

**RECLAMATION COST ESTIMATE
DANEROS MINE**



**Prepared by
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September 2013

1.0 Introduction

This reclamation cost estimate for the Daneros Mine is based on the reclamation plans included in the Large Mine NOI submitted to the Utah Division of Oil Gas and Mining and the Plan of Operations submitted to the Bureau of Land Management for expansion of the existing mine from approximately 4.5 acres to 46.3 acres of surface disturbance. This cost estimate is divided into three phases consisting of the expansion of the Daneros Portal area, addition of the Bullseye Portal area, and addition of the South Portal area. The existing and proposed facilities at these three portal areas are the basis for the phased bonding approach presented in this cost estimate.

1.1 Changes from the Previous Cost Estimate

Several changes were made to the reclamation plan as part of this version of the Large Mine NOI. These changes were incorporated into this reclamation cost estimate and are as follows:

- Reduction in size of the South Portal Area. This allowed the site berm grading, topsoil stockpile volume, inert material volume, ripping, seeding and the haul distances to be reduced for this area.
- Since the two existing vents installed are cased, it was assumed that the remainder of the vents will be cased. This allowed for the removal of the vent backfilling with development rock. There is also no longer a need for a haul truck to get the backfill material to the vents.
- Changes to the indirect costs associated with mobilization / demobilization, management, contingency, engineering redesign, main office expense and escalation we also update based on the UDOGM guidance.

1.2 Phase 1

Phase 1 consists of expanding the Development Rock Area (DRA) at the existing Daneros Portal area. The existing disturbance at the Daneros Portal includes the mine buildings, tanks, stationary equipment, an ore pad, the existing DRA, and 2 ventilation shafts with associated access roads.

1.3 Phase 2

Phase 2 consists of the items covered in Phase 1 plus the Bullseye Portal area and 3 additional ventilation shafts and associated access roads. The Bullseye Portal area will include tanks, stationary equipment, 2 DRAs, an inert material storage area, an ore pad, topsoil stockpiles, and drainage and sediment control features.

1.4 Phase 3

Phase 3 consists of the items addressed in Phase 2 plus the South Portal Area and the remaining 5 proposed ventilation shafts and associated access roads. The South Portal area includes mine buildings, tanks, stationary equipment, a DRA, an inert material storage area, ore stockpile pad, topsoil stockpile, and associated drainage and sediment control features.

Although the 3 phases of the project encompass 46.3 acres of surface disturbance, concurrent reclamation of DRAs and other facilities at the Daneros and Bullseye portal facilities is expected

to reduce unreclaimed disturbances to a maximum of 35 acres at any one time. However, no credit is being taken in this reclamation estimate for concurrent reclamation, as credit for reclamation completed will be requested by Energy Fuels at the time of reclamation.

2.0 Reclamation Tasks

The reclamation tasks at the Daneros Mine are grouped into the following categories: demolition of structures, grading, and revegetation.

2.1 Demolition of Structures

Demolition costs of the constructed structure are estimated for each portal area. The abandonment of buildings and support items like wells and vent shafts are estimated using RS Means, which is an estimating method that uses unit costs compiled for completing similar construction activities. After finding the unit cost for a specific task, the unit cost is multiplied by the number of units (e.g., liner feet, cubic hours, hours of operation) for that activity.

2.2 Grading

The grading category includes placing stockpiled ore back into the mine, sealing the portals with development rock, ripping compacted area, and contouring the DRAs and other areas to achieve slopes of 3H:1V or less (except for the portal seals, which will have slopes of 2H:1V or less). The tasks in the grading category require the use of a low-profile, 2-cy load-haul-dump (LHD) unit and a D-7 track dozer with rippers. The LHD will be used for placing the ore back into the mine as well as sealing the portal with backfilled development rock. The dozer will be utilized for grading and ripping the site in preparation for final soil placement. The DRAs are to be built in lifts with setbacks to minimize final grading, but grading will still be needed to round the corners off and create gradual slopes that are stable and blend with the surrounding natural terrain.

The costs for these tasks are based on the quantity of material to be moved, the hourly productivity, and the hourly operating cost of the equipment selected. The design volumes for cut and fill, reclamation areas and facility footprints were generated using AutoCAD. Geometric calculations and typical stockpile sizes for the operation were estimated based on expected operation conditions. The hourly productivity is estimated based on the Cat Handbook, which estimates the productivity of various pieces of equipment for differing operating conditions. The hourly operating costs are based on the equipment hourly rental cost, hourly fuel and maintenance cost and the operator cost. The rental and fuel costs were obtained from Wheeler Equipment Co. Hourly rental costs from Wheeler Equipment Co. are summarized in the attached memo. The operator hourly rate was estimated from Energy Fuels internal fully burdened wage for senior equipment operators. This number was increased to account for taxes and profit.

2.3 Revegetation

The revegetation category includes placing an 18-inch cover of inert rock and soil over the DRAs and a 6-inch soil cover over the remaining disturbed areas followed by scarification (i.e., discing) and broadcast seeding. The costs for placing inert rock and topsoil are based on the quantity of material to be moved and hourly equipment costs in a similar manner as was done for grading. A 966 rubber-tire, front-end loader and D-7 track dozer are utilized for soil placement. The cost for seeding is based on a unit cost per area from RS Means multiplied by the quantity of area to be seeded.

3.0 Summary

Energy Fuels estimates the reclamation costs for the three phases as follows:

- Phase 1 – \$95,000
- Phase 2 - \$208,000 (includes Phases 1 and 2)
- Phase 3 - \$463,000 (includes Phases 1, 2 and 3)

Phase 3 Summary
Bonding Calculations

Direct Costs

Subtotal Demolition and Removal	\$152,444
Subtotal Backfilling and Grading	\$67,568
Subtotal Revegetation	\$138,968
Subtotal Direct Costs	\$358,980

Indirect Costs

Mob/Demob	\$35,898	10.0%
Contingency	\$17,949	5.0%
Engineering Redesign	\$8,974	2.5%
Main Office Expense	\$24,411	6.8%
Project Management Fee	\$8,974	2.5%
Subtotal	\$96,207	

Total Cost 2012 \$455,187

Escalation (0.5% every year for 3 years) \$6,862

Reclamation Cost Escalated \$462,049

Bond Amount (rounded to nearest \$1,000) \$463,000

Notes:

The Phase 3 bond estimate includes the disturbance at the Daneros, Bullseye and South Portal Areas and 10 vents. Phase 3 represents the full Daneros Mine.

Ref.	Description	Means Costworks 2012 Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
Demo one 24" Culverts Under Portal Pad Area																			
	Remove Culvert	33 42 16 15 3140	\$38.00	LF	100												100	LF	\$3,800.00
	Subtotal																		\$3,800.00
Removal and Dismantle of Office																			
	Selective Demo, pre-engineered steel bldg	13 05 05 50 0550	\$1.83	SF					400						SF		400	SF	\$732.00
	Removal of debris to landfill in rolloff container	Estimated	\$3,000.00	EA													3	EA	\$9,000.00
	Subtotal																		\$732.00
Removal and Dismantle of Shop																			
	Selective Demo, pre-engineered steel bldg	13 05 05 50 0550	\$1.83	SF					1500						SF		1500	SF	\$2,745.00
	Subtotal																		\$2,745.00
Removal of Storage Shed																			
	Selective Demo, pre-engineered steel bldg	13 05 05 50 0550	\$1.83	SF					200						SF		200	SF	\$366.00
	Subtotal																		\$366.00
Removal of Concrete Slabs																			
	Demolish concrete slab of office	02 41 13 17 5300	\$19.40	SY					45						SY		45	SY	\$873.00
	Demolish concrete slab of shop	02 41 13 17 5300	\$19.40	SY					167						SY		167	SY	\$3,239.80
	Demolish concrete slab of storage shed	02 41 13 17 5300	\$19.40	SY					23						SY		23	SY	\$446.20
	Subtotal																		\$4,559.00
Removal of Tanks																			
	Removal of 6,000 gal fuel tank	13 05 05 75 0530	\$1,550	EA											2 EA		2	EA	\$3,100.00
	Removal of 2,500 gal brine tank	13 05 05 75 0530	\$1,550	EA											1 EA		1	EA	\$1,550.00
	Removal of propane tank	13 05 05 75 0520	\$730	EA											2 EA		1	EA	\$730.00
	Subtotal																		\$5,380.00
Removal of Generators/Compressors																			
	Compressor Removal	11 05 05 10 1410	\$171	EA											2 EA		2	EA	\$342.00
	Generator Removal, 150 kW	26 05 05 25 2100	\$2,150	EA											2 EA		2	EA	\$4,300.00
	Subtotal																		\$4,642.00
Water Well Abandonment																			
	Mobilization and Demobilization of Drill Rig	02 32 13 10 0300	\$475	EA											2 EA		2	EA	\$950.00
	Drill Rig Crew	Crew B23	\$5,160.57	DY											1 DY		1	DY	\$5,160.57
	Concrete, ready mix, normal weight, 2000 psi	03 31 05 35 0020	\$87	CY											17 CY		17	CY	\$1,479.00
	Subtotal																		\$7,589.57
Abandon Vent Holes (2 Vents)																			
	Steel plate, 3/8"	Quoted from Den Co	\$18.50	SF					34						SF		34	SF	\$629.00
	Welding structural steel in field, single pass	05 05 21 90 1610	\$19.10	LF	34										LF		34	LF	\$649.40
	Reinforcing Steel, in place, slab on grade, #3 to #7	03 21 10 60 0602	\$1.03	LBS							200				LBS		200	LBS	\$206.00
	Concrete, ready mix, normal weight, 4000 PSI	03 31 05 35 0300	\$97.00	CY						38					CY		38	CY	\$3,686.00
	Excavating, bulk bank measure, 3.5 CY, hydraulic excavator, crawler mounted	31 23 16 42 0305	\$1.56	BCY						85					BCY	1.2	102	LCY	\$159.12
	Subtotal																		\$5,329.52
	Total																		\$35,143.09

BCY - bank cubic yard
 CY - cubic yard
 HP - horsepower
 LCY - loose cubic yard
 MPH - miles per hour



PROJECT: Daneros Mine Rec. Cost. Est.
 CLIENT: Energy Fuels

COMPUTED BY: RE
2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: DEMO-DPS

Description: Assumptions and calculations for demolition in support of the reclamation bond for the Daneros Mine - Daneros Portal Site.

