Cost Reference RSMMeans Ref #	Unit Cost	Units	Quantity	Cost
		Left Fork 21+50 to 23+00												
		988G EROPS	2857	CY	440	CY/HR	6.5	HR	Front End Loader, 10 CY capacity	Crew B-14K	4434.40	Day	1	\$4,434.40
		Redistribution												
		988G EROPS	16604	CY	391.5	CY/HR	42.4	HR	Front End Loader, 10 CY capacity	Crew B-14K	4434.40	Day	5.5	\$24,389.20
		Off Highway Rear Dump 65 ton	2857	CY					Off Highway Rear Dump Truck, 65 Ton	Crew B-34H	2820.00	Day	5.5	\$15,510.00
		Right Fork Upper Canyon @35+00												
		D9R Semi-U EROPS 400HP	16604	CY	663	CY/HR	25	HR	Dozer, track-mounted, 410 HP	Crew B-10X	3492.80	Day	3.5	\$12,224.80
		Subtotal												\$56,558.40

Backfill Highwall

Ref.	Task	Description	Quantity	Units	Production Rate	Units	Production Time	Units	Materials/Equipment/Labor	Cost Reference RSMMeans Ref #	Unit Cost	Units	Quantity	Cost
		CAT 324E 2CY bucket 30 sec cycle	1481	CY	240	CY/HR	6.2	HR	Hydraulic excavator, 2 CY, with crew	Crew B-12C	2389.30	Day	1	\$2,389.30
		Subtotal												\$2,389.30

Establish Rubbleland Surface

Ref.	Task	Description	Quantity	Units	Production Rate	Units	Production Time	Units	Materials/Equipment/Labor	Cost Reference RSMMeans Ref #	Unit Cost	Units	Quantity	Cost
		CAT 324E 2CY bucket 30 sec cycle	4440	CY	40	CY/HR	111	HR	Hydraulic excavator, 2 CY, with c	Crew B-12C	2389.30	Day	14	\$33,450.20
		Subtotal												\$33,450.20

Pump House Regrading

Ref.	Task	Description	Quantity	Units	Production Rate	Units	Production Time	Units	Materials/Equipment/Labor	Cost Reference RSMeans Ref #	Unit Cost	Units	Quantity	Cost
		D9R Semi-U EROPS 400HP	1326	CY	663	CY/HR	2	HR	Dozer, track-mounted, 410 HP	Crew B-10X	3492.80	Day	0.5	\$1,746.40
		Subtotal												\$1,746.40

Support

Ref.	Task	Description	Quantity	Units	Production Rate	Units	Production Time	Units	Materials/Equipment/Labor	Cost Reference RSMeans Ref #	Unit Cost	Units	Quantity	Cost
		6,000 gal H2O truck Diesel (20-17) (2nd2006)					605.5	HR	5,000 Gal Water Truck with crew	Crew B-9A	2041.01	Day	20	\$40,820.20
		Subtotal												\$40,820.20

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Mine Site Revegetation Estimate																			
	<i>Pinyon Juniper Community</i>																			
	Mulch Material, Labor, and Equipment	Power mulcher, large, hay 1" deep	32 91 13.16 0350	55.50	MSF											AC		566	MSF	31413
	Seeding Material	West Ridge Pinyon/Juniper seed mix	Great Basin Seed	541.00	AC						13					AC		13	AC	7033
	Seeding Equipment and Labor	Hydroseeder (equipment and labor)	32 92 19.14 4600	22.00	MSF						13					AC		566	MSF	12452
	Pocking	Hydraulic excavator, 2 CY (322BL)	31 23 16.42 0260	1.81	CY							5200				CY		5200	CY	9412
	<i>Douglas Fir Maple Community</i>																			
	Mulch Material, Labor, and Equipment	Power mulcher, large, hay 1" deep	32 91 13.16 0350	55.50	MSF											AC		436	MSF	24198
	Seeding Material	West Ridge Douglas Fir/Maple seed mix	Great Basin Seed	611.00	AC						10					AC		10	AC	6110
	Seeding Equipment and Labor	Hydroseeder (equipment and labor)	32 92 19.14 4600	22.00	MSF						10					AC		436	MSF	9592
	Pocking	Hydraulic excavator, 2 CY (322BL)	31 23 16.42 0260	1.81	CY							4000				CY		4000	CY	7240
	Transplants	Serviceberry, containerized	Lawyer Nursery	4.69	EA						10					930		930	EA	4362
	Transplants	Mountain Mahogany, containerized	Lawyer Nursery	4.84	EA						10					930		930	EA	4501
	<i>Douglas Fir Rocky Mountain Juniper</i>																			
	Mulch Material, Labor, and Equipment	Power mulcher, large, hay 1" deep	32 91 13.16 0350	55.50	MSF											AC		218	MSF	12099
	Seeding Material	West Ridge Douglas Fir/Juniper seed mix	Great Basin Seed	640.00	AC						5					AC		5	AC	3200
	Seeding Equipment and Labor	Hydroseeder (equipment and labor)	32 92 19.14 4600	22.00	MSF						5					AC		218	MSF	4796
	Pocking	Hydraulic excavator, 2 CY (322BL)	31 23 16.42 0260	1.81	CY							2000				CY		2000	CY	3620
	Transplants	Douglas Fir, containerized	Lawyer Nursery	4.34	EA						5					1500		1500	EA	6510
	<i>Sagebrush Grass Community</i>																			
	Mulch Material, Labor, and Equipment	Power mulcher, large, hay 1" deep	32 91 13.16 0350	55.50	MSF											AC		44	MSF	2442
	Seeding Material	West Ridge Sagebrush/Grass seed mix	Great Basin Seed	717.00	AC						1					AC		1	AC	717
	Seeding Equipment and Labor	Hydroseeder (equipment and labor)	32 92 19.14 4600	22.00	MSF						1					AC		44	MSF	968
	Pocking	Hydraulic excavator, 2 CY (322BL)	31 23 16.42 0260	1.81	CY							400				CY		400	CY	724
	<i>Pumphause</i>																			
	Mulch Material, Labor, and Equipment	Power mulcher, large, hay 1" deep	32 91 13.16 0350	55.50	MSF											AC		39	MSF	2165
	Seeding Material	West Ridge Pinyon/Juniper seed mix	Great Basin Seed	541.00	AC						0.9					AC		0.9	AC	487
	Seeding Equipment and Labor	Hydroseeder (equipment and labor)	32 92 19.14 4600	22.00	MSF						0.9					AC		39	MSF	858
	Place Silt Fence	Silt fence, install maintain and remove	31 25 14.16 1000	1.96	LF		150									FT		150	FT	294
	Pocking	Hydraulic excavator, 2 CY (322BL)	31 23 16.42 0260	1.81	CY							360				CY		360	CY	652
	Job Vent Wells																			
	Ground Preparation																			
	Goughing/Pocking	Hydraulic excavator, 2 CY (322BL)	31 23 16.42 0260	1.81	CY							136				CY		136	CY	246
	Seeding Material	West Ridge Pinyon/Juniper seed mix	Great Basin Seed	541.00	AC						0.3					AC		0.3	AC	184
	Seeding Equipment and Labor	Hydroseeder (equipment and labor)	32 92 19.14 4600	22.00	MSF						0.3					AC		15	MSF	326
	Mulch Material, Labor, and Equipment	Power mulcher, large, hay 1" deep	32 91 13.16 0350	55.50	MSF						0.3					AC		15	MSF	822
	Subtotal																			157,423
	Mine Site																			
	Reseeding 25%																			39,356
	Subtotal																			39,356
	Total																			196,779