Assumed Material Properties

Soil Bulking factor:	1.2	<i>Conversion from BCY to LCY</i>
Soil Compaction Factor:	1.1	<i>Conversion from BCY to ECY</i>
Soil Compaction Factor:	0.9	<i>Conversion from LCY to ECY</i>

BCY - bank cubic yard - in place volume prior to excavation
 LCY - loose cubic yards - volume after excavation
 ECY - embankment cubic yards (aka compacted cubic yards) - volume after compaction

Demo Culvert

Assumptions

- Assume culvert by office will be removed and not replaced
- Assume demolished inert material can be buried in development rock area
- Assume a trapezoidal volume for the excavation of the culverts
- Assume 3 culverts under county road will remain

Calculations

Number of culverts	1 EA	<i>Estimated from pdf drawing</i>
Estimated length of culvert	100 FT	<i>Estimated from pdf drawing</i>
Inside diameter of culvert	24 IN	
Cost per foot of removal \$	38	<i>RS Means without material costs</i>
		<i>33 42 16 15 3140</i>
Total feet of culvert to be removed	100	

Remove and Dismantle Office

Assumptions

- Assume building will be dismantled
- Assume 3 rolloff Containers will be filled with material not allowed to be placed in the DRA.
- Assume each rolloff costs \$1000 to fill and haul to landfill in Blanding.

Calculations

Estimated Width of the building	10 FT	<i>Estimated from pdf drawing</i>
Estimated length of the building	40 FT	<i>Estimated from pdf drawing</i>
Estimated area of the building	400 SF	
	45 SY	

Remove and Dismantle Shop

Assumptions

- Assume building will be dismantled

Calculations

Estimated Width of the building	30 FT	<i>Estimated from pdf drawing</i>
Estimated length of the building	50 FT	<i>Estimated from pdf drawing</i>
Estimated area of the building	1500 SF	
	167 SY	



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Description: Assumptions and calculations for demolition in support of the reclamation bond for the Daneros Mine - Daneros Portal Site.

Remove and Dismantal Storage Shed

Assumptions

- Assume building will be dismantled

Calculations

Estimated Width of the building	10 FT	<i>Estimated from pdf drawing</i>
Estimated length of the building	20 FT	<i>Estimated from pdf drawing</i>
Estimated area of the building	200 SF	
	23 SY	

Removal of Above Ground Tanks

Assumptions

- Assume tanks will be removed

Calculations

Number of 6,000 gallon fuel tanks	2 EA	<i>Estimated from pdf drawing</i>
Number of 2,500 gallon brine tanks	1 EA	<i>Estimated from pdf drawing</i>
Number of propane tanks	2 EA	<i>Estimated from pdf drawing</i>

Removal of Generators and Compressors

Calculations

Number of Compressors	2 EA	<i>Estimated from pdf drawing</i>
Number of Generators	2 EA	<i>Estimated from pdf drawing</i>

Water Well Abandonment

Assumptions

- Assume well will be abandoned by being filled with concrete.

Calculations

Number of wells:	1 EA
Diameter of the well:	7 IN
Diameter of the well:	0.58 FT
Depth of the well:	1660 FT
Volume:	439 CF
Volume:	17.0 CY



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Description: Assumptions and calculations for demolition in support of the reclamation bond for the Daneros Mine - Daneros Portal Site.

Vent Hole Abandonment

Assumptions

- Assume vent hole has a diameter of 7 feet and is 440 feet deep.
- Assume the vent is cased and does not require full backfill.
- Assume concrete collar and backfill extends 1 foot from outside of vent hole.
- Assume concrete collar will have a reinforcement density of 100 pounds per cubic yard.
- Assume soil backfill over concrete collar has a depth of 4 feet.

Calculations

Number of vent holes 2 EA

Vent hole diameter 7 FT

Vent hole depth 440 FT

Steel plate 80 SF

Weld steel plate 22 LF

Concrete collar thickness 6 IN

0.5 FT

Concrete collar extent beyond vent hole 1 FT

Concrete collar diameter 9 FT

Concrete collar volume per vent hole 40 CF

2 CY *Rounded up to nearest whole number.*

Reinforcement density 100 LBS/CY

Reinforcement per vent hole 200 LBS

Backfill depth 4 FT

Backfill diameter 12 FT

Backfill volume per vent hole 452 CF

17 ECY

17 BCY

19 LCY

Steel plate **160 SF**

Weld steel plate **44 LF**

Concrete **4 CY**

Reinforcement **400 LBS**

Total backfill **34 ECY**

34 BCY

38 LCY

Daneros Portal Site Description	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Labor Hourly Wage Rate	Hourly Cost	Total Eq. & Lab. Costs	Units	Material Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost**
Place Excess Ore into Portal																		
2 yd. LHD placing ore into underground workings	\$76.00	\$55.00	\$144	N/A	\$71.75	N/A	\$0.00	\$215.85	\$/HR	\$0.00	N/A	1,072	LCY	50	LCY/HR	N/A	N/A	\$4,674.57
Subtotal																		\$4,675
Seal Portal with Development Rock (10'x10'x30' deep)																		
2 yd. LHD	\$76.00	\$55.00	\$144	N/A	\$71.75	N/A	\$0.00	\$215.85	\$/HR	\$0.00	N/A	187	LCY	50	LCY/HR	N/A	N/A	\$815.44
Subtotal																		\$815
Grade Rock Pile																		
Dozing material (D-7), 100' push	\$110.00	\$55.00	\$182	N/A	\$71.75	N/A	\$0.00	\$253.25	\$/HR	\$0.00	N/A	3,960	LCY	390	LCY/HR	N/A	N/A	\$2,571.47
Subtotal																		\$2,571
Grade Development Berm																		
Dozing material (D-7), 100' push	\$110.00	\$55.00	\$182	N/A	\$71.75	N/A	\$0.00	\$253.25	\$/HR	\$0.00	N/A	464	LCY	390	LCY/HR	N/A	N/A	\$301.31
Subtotal																		\$301
Subsurface Ripping																		
Subsurface Ripping (D-7)	\$110.00	\$55.00	\$182	N/A	\$71.75	N/A	\$0.00	\$253.25	\$/HR	\$0.00	N/A	5,105	LCY	250	LCY/HR	N/A	N/A	\$5,170.95
Subtotal																		\$5,171
Total																		\$13,533.74

* Hourly rates include overhead and profit

N/A - information not available

LCY - loose cubic yard

HR - hour

LHD Rental Cost 76

LHD fuel cost per hour 20

Dozer (D-7) Rental Cost 110

Fuel Cost Per Hour 28

Maintenance Cost Per Hour 35

Operator Fully Burdened Hourly Rate 71.75



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

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 WRKSHT NO.: EARTH-DPS

Description: Earthwork calculations in support of the reclamation bond for the Daneros Portal Site

Assumed Material Properties for Development Rock Material

Soil Bulking factor:	1.2	<i>Conversion from BCY to LCY</i>
Soil Compaction Factor:	1.1	<i>Conversion from BCY to ECY</i>
Soil Compaction Factor:	0.9	<i>Conversion from LCY to ECY</i>

BCY - bank cubic yard - in place volume prior to excavation

LCY - loose cubic yards - volume after excavation

ECY - embankment cubic yards (aka compacted cubic yards) - volume after compaction

Place Excess Ore Back Into Portal

Assumptions

- Assume 300 tons per day generated at site.
- Assume ore is stockpiled for 5 days.
- Assume density of ore is 1.4 tons/cy.

Calculations

Ore Generated Per Day	300 tons	<i>Energy fuels Operations Data</i>
Number of Days Stockpiled	5 days	<i>Energy fuels Operations Data</i>
Total Quantity of Ore Stockpiled on Site	1500 tons	
Assumed Density of Ore	1.4 tons/CY	<i>pg 27-4 CAT Handbook, Edition 36</i>
Total Volume of Ore Placed Back into Portal	1,072 CY	

Seal Portal with Development Rock

Assumptions

- Assume portal adit is 10 feet high by 10 feet wide.
- Assume seal will extend 30 feet into the portal adit.
- Assume outside seal will be sloped at 2H:1V

Calculations

Portal Height	10 FT	
Portal Width	10 FT	
Depth of Seal into Portal	30 FT	<i>Reclamation Plan</i>
Volume of Develop Rock to Seal Inner Portion	3000 CF	
	112 CY	
Slope of Outer Seal	2 :1	<i>Reclamation Plan</i>
2H:1V Outer Seal Slope Length	20 FT	
Front Slope Seal Volume	1000 CF	<i>Triangular Wedge</i>
Side Slope Seal Volume	1000 CF	<i>Half Triangular Wedge by 2 sides</i>
Volume of Develop Rock to Seal Outer Portion	2000 CF	
	75 CY	
Total Volume of Development Rock to Seal Portal	187 CY	



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

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 WRKSHT NO.: EARTH-DPS

Description: Earthwork calculations in support of the reclamation bond for the Daneros Portal Site

Grade Development Rock Pile

Assumptions

- Material will be pushed with a dozer to rough grade
- No fine grading of surface will be conducted

Calculations

Reclamation re-grade volume	3,300	BCY	Based on CADD volume determination
Reclamation re-grade volume	3,960	LCY	Rounded up to nearest whole number

Dozer (D-7) Productivity Determination - 300' Push Distance

Hours per Shift, HR:	8	
Work Efficiency, %:	0.83	Assumes 50 minutes/hour
Slot Dozing Correction Factor:	1.20	
Visibility Correction Factor:	1.0	
Weight Correction Factor:	0.87	
Average Dozing Distance, FT:	300	

Work Efficiency	%	83%	
Operator Type		Average	
Operator Ability Correction Factor	Factor	0.75	
Grade		3 H:1V	
	% Slope	33%	
Grade Factor		1.6	Chart pg 1-45 CAT Handbook, Edition 31
Material Type		Rock	
Material Correction Factor	Factor	0.6	
Slot Dozing Correction Factor	Factor	1.20	
Visibility Correction Factor	Factor	1.0	
Weight Correction Factor	Factor	0.87	
Combined Prod. Correction Factor	Factor	0.63	
Ideal Dozer Productivity	LCY/HR	300.0	Chart on pg 1-42 CAT Handbook, Edition 31
Adjusted Dozer Productivity	LCY/HR	189.0	

Grade Mine Yard Perimeter Berms

Assumptions

- Material will be pushed with a dozer to rough grade
- No fine grading of surface will be conducted

Shape:	Triangular	
Side slopes:	1 :1	
Finished Channel Height:	2 FT	
Bottom width:	4 FT	
Estimated length of berms	1300 FT	
Volume of excavation:	10400 CF	
	386 BCY	Rounded up to nearest whole number
	464 LCY	Rounded up to nearest whole number

Subsurface Ripping

Assumptions

- The entire mine yard will be ripped to a depth of 12" to encourage vegetation root development
- Approximately 20% of the Development Rock Area will be ripped as it will have just recently been graded.

Mine Yard Area	2.73	AC	
20% of DRA Area	0.43	AC	
Ripping Depth	12	inches	
Ripping Volume	5,105	BCY	
D-7 Ripping Productivity	250	BCY/Hr	No chart in Cat handbook for D-7. Used lowest value for D-8

Daneros Portal Site Description	Hourly Rental Costs	Hourly O & M Costs	Operator Hourly Cost	Total Eq. & Lab. Costs	Units	Material Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Remove Stockpiled Inert Material and Spread														
966 Removing and Staging Inert Material	\$76	\$55	\$72	\$203	\$/HR	\$0.00	N/A	1,750	LCY	124	LCY/HR	N/A	N/A	\$2,868
D-7 Dozer Spreading Inert Material	\$110	\$63	\$72	\$245	\$/HR	\$0.00	N/A	1,750	LCY	520	LCY/HR	N/A	N/A	\$824
Subtotal														\$3,692
Remove Stockpiled Topsoil and Spread														
966 Removing and Staging Topsoil	\$76	\$55	\$72	\$203	\$/HR	\$0.00	N/A	5,703	LCY	124	LCY/HR	N/A	N/A	\$9,344
D-7 Dozer Spreading Topsoil	\$110	\$63	\$72	\$245	\$/HR	\$0.00	N/A	5,703	LCY	520	LCY/HR	N/A	N/A	\$2,684
Subtotal														\$12,028
Seeding														
Seeding, 0.45 pounds per MSF, tractor spreader	RS Means	32 92 19 14 0500				\$25.50	\$/MSF	345	MSF			N/A	N/A	\$8,798
Subtotal														\$8,798
Total														\$24,518

* Hourly rates include overhead and profit

N/A - information not available

LCY - loose cubic yard

HR - hour

Loader Rental Cost \$ 76

Loader fuel cost per hour \$ 20

Dozer (D-7) Rental Cost \$ 110

Fuel Cost Per Hour \$ 28

Maintenance Cost Per Hour \$ 35

Operator Fully Burdened Hourly Rate \$ 72



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 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

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 WRKSHT NO.: REVEG-DPS

Description: Calculations in support of the reclamation bond for the Daneros Mine - Daneros Portal Site.

Assumed Material Properties

Soil Bulking factor: 1.2 *Conversion from BCY to LCY*
 Soil Compaction Factor: 1.1 *Conversion from BCY to ECY*
 Soil Compaction Factor: 0.9 *Conversion from LCY to ECY*

BCY - bank cubic yard - in place volume prior to excavation
 LCY - loose cubic yards - volume after excavation
 ECY - embankment cubic yards (aka compacted cubic yards) - volume after compaction

Remove Stockpiled Inert Material and Spread

Assumptions

- Material will be moved and staged with a wheeled loader
- Material will be spread with a dozer to rough grade over the DRA.
- The same productivity assumptions apply for the inert material as for the topsoil.

Calculations

Estimated area of development rock area 2.17 AC *Based on CADD*
 Assume 6 inch thickness spread 0.5 FT *Assumption*
 Volume 47,263 BCF
 Volume 1,750 BCY

Remove Stockpiled Topsoil and Spread

Assumptions

- Material will be moved and staged with a wheeled loader
- Material will be spread with a dozer to rough grade.
- Assumed distribution of topsoil windrow along roads will be spread while ripping.

Wheel Loader (966) Productivity Determination -Topsoil Removal and Staging

Hours per Shift, HR: 8
 Work Efficiency, %: 0.83 *Assumes 50 minutes/hour*
 Average Distance, FT: 400

Operator Type *Average*
 Operator Ability Correction Factor Factor 0.75

% Slope 0% *The majority of the topsoiled area is relatively flat. The topsoil for the Development Rock Area will be spread from the top and bottom.*

Grade Factor 1.0
 Material Type *Loose*
 Material Correction Factor Factor 1.2
 Visibility Correction Factor Factor 1.0
 Weight Correction Factor Factor 0.87
 Combined Prod. Correction Factor Factor 0.65
 Bucket Capacity (C.Y) 5.00
 Cycle Time (min) 1.58
 Ideal Loader Productivity LCY/HR 190.4
 Adjusted Loader Productivity LCY/HR 123.8



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Description: Calculations in support of the reclamation bond for the Daneros Mine - Daneros Portal Site.

Dozer (D-7) Productivity Determination - Topsoil Spreading - 50' Push Distance

Hours per Shift, HR:	8	
Work Efficiency, %:	0.83	Assumes 50 minutes/hour
Slot Dozing Correction Factor:	1.00	
Visibility Correction Factor:	1.0	
Weight Correction Factor:	0.87	
Average Dozing Distance, FT:	50	
Work Efficiency	%	83%
Operator Type		Average
Operator Ability Correction Factor	Factor	0.75
	% Slope	0%
Grade Factor		1.0 <i>Chart pg 1-45 CAT Handbook, Edition 31</i>
Material Type		Loose
Material Correction Factor	Factor	1.2
Slot Dozing Correction Factor	Factor	1.00
Visibility Correction Factor	Factor	1.0
Weight Correction Factor	Factor	0.87
Combined Prod. Correction Factor	Factor	0.65
Ideal Dozer Productivity	LCY/HR	800.0 <i>Chart on pg 1-42 CAT Handbook, Edition 31</i>
Adjusted Dozer Productivity	LCY/HR	520.0

Portions of the topsoiled area are relatively flat. The topsoil for the Development Rock Area will be spread from the top and bottom.

Calculations

- Assumes 12" of topsoil over DRA and ~ 6" over remainder of Mine Yard

Soil stockpile volume	4,753 BCY
Haul and spreading volume	5,703 LCY

Seed

Assumptions

- Assumes surface of topsoil layer will be scarified during seeding
- Assumes broadcast with native seed will be applied over topsoil
- Assumes vent shaft disturbance is 0.25 acres each.
- Assumes access road disturbed areas for each vent shaft is approximately 1.25 acres.

Calculations

Estimated disturbed area of vents	0.5	
Estimated disturbed area of access roads	2.5	
Estimated area of development rock area for grading	2.17 AC	<i>Based on CADD</i>
Estimated area of mine yard for grading	2.73 AC	<i>Remaining area</i>
	38,236 SY	<i>Rounded up to nearest whole number</i>
	345 MSF	<i>Rounded up to nearest whole number</i>

Phase 2 Summary
Bonding Calculations

Direct Costs

Subtotal Demolition and Removal	\$64,020
Subtotal Backfilling and Grading	\$31,090
Subtotal Revegetation	\$65,798
Subtotal Direct Costs	\$160,908

Indirect Costs

Mob/Demob	\$16,091	10.0%
Contingency	\$8,045	5.0%
Engineering Redesign	\$4,023	2.5%
Main Office Expense	\$10,942	6.8%
Project Management Fee	\$4,023	2.5%
Subtotal	\$43,123	

Total Cost 2012 \$204,031

Escalation (0.5% every year for 3 years) \$3,076

Reclamation Cost Escalated \$207,107

Bond Amount (rounded to nearest \$1,000) \$208,000

Notes:

The Phase 2 bond estimate includes the disturbance at the Daneros and Bullseye Portal Areas and 5 vents

Ref.	Description	Means Costworks 2012 Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
	Bullseye Portal site																			
Remove 6 - 48" Culverts																				
	Remove Culverts	33 42 16 15 3140	\$38.00	LF	240										LF		240	LF	\$9,120.00	
	Subtotal																			\$9,120.00
Sediment Pond - Excavation																				
	Excavating, bulk bank measure, 3.5 CY, hydraulic excavator, crawler mounted	31 23 16 42 0305	\$1.56	BCY						428					BCY	1	428	BCY	\$667.68	
	Dozing material, 300' haul	31 23 16 32 3450	\$5.35	BCY						428					BCY	1	428	BCY	\$2,289.80	
	Subtotal																			\$2,957.48
Removal of Tanks																				
	Removal of 6,000 gal fuel tank	13 05 05 75 0530	\$1,550	EA											1 EA		1	EA	\$1,550.00	
	Removal of 2,500 gal water tank	13 05 05 75 0530	\$1,550	EA											2 EA		2	EA	\$3,100.00	
	Subtotal																			\$4,650.00
Removal of Generators/Compressors																				
	Compressor Removal	11 05 05 10 1410	\$171	EA											1 EA		1	EA	\$171.00	
	Generator Removal, 150 kW	26 05 05 25 2100	\$2,150	EA											1 EA		1	EA	\$2,150.00	
	Subtotal																			\$2,321.00
Abandon Vent Holes (3 vents)																				
	Steel plate, 3/8"	Quoted from Den Co	\$18.50	SF					360						SF		360	SF	\$6,660.00	
	Welding structural steel in field, single pass	05 05 21 90 1610	\$19.10	LF	66										LF		66	LF	\$1,260.60	
	Reinforcing Steel, in place, slab on grade, #3 to #7	03 21 10 60 0602	\$1.03	LBS							900				LBS		900	LBS	\$927.00	
	Concrete, ready mix, normal weight, 4000 PSI	03 31 05 35 0300	\$97.00	CY						9					CY		9	CY	\$873.00	
	Excavating, bulk bank measure, 3.5 CY, hydraulic excavator, crawler mounted	31 23 16 42 0305	\$1.56	LCY						57					LCY	1.2	69	LCY	\$107.64	
	Subtotal																			\$9,828.24
Total																			\$28,876.72	

BCY - bank cubic yard
 CY - cubic yard
 HP - horsepower
 LCY - loose cubic yard
 MPH - miles per hour



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: DEMO-BPS

Description: Calculations for demolition in support of the reclamation bond for the Daneros Mine - Bullseye Portal Site

Assumed Material Properties

Soil Bulking factor:	1.2	<i>Conversion from BCY to LCY</i>
Soil Compaction Factor:	1.1	<i>Conversion from BCY to ECY</i>
Soil Compaction Factor:	0.9	<i>Conversion from LCY to ECY</i>
BCY - bank cubic yard - in place volume prior to excavation		
LCY - loose cubic yards - volume after excavation		
ECY - embankment cubic yards (aka compacted cubic yards) - volume after compaction		

Demo Culvert

Assumptions

- Assume 6 culverts will be removed and not replaced
- Assume demolished material can be placed on development rock area
- Assume a trapezoidal volume for the excavation of the culverts

Calculations

Estimated length of culvert	40 FT	<i>Estimated from pdf drawing</i>
Number of culverts	6 EA	
Inside diameter of culvert	48 IN	
Cost per foot of removal \$	38	<i>RS Means without material costs</i>
		<i>33 42 16 15 3140</i>
Total feet of culvert to be removed	240	

Sediment Excavation Pond

Assumptions

- Excavated material will be placed at the development rock area

Length	80 FT	<i>Estimated from pdf drawing</i>
Width	80 FT	<i>Estimated from pdf drawing</i>
Depth of Excavation	1 FT	
Volume of excavation:	6,400 CF	
	238 BCY	<i>Rounded up to nearest whole number</i>
Length	71 FT	<i>Estimated from pdf drawing</i>
Width	72 FT	<i>Estimated from pdf drawing</i>
Depth of Excavation	1 FT	
Volume of excavation:	5,112 CF	
	190 BCY	<i>Rounded up to nearest whole number</i>
Total volume of excavation:	428 BCY	



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: DEMO-BPS

Description: Calculations for demolition in support of the reclamation bond for the Daneros Mine - Bullseye Portal Site

Vent Hole Abandonment

Assumptions

- Assume vent hole has a diameter of 7 feet and is 440 feet deep.
- Assume the vents are cased and do not require full backfill.
- Assume concrete collar and backfill extends 1 foot from outside of vent hole.
- Assume concrete collar will have a reinforcement density of 100 pounds per cubic yard.
- Assume backfill over concrete collar has a depth of 4 feet.

Calculations

Number of vent holes	3 EA	
Vent hole diameter	7 FT	
Vent hole depth	440 FT	
Steel plate	120 SF	
Weld steel plate	22 LF	
Concrete collar thickness	6 IN	
	0.5 FT	
Concrete collar extent beyond vent hole	1 FT	
Concrete collar diameter	9 FT	
Concrete collar volume per vent hole	60 CF	
	3 CY	<i>Rounded up to nearest whole number.</i>
Reinforcement density	100 LBS/CY	
Reinforcement per vent hole	300 LBS	
Backfill depth	4 FT	
Backfill diameter	12 FT	
Backfill volume per vent hole	452 CF	
	17 ECY	
	17 BCY	
	19 LCY	
Steel plate	360 SF	
Weld steel plate	66 LF	
Concrete	9 CY	
Reinforcement	900 LBS	
Total backfill	51 ECY	
	51 BCY	
	57 LCY	

Removal of Above Ground Tanks

Assumptions

- Assume tanks will be removed

Calculations

Number of 6,000 gallon fuel tanks	1 EA	<i>Estimated from pdf drawing</i>
Number of 2,500 gallon water tanks	2 EA	<i>Estimated from pdf drawing</i>

Removal of Generators and Compressors

Calculations

Number of Generators	1 EA	<i>Estimated from pdf drawing</i>
Number of Compressors	1 EA	<i>Estimated from pdf drawing</i>

Bullseye Portal Site Description	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Labor Hourly Wage Rate	Hourly Cost	Total Eq. & Lab. Costs	Units	Material Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Place Excess Ore into Portal																		
2 yd. LHD placing ore into underground workings	\$76.00	\$55.00	\$144	N/A	\$71.75	N/A	\$0.00	\$215.85	\$/HR	\$0.00	N/A	1,072	LCY	50	LCY/HR	N/A	N/A	\$4,674.57
Subtotal																		\$4,674.57
Seal Portal with Development Rock (10'x10'x25' deep)																		
2 yd. LHD	\$76.00	\$55.00	\$144	N/A	\$71.75	N/A	\$0.00	\$215.85	\$/HR	\$0.00	N/A	187	LCY	50	LCY/HR	N/A	N/A	\$815.44
Subtotal																		\$815.44
Grade Rock Pile																		
Dozing Material (D-7), 100' push	\$110.00	\$63.00	\$190	N/A	\$71.75	N/A	\$0.00	\$262.05	\$/HR	\$0.00	N/A	2,000	LCY	390	LCY/HR	N/A	N/A	\$1,343.85
Subtotal																		\$1,344
Grade Development Berm																		
Dozing Material (D-7), 100' push	\$110.00	\$63.00	\$190	N/A	\$71.75	N/A	\$0.00	\$262.05	\$/HR	\$0.00	N/A	605	LCY	390	LCY/HR	N/A	N/A	\$406.52
Subtotal																		\$406.52
Subsurface Ripping																		
Subsurface Ripping (D-7)	\$110.00	\$63.00	\$190	N/A	\$71.75	N/A	\$0.00	\$262.05	\$/HR	\$0.00	N/A	9,841	BCY	250	BCY/HR	N/A	N/A	\$10,315.69
Subtotal																		\$10,315.69
Total																		\$17,556.07

* Hourly rates include overhead and profit

N/A - information not available

LCY - loose cubic yard

HR - hour

LHD Rental Cost 76

LHD fuel cost per hour 20

Dozer (D-7) Rental Cost 110

Fuel Cost Per Hour 28

Maintenance Cost Per Hour 35

Operator Fully Burdened Hourly Rate 71.75



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: EARTH-BPS

Description: Earthwork calculations in support of the reclamation bond for the Bullseye Portal Site - east, west and south side of the disturbed boundary.

Assumed Material Properties for Development Rock Material

Soil Bulking factor:	1.2	<i>Conversion from BCY to LCY</i>
Soil Compaction Factor:	1.1	<i>Conversion from BCY to ECY</i>
Soil Compaction Factor:	0.9	<i>Conversion from LCY to ECY</i>

BCY - bank cubic yard - in place volume prior to excavation
 LCY - loose cubic yards - volume after excavation
 ECY - embankment cubic yards (aka compacted cubic yards) - volume after compaction

Place Excess Ore Back Into Portal

Assumptions

- Assume 300 tons per day generated at site.
- Assume ore is stockpiled for 5 days.
- Assume density of ore is 1.4 tons/cy.

Calculations

Ore Generated Per Day	300 tons	<i>Energy Fuels Operations Data</i>
Number of Days Stockpiled	5 days	<i>Energy Fuels Operations Data</i>
Total Quantity of Ore Stockpiled on Site	1500 tons	
Assumed Density of Ore	1.4 tons/CY	<i>pg 27-4 CAT Handbook, Edition 36</i>
Total Volume of Ore Place Back into Portal	1,072 CY	

Seal Portal with Development Rock

Assumptions

- Assume portal adit is 10 feet high by 10 feet wide.
- Assume seal will extend 30 feet into the portal adit.
- Assume outside seal will be sloped at 2H:1V

Calculations

Portal Height	10 FT	<i>Field Data</i>
Portal Width	10 FT	<i>Field Data</i>
Depth of Seal into Portal	30 FT	<i>Reclamation Plan</i>
Volume of Develop Rock to Seal Inner Portion	3000 CF	
	112 CY	
Slope of Outer Seal	2 :1	<i>Reclamation Plan</i>
2H:1V Outer Seal Slope Length	20 FT	
Front Slope Seal Volume	1000 CF	<i>Triangular Wedge</i>
Side Slope Seal Volume	1000 CF	<i>Half Triangular Wedge by 2 sides</i>
Volume of Develop Rock to Seal Outer Portion	2000 CF	
	75 CY	
Total Volume of Development Rock to Seal Portal	187 CY	



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: EARTH-BPS

Description: Earthwork calculations in support of the reclamation bond for the Bullseye Portal Site - east, west and south side of the disturbed boundary.

Grade Development Rock Pile

Assumptions

- Material will be pushed with a dozer to rough grade
- No fine grading of surface will be conducted

Dozer (D-7) Productivity Determination - 100' Push Distance

Hours per Shift, HR:	8	
Work Efficiency, %:	0.83	Assumes 50 minutes/hour
Slot Dozing Correction Factor:	1.00	
Visibility Correction Factor:	1.0	
Weight Correction Factor:	0.87	
Average Dozing Distance, FT:	100	
Work Efficiency	%	83%
Operator Type		Average
Operator Ability Correction Factor	Factor	0.75
	% Slope	0%
Grade Factor		1.0
		Portions of the topsoiled area are relatively flat. The topsoil Chart pg 1-45 CAT Handbook, Edition 31
Material Type		Loose
Material Correction Factor	Factor	1.2
Slot Dozing Correction Factor	Factor	1.00
Visibility Correction Factor	Factor	1.0
Weight Correction Factor	Factor	0.87
Combined Prod. Correction Factor	Factor	0.65
Ideal Dozer Productivity	LCY/HR	600
		Chart on pg 1-42 CAT Handbook, Edition 31
Adjusted Dozer Productivity	LCY/HR	390.0

Calculations

Reclamation re-grade volume	2,000 BCY	Estimated grading needed at the final year of mining. No swell is anticipated as the material was just placed there.
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Grade Site Berms

Assumptions

- Material will be pushed with a dozer to rough grade
- No fine grading of surface will be conducted
- The same dozer productive will be used as for grading the Development Rock Pile.

Shape:	Triangular	
Side slopes:	1 :1	
Finished Berm Height:	2 FT	
Bottom width:	4 FT	
Estimated length of berms	1,700 FT	
Volume of excavation:	13,600 CF	
	504 BCY	Rounded up to nearest whole number
	605 LCY	Rounded up to nearest whole number

Subsurface Ripping

Assumptions

- The entire mine yard will be ripped to a depth of 12" to encourage vegetation root development
- Approximately 20% of the Development Rock Area will be ripped as it will have just recently been graded.

Mine Yard Area	5.60 AC	
20% of DRA Area	0.5 AC	
Ripping Depth	12 inches	
Ripping Volume	9,841 BCY	
D-7 Ripping Productivity	250 BCY/Hr	No chart in Cat handbook for D-7. Used lowest value for D-8

Bullseye Portal Site Description	Hourly Rental Costs	Hourly O & M Costs	Operator Hourly Cost	Total Eq. & Lab. Costs	Units	Material Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Remove Stockpiled Inert Material and Spread														
966 Removing and Staging Inert Material	\$76	\$55	\$ 72	\$203	\$/HR	\$0.00	N/A	2,017	LCY	96	LCY/HR	N/A	N/A	\$4,257
D-7 Dozer Spreading Inert Material	\$110	\$63	\$ 72	\$245	\$/HR	\$0.00	N/A	2,017	LCY	520	LCY/HR	N/A	N/A	\$949
Subtotal														\$5,206
Remove Stockpiled Topsoil and Spread														
966 Removing and Staging Topsoil	\$76	\$55	\$ 72	\$203	\$/HR	\$0.00	N/A	8,551	LCY	96	LCY/HR	N/A	N/A	\$18,050
D-7 Dozer Spreading Topsoil	\$110	\$63	\$ 72	\$245	\$/HR	\$0.00	N/A	8,551	LCY	520	LCY/HR	N/A	N/A	\$4,025
Subtotal														\$22,075
Seeding														
Seeding, 0.45 pounds per MSF, Broadcast	RS Means	32 92 19 14 0500				\$25.50	\$/MSF	549	MSF			N/A	N/A	\$14,000
Subtotal														\$14,000
Total														\$41,281

* Hourly rates include overhead and profit

N/A - information not available

LCY - loose cubic yard

HR - hour

Loader Rental Cost \$ 76

Loader fuel cost per hour \$ 20

Dozer (D-7) Rental Cost \$ 110

Fuel Cost Per Hour \$ 28

Maintenance Cost Per Hour \$ 35

Operator Fully Burdened Hourly Rate \$ 72



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: REVEG-BPS

Description: Calculations in support of the reclamation bond for the Daneros Mine - Bullseye Portal Site.

Assumed Material Properties

Soil Bulking factor:	1.2	Conversion from BCY to LCY
Soil Compaction Factor:	1.1	Conversion from BCY to ECY
Soil Compaction Factor:	0.9	Conversion from LCY to ECY

BCY - bank cubic yard - in place volume prior to excavation
 LCY - loose cubic yards - volume after excavation
 ECY - embankment cubic yards (aka compacted cubic yards) - volume after compaction

Remove Stockpiled Inert Material and Spread

Assumptions

- Material will be moved and staged with a wheeled loader
- Material will be spread with a dozer to rough grade.
- The same productivity assumptions will be used as for the topsoil handling.

Calculations

Estimated area of development rock area	2.5 AC	Based on CADD
Assume 6 inch thickness spread	0.5 FT	Assumption
Volume	54,450 BCF	
Volume	2,017 BCY	

Remove Stockpiled Topsoil and Spread

Assumptions

- Material will be moved and staged with a wheel loader
- Material will be spread with a dozer to rough grade.
- Assumed distribution of topsoil windrow along roads will be spread while ripping.

Wheel Loader (966) Productivity Determination -Topsoil Removal and Staging

Hours per Shift, HR:	8	
Work Efficiency, %:	0.83	Assumes 50 minutes/hour
Average Distance, FT:	600	
Operator Type		Average
Operator Ability Correction Factor	Factor	0.75
	% Slope	0%
		The majority of the topsoiled area is relatively flat. The
Grade Factor		1.0
Material Type		Loose
Material Correction Factor	Factor	1.2
Visibility Correction Factor	Factor	1.0
Weight Correction Factor	Factor	0.87
Combined Prod. Correction Factor	Factor	0.65
Bucket Capacity (C.Y)		5.00
Cycle Time (min)		2.03
Ideal Loader Productivity	LCY/HR	147.8
Adjusted Loader Productivity	LCY/HR	96.0



PROJECT: Daneros Mine Rec. Cost. Est. COMPUTED BY: RE CHECKED BY: FF
 JOB NO.: 0 DATE: 2/25/2013 DATE CHECKED: 2/25/2013
 CLIENT: Energy Fuels WRKSHT NO.: REVEG-BPS

Description: Calculations in support of the reclamation bond for the Daneros Mine - Bullseye Portal Site.

Dozer (D-7) Productivity Determination - Topsoil Spreading - 50' Push Distance

Hours per Shift, HR:	8	
Work Efficiency, %:	0.83	Assumes 50 minutes/hour
Slot Dozing Correction Factor:	1.00	
Visibility Correction Factor:	1.0	
Weight Correction Factor:	0.87	
Average Dozing Distance, FT:	50	
Work Efficiency	%	83%
Operator Type		Average
Grade Factor	1.0	Chart pg 1-45 CAT Handbook, Edition 31
Material Type		Loose
Material Correction Factor	Factor	1.2
Slot Dozing Correction Factor	Factor	1.00
Visibility Correction Factor	Factor	1.0
Weight Correction Factor	Factor	0.87
Combined Prod. Correction Factor	Factor	0.65
Ideal Dozer Productivity	LCY/HR	800.0 Chart on pg 1-42 CAT Handbook, Edition 31
Adjusted Dozer Productivity	LCY/HR	520.0

Calculations - Assumes 12" of topsoil over DRA and ~ 6" over remainder of Mine Yard

Soil stockpile volume	7,126 BCY
Haul and spreading volume	8,551 LCY

Seed

Assumptions

- Assumes surface of topsoil layer will be scarified during seeding
- Assumes broadcast with native seed will be applied over topsoil
- Assumes vent shaft disturbance is 0.25 acres each.

Calculations

Estimated area of development rock area for grading	2.5 AC	Based on CADD
Estimated disturbed area of vents	0.75 AC	
Estimated disturbed area of access roads	3.75 AC	
Estimated area of mine yard for grading	5.60 AC	Remaining area
	60,984 SY	Rounded up to nearest whole number
	549 MSF	Rounded up to nearest whole number

Phase 1 Summary
Bonding Calculations

Direct Costs

Subtotal Demolition and Removal	\$35,143
Subtotal Backfilling and Grading	\$13,534
Subtotal Revegetation	\$24,518
Subtotal Direct Costs	\$73,194

Indirect Costs

Mob/Demob	\$7,319	10.0%
Contingency	\$3,660	5.0%
Engineering Redesign	\$1,830	2.5%
Main Office Expense	\$4,977	6.8%
Project Management Fee	\$1,830	2.5%
Subtotal	\$19,616	

Total Cost 2012 \$92,810

Escalation (0.5% every year for 3 years) \$1,399

Reclamation Cost Escalated \$94,209

Bond Amount (rounded to nearest \$1,000) \$95,000

Posted Bond \$81,120

Difference Between Cost Estimate and Posted Bond -\$13,880.00

Percent Difference -17.1%

Notes:

The Phase 1 bond estimate includes the disturbance at the Daneros Portal Area and 2 vents

Ref.	Description	Means Costworks 2012 Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
Sediment Pond - Excavation																			
	Excavating, bulk bank measure, 3.5 CY, hydraulic excavator, crawler mounted	31 23 16 42 0305	\$1.56	BCY						693					BCY	1	693	BCY	\$1,081.08
	Dozing material, 300' haul	31 23 16 32 3450	\$5.35	BCY						693					BCY	1.2	832	LCY	\$4,451.20
	Subtotal																		\$5,532.28
Removal and Dismantle of Warehouse/Shop Building																			
	Selective Demo, pre-engineered steel bldg	13 05 05 50 0550	\$1.83	SF					1250						SF		1250	SF	\$2,287.50
	Subtotal																		\$2,287.50
Removal and Dismantle of Office																			
	Selective Demo, pre-engineered steel bldg	13 05 05 50 0550	\$1.83	SF					200						SF		200	SF	\$366.00
	Removal of debris to landfill in rolloff container	Estimated	\$3,000.00	EA													3	EA	\$9,000.00
	Subtotal																		\$9,366.00
Removal and Dismantle Storage Shed																			
	Selective Demo, pre-engineered steel bldg	13 05 05 50 0550	\$1.83	SF					200						SF		200	SF	\$366.00
	Subtotal																		\$366.00
Removal of Concrete Slabs																			
	Demolish concrete slab of warehouse/shop building	02 41 13 17 5300	\$19.40	SY					139						SY		139	SY	\$2,696.60
	Demolish concrete slab of office	02 41 13 17 5300	\$19.40	SY					23						SY		23	SY	\$446.20
	Demolish concrete slab of storage shed	02 41 13 17 5300	\$19.40	SY					23						SY		23	SY	\$446.20
	Subtotal																		\$3,589.00
Septic Tank Removal																			
	Septic Tank, Precast, 2,000-2,500 Gal	02 41 13 44 0300	370	EA										1	EA		1	EA	\$370.00
	Distribution Box, Concrete, 7 outlets	02 41 13 44 1500	52	EA										1	EA		1	EA	\$52.00
	Leaching Chamber, Standard	02 41 13 44 1700	244	EA										1	EA		1	EA	\$244.00
	Leaching Pit, 6'-6"x8'	02 41 13 44 2300	455	EA										1	EA		1	EA	\$455.00
	Excavating, bulk bank measure, 3.5 CY, hydraulic excavator, crawler mounted	31 23 16 42 0305	\$1.56	BCY						14					BCY	1	14	BCY	\$21.84
	Dozing material, 300' haul	31 23 16 32 3450	\$5.35	BCY						14					BCY	1.2	17	LCY	\$90.95
	Subtotal																		\$1,233.79
Removal of Tanks																			
	Removal of 6,000 gal fuel tank	13 05 05 75 0530	\$1,550	EA										2	EA		2	EA	\$3,100.00
	Removal of 5,000 gal brine tank	13 05 05 75 0530	\$1,550	EA										1	EA		1	EA	\$1,550.00
	Removal of 5,000 gal water tank	13 05 05 75 0530	\$1,550	EA										2	EA		1	EA	\$1,550.00
	Subtotal																		\$6,200.00
Removal of Generators/Compressors																			
	Compressor Removal	11 05 05 10 1410	\$171	EA										1	EA		1	EA	\$171.00
	Generator Removal, 150 kW	26 05 05 25 2100	\$2,150	EA										2	EA		2	EA	\$4,300.00
	Subtotal																		\$4,471.00
Water Well Abandonment																			
	Mobilization and Demobilization of Drill Rig	02 32 13 10 0300	\$475	EA										2	EA		2	EA	\$950.00
	Drill Rig Crew	Crew B23	\$5,161	DY										1	DY		1	DY	\$5,160.57
	Concrete, ready mix, normal weight, 2000 psi	03 31 05 35 0020	\$87	CY										10	CY		10	CY	\$870.00
	Subtotal																		\$6,980.57
Abandon Vent Holes (5 Vents)																			
	Steel plate, 3/8"	Quoted from Den Co	\$18.50	SF					1000						SF		1000	SF	\$18,500.00
	Welding structural steel in field, single pass	05 05 21 90 1610	\$19.10	LF	1000										LF		1000	LF	\$19,100.00
	Reinforcing Steel, in place, slab on grade, #3 to #7	03 21 10 60 0602	\$1.03	LBS							20				LBS		20	LBS	\$20.60
	Concrete, ready mix, normal weight, 4000 PSI	03 31 05 35 0300	\$97.00	CY						110					CY		110	CY	\$10,670.00
	Excavating, bulk bank measure, 3.5 CY, hydraulic excavator, crawler mounted	31 23 16 42 0305	\$1.56	LCY						57					LCY	1.2	69	LCY	\$107.64
	Subtotal																		\$48,398.24
	Total																		\$88,424.38

BCY - bank cubic yard
 CY - cubic yard
 HP - horsepower
 LCY - loose cubic yard
 MPH - miles per hour



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: DEMO-SPS

Description: Calculations for demolition in support of the reclamation bond for the Daneros Mine - South Portal Site Phase 3

Assumed Material Properties

Soil Bulking factor:	1.2	<i>Conversion from BCY to LCY</i>
Soil Compaction Factor:	1.1	<i>Conversion from BCY to ECY</i>
Soil Compaction Factor:	0.92	<i>Conversion from LCY to ECY</i>
BCY - bank cubic yard - in place volume prior to excavation		
LCY - loose cubic yards - volume after excavation		
ECY - embankment cubic yards (aka compacted cubic yards) - volume after compaction		

Removal of Warehouse/Shop Building

Assumptions

- Assume building will be dismantled

Calculations

Estimated Width of the building	50 FT	<i>Estimated from pdf drawing</i>
Estimated length of the building	25 FT	<i>Estimated from pdf drawing</i>
Estimated area of the building	1,250 SF	
	139 SY	

Remove Office

Assumptions

- Assume building will be dismantled
- Assume 3 rolloff Containers will be filled with material not allowed to be placed in the DRA.
- Assume each rolloff costs \$1000 to fill and haul to landfill in Blanding.

Calculations

Estimated Width of the building	10 FT	<i>Estimated from pdf drawing</i>
Estimated length of the building	20 FT	<i>Estimated from pdf drawing</i>
Estimated area of the building	200 SF	
	23 SY	

Remove Storage Shed

Assumptions

- Assume building will be dismantled

Calculations

Estimated Width of the building	10 FT	<i>Estimated from pdf drawing</i>
Estimated length of the building	20 FT	<i>Estimated from pdf drawing</i>
Estimated area of the building	200 SF	
	23 SY	



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: DEMO-SPS

Description: Calculations for demolition in support of the reclamation bond for the Daneros Mine - South Portal Site Phase 3

Removal of Septic System

Assumptions

- Assume septic tank is 2,000 gal precast tank

Calculations

Assumed excavation length	15 FT
Assumed excavation width	10 FT
Assumed excavation depth	6 FT
Estimated volume of excavation	900 CF
	34 BCY

Assumed tank length	9.7 FT
Assumed tank width	7.6 FT
Assumed tank height	7.08 FT
Estimated volume of excavation	520 CF
	20 BCY

Estimated volume of excavated material **14 BCY**

Septic Tank, Precast, 2,000-2,500 Gal	1 EA
Distribution Box, Concrete, 7 outlets	1 EA
Leaching Chamber, Standard	1 EA
Leaching Pit, 6'-6"x8'	1 EA

Sediment Excavation Pond

Assumptions

- Excavated material will be placed at the development rock area

Length	170 FT	<i>Estimated from pdf drawing</i>
Top Width	110 FT	<i>Estimated from pdf drawing</i>
Depth of Excavation	1 FT	
Excavation side slopes:	1 :1	
Volume of excavation:	18,700 CF	
	693 BCY	<i>Rounded up to nearest whole number</i>
	832 LCY	<i>Rounded up to nearest whole number</i>

Removal of Above Ground Tanks

Assumptions

- Assume tanks will be Removed

Calculations

Number of 6,000 gallon fuel tanks	2 EA	<i>Estimated from pdf drawing</i>
Number of 5,000 gallon brine tanks	1 EA	<i>Estimated from pdf drawing</i>
Number of 5,000 gallon water tanks	2 EA	<i>Estimated from pdf drawing</i>

Removal of Generators and Compressors

Calculations

Number of Compressors	1 EA	<i>Estimated from pdf drawing</i>
Number of Generators	2 EA	<i>Estimated from pdf drawing</i>



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: DEMO-SPS

Description: Calculations for demolition in support of the reclamation bond for the Daneros Mine - South Portal Site Phase 3

Water Well Abandonment

Assumptions

- Assume well will be abandoned by being filled with concrete.

Calculations

Number of wells:	1 EA
Diameter of the well:	7 IN
Diameter of the well:	0.58 FT
Depth of the well:	1500 FT
Volume:	396 CF
Volume:	15.0 CY

Vent Hole Abandonment

Assumptions

- Assume vent hole has a diameter of 7 feet and is 440 feet deep.
- Assume the vents are cased and do not require full backfill.
- Assume concrete collar and backfill extends 1 foot from outside of vent hole.
- Assume concrete collar will have a reinforcement density of 100 pounds per cubic yard.
- Assume backfill over concrete collar has a depth of 4 feet.

Calculations

Number of vent holes	5 EA
Vent hole diameter	7 FT
Vent hole depth	440 FT
Steel plate	200 SF
Weld steel plate	22 LF

Concrete collar thickness	6 IN
	0.5 FT

Concrete collar extent beyond vent hole	1 FT
Concrete collar diameter	9 FT
Concrete collar volume per vent hole	100 CF
	4 CY

Rounded up to nearest whole number.

Reinforcement density	100 LBS/CY
Reinforcement per vent hole	400 LBS

Backfill depth	4 FT
Backfill diameter	12 FT
Backfill volume per vent hole	452 CF
	17 ECY
	17 BCY
	19 LCY

Steel plate	1000 SF
Weld steel plate	110 LF
Concrete	20 CY
Reinforcement	2,000 LBS
Total backfill	85 ECY
	85 BCY
	95 LCY

South Portal Site Description	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Labor Hourly Wage Rate	Hourly Cost	Total Eq. & Lab. Costs	Units	Material Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost**
Place Excess Ore into Portal																		
2 yd. LHD placing ore into underground workings	\$76.00	\$55.00	\$144	N/A	\$71.75	N/A	\$0.00	\$215.85	\$/HR	\$0.00	N/A	1,072	LCY	50	LCY/HR	N/A	N/A	\$4,674.57
Subtotal																		\$4,675
Seal Portal with Development Rock (10'x10'x25' deep)																		
2 yd. LHD	\$76.00	\$55.00	\$144	N/A	\$71.75	N/A	\$0.00	\$215.85	\$/HR	\$0.00	N/A	187	LCY	50	LCY/HR	N/A	N/A	\$815.44
Subtotal																		\$815
Grade Rock Pile																		
Dozing material (D-7), 300' push	\$110.00	\$63.00	\$190	N/A	\$71.75	N/A	\$0.00	\$262.05	\$/HR	\$0.00	N/A	5,000	LCY	189	LCY/HR	N/A	N/A	\$6,932.54
Subtotal																		\$6,933
Grade Development Berm																		
Dozing material (D-7), 300' push	\$110.00	\$63.00	\$190	N/A	\$71.75	N/A	\$0.00	\$262.05	\$/HR	\$0.00	N/A	1,494	LCY	189	LCY/HR	N/A	N/A	\$2,071.45
Subtotal																		\$2,071
Subsurface Ripping																		
Subsurface Ripping (D-7)	\$110.00	\$63.00	\$190	N/A	\$71.75	N/A	\$0.00	\$262.05	\$/HR	\$0.00	N/A	20,973	BCY	250	BCY/HR	N/A	N/A	\$21,984.25
Subtotal																		\$21,984.25
Total																		\$36,478

* Hourly rates include overhead and profit

N/A - information not available

LCY - loose cubic yard

HR - hour

LHD Rental Cost 76

LHD fuel cost per hour 20

Dozer (D-7) Rental Cost 110

D-7 Fuel Cost Per Hour 28

Maintenance Cost Per Hour 35

Operator Fully Burdened Hourly Rate 71.75



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: EARTH-SPS

Description: Earthwork calculations in support of the reclamation bond for the Daneros Mine - South Portal Site

Assumed Material Properties for Development Rock Material

Soil Bulking factor:	1.2	Conversion from BCY to LCY
Soil Compaction Factor:	1.1	Conversion from BCY to ECY
Soil Compaction Factor:	0.9	Conversion from LCY to ECY

BCY - bank cubic yard - in place volume prior to excavation
 LCY - loose cubic yards - volume after excavation
 ECY - embankment cubic yards (aka compacted cubic yards) - volume after compaction

Place Excess Ore Back Into Portal - 2 yd. LHD

Assumptions

- Assume 300 tons per day generated at site.
- Assume ore is stockpiled for 5 days.
- Assume density of ore is 1.4 tons/cy.
- Assume same hourly costs as 966 loader

Calculations

Ore Generated Per Day	300 tons	Energy Fuels Operations Data
Number of Days Stockpiled	5 days	Energy Fuels Operations Data
Total Quantity of Ore Stockpiled on Site	1500 tons	
Assumed Density of Ore	1.4 tons/CY	pg 27-4 CAT Handbook, Edition 36
Total Volume of Ore Place Back into Portal	1,072 CY	

Seal Portal with Development Rock

Assumptions

- Assume portal adit is 10 feet high by 10 feet wide.
- Assume seal will extend 30 feet into the portal adit.
- Assume outside seal will be sloped at 2H:1V

Calculations

Portal Height	10 FT	Field Data
Portal Width	10 FT	Field Data
Depth of Seal into Portal	30 FT	Reclamation Plan
Volume of Develop Rock to Seal Inner Portion	3000 CF	
	112 CY	
Slope of Outer Seal	2 :1	Reclamation Plan
2H:1V Outer Seal Slope Length	20 FT	
Front Slope Seal Volume	1000 CF	Triangular Wedge
Side Slope Seal Volume	1000 CF	Half Triangular Wedge by 2 sides
Volume of Develop Rock to Seal Outer Portion	2000 CF	
	75 CY	
Total Volume of Development Rock to Seal Portal	187 CY	

Grade Development Rock Pile

Assumptions

- Material will be pushed with a dozer to rough grade
- No fine grading of surface will be conducted

Calculations

Reclamation re-grade volume	5,000 BCY	Estimated grading needed at the final year of mining. No swell is anticipated as the material was just placed there.
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PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: EARTH-SPS

Description: Earthwork calculations in support of the reclamation bond for the Daneros Mine - South Portal Site

Dozer Productivity Determination - 300' Push Distance

Hours per Shift, HR:	8	
Work Efficiency, %:	0.83	Assumes 50 minutes/hour
Slot Dozing Correction Factor:	1.20	
Visibility Correction Factor:	1.0	
Weight Correction Factor:	0.87	
Average Dozing Distance, FT:	300	
Work Efficiency	%	83%
Operator Type		Average
Operator Ability Correction Factor	Factor	0.75
Grade		3 3H:1V
	% Slope	33%
Grade Factor		1.6 <i>Chart pg 1-45 CAT Handbook, Edition 31</i>
Material Type		Rock
Material Correction Factor	Factor	0.6
Slot Dozing Correction Factor	Factor	1.20
Visibility Correction Factor	Factor	1.0
Weight Correction Factor	Factor	0.87
Combined Prod. Correction Factor	Factor	0.63
Ideal Dozer Productivity	LCY/HR	300.0 <i>Chart on pg 1-42 CAT Handbook, Edition 31</i>
Adjusted Dozer Productivity	LCY/HR	189.0

Grade Site Berms

Assumptions

- Material will be pushed with a dozer to rough grade
- No fine grading of surface will be conducted

Shape:	Triangular
Side slopes:	1 :1
Finished Berm Height:	2 FT
Bottom width:	4 FT
Estimated length of berms	4,200 FT
Volume of excavation:	33,600 CF
	1,245 BCY <i>Rounded up to nearest whole number</i>
	1,494 LCY <i>Rounded up to nearest whole number</i>

Subsurface Ripping

Assumptions

- The entire mine yard will be ripped to a depth of 12" to encourage vegetation root development
- Approximately 20% of the Development Rock Area will be ripped as it will have just recently been graded.

Mine Yard Area	12 AC
20% of DRA Area	1 AC
Ripping Depth	12 inches
Ripping Volume	20,973 BCY
D-7 Ripping Productivity	250 BCY/Hr <i>No chart in Cat handbook for D-7. Used lowest value for D-8</i>

South Portal Site Description	Hourly Rental Costs	Hourly O & M Costs	Operator Hourly Cost	Total Eq. & Lab. Costs	Units	Material Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Remove Stockpiled Inert Material and Spread														
966 Removing and Staging Inert Material	\$76	\$55	\$72	\$203	\$/HR	\$0.00	N/A	4,033	LCY	124	LCY/HR	N/A	N/A	\$6,608
D-7 Dozer Spreading Inert Material	\$110	\$63	\$72	\$245	\$/HR	\$0.00	N/A	4,033	LCY	520	LCY/HR	N/A	N/A	\$1,898
Subtotal														\$8,507
Remove Stockpiled Topsoil and Spread														
966 Removing and Staging Topsoil	\$76	\$55	\$72	\$203	\$/HR	\$0.00	N/A	17,747	LCY	124	LCY/HR	N/A	N/A	\$29,076
D-7 Dozer Spreading Topsoil	\$110	\$63	\$72	\$245	\$/HR	\$0.00	N/A	17,747	LCY	520	LCY/HR	N/A	N/A	\$8,353
Subtotal														\$37,429
Seeding														
Seeding, 0.45 pounds per MSF, Broadcast	RS Means	32 92 19 14 0500				\$25.50	\$/MSF	1,068	MSF			N/A	N/A	\$27,234.0
Subtotal														\$27,234
Total														\$73,169

* Hourly rates include overhead and profit

N/A - information not available

LCY - loose cubic yard

HR - hour

Loader Rental Cost \$ 76

Loader fuel cost per hour \$ 20

Dozer (D-7) Rental Cost \$ 110

Fuel Cost Per Hour \$ 28

Maintenance Cost Per Hour \$ 35

Operator Fully Burdened Hourly Rate \$ 72



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: REVEG-SPS

Description: Calculations in support of the reclamation bond for the Daneros Mine - South Portal Site		
Assumed Material Properties		
Soil Bulking factor:	1.2	Conversion from BCY to LCY
Soil Compaction Factor:	1.1	Conversion from BCY to ECY
Soil Compaction Factor:	0.9	Conversion from LCY to ECY
BCY - bank cubic yard - in place volume prior to excavation		
LCY - loose cubic yards - volume after excavation		
ECY - embankment cubic yards (aka compacted cubic yards) - volume after compaction		
Remove Stockpiled Inert Material and Spread		
Assumptions		
- Material will be moved and staged with a wheeled loader		
- Material will be spread with a dozer to rough grade. Dozer will provide some compaction to maintain slope.		
- The same productivity assumptions will be used as for the topsoil handling.		
Calculations		
Estimated area of development rock area	5 AC	Based on CADD
Assume 6 inch thickness spread	0.5 FT	Assumption
Volume	108,900 BCF	
Volume	4,033 BCY	
Remove Stockpiled Topsoil and Spread		
Assumptions		
- Material will be moved and staged with a wheeled loader		
- Material will be spread with a dozer to rough grade. Dozer will provide some compaction to maintain slope.		
- Assumed distribution of windrow topsoil along roads will be spread while ripping.		
Wheel Loader (966) Productivity Determination -Topsoil Removal and Staging		
Hours per Shift, HR:	8	
Work Efficiency, %:	0.83	Assumes 50 minutes/hour
Average Distance, FT:	400	One way
Operator Type	Average	
Operator Ability Correction Factor	Factor	0.75
	% Slope	0%
		The majority of the topsoiled area is relatively flat. The
Grade Factor		1.0
Material Type	Loose	
Material Correction Factor	Factor	1.2
Visibility Correction Factor	Factor	1.0
Weight Correction Factor	Factor	0.87
Combined Prod. Correction Factor	Factor	0.65
Bucket Capacity (C.Y)		5.00
Cycle Time (min)		1.58
Ideal Loader Productivity	LCY/HR	190.4
Adjusted Loader Productivity	LCY/HR	123.8



PROJECT: Daneros Mine Rec. Cost. Est.
 JOB NO.: 0
 CLIENT: Energy Fuels

COMPUTED BY: RE
 DATE: 2/25/2013

CHECKED BY: FF
 DATE CHECKED: 2/25/2013
 WRKSHT NO.: REVEG-SPS

Description: Calculations in support of the reclamation bond for the Daneros Mine - South Portal Site			
Dozer (D-7) Productivity Determination - Topsoil Spreading - 50' Push Distance			
Hours per Shift, HR:	8		
Work Efficiency, %:	0.83	Assumes 50 minutes/hour	
Weight Correction Factor:	0.87		
Average Dozing Distance, FT:	50		
Work Efficiency	%	83%	
Operator Type		Average	
Operator Ability Correction Factor	Factor	0.75	
	% Slope	0%	Portions of the topsoiled area are relatively flat. The topsoil
Grade Factor		1.0	<i>Chart pg 1-45 CAT Handbook, Edition 31</i>
Material Type		Loose	
Material Correction Factor	Factor	1.2	
Slot Dozing Correction Factor	Factor	1.00	
Visibility Correction Factor	Factor	1.0	
Weight Correction Factor	Factor	0.87	
Combined Prod. Correction Factor	Factor	0.65	
Ideal Dozer Productivity	LCY/HR	800.0	<i>Chart on pg 1-42 CAT Handbook, Edition 31</i>
Adjusted Dozer Productivity	LCY/HR	520.0	
Calculations			
- Assumes 12" of topsoil over DRA and ~ 6" over remainder of Mine Yard			
	Soil stockpile volume	14,789	BCY
	Haul and spreading volume	17,747	LCY
Seed			
Assumptions			
- Assumes surface of topsoil layer will be scarified during seeding			
- Assumes broadcast with native seed will be applied over topsoil			
- Assumes vent shaft disturbance is 0.25 acres each.			
- Assumes access road disturbed areas for each vent shaft is approximately 1.25 acres.			
Calculations			
	Area of vent holes	1.25	AC
	Area of access roads	6.25	AC
	Estimated area of development rock area for grading	5	AC
	Estimated area of mine yard for grading	12	AC
		118,580	SY <i>Rounded up to nearest whole number</i>
		1,068	MSF <i>Rounded up to nearest whole number</i>



MEMORANDUM

To: File cc: Andrea Reither

From: Ryan Ellis

Date: 8/30/13

RE: Daneros Mine Reclamation Cost Estimate
 Equipment Rental Costs

I obtained the current rental rates for the major equipment planned to be used for final reclamation of the Daneros Mine. The source was Wheeler Machinery Co. out of Salt Lake City (801-974-0511). The equipment will be rented on a monthly basis and will be returned individually as the reclamation progresses and not as a group. Hourly fuel consumption was also obtained from Wheeler for each piece of equipment and is included in the operating cost. The 2 Yard LHD is assumed to cost the same as the 966 loader. 250 hour services will be required as the reclamation is completed and is not included in the rental cost. The costs and quantity of services will vary depending on the piece of equipment.

D-7 Dozer

Monthly Rental Base Cost:	\$ 16,000
Required 15% Insurance:	\$ 2,400
Total Monthly Rental Cost:	\$ 18,400
<i>Conversion to Hourly Rental Cost</i>	
Work Days Per Month	21
Operation hours per day	8
Hourly Rental Cost	\$ 110

Hourly Fuel Cost @ 4.00 per gallon = \$28

966 Loader

Monthly Rental Base Cost:	\$ 11,100
Required 15% Insurance:	\$ 1,665
Total Monthly Rental Cost:	\$ 12,765
<i>Conversion to Hourly Rental Cost</i>	
Work Days Per Month	21
Operation hours per day	8
Hourly Rental Cost	\$ 76

Hourly Fuel Cost @ 4.00 per gallon = \$20