

Alton Coal Development, LLC

463 North 100 West, Suite 1

Cedar City, Utah 84720

Phone (435) 867-5331 • Fax (435) 867-1192

C/025/0005
Received 6/17/15
Task ID # 4814

June 15, 2015

Daron R. Haddock
Coal Program Manager
Oil, Gas & Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

Subject: **Outstanding Permit Conditions and Division Order, Alton Coal Development, LLC, Coal Hollow Mine, Kane County, Utah, C/025/0005,**

Dear Mr. Haddock,

In response to the Divisions letter dated June 9, 2015, Alton Coal Development, LLC is submitting a PDF copy of items discussed in our phone conference earlier today. The first item list (GEM geotechnical report) will follow as discussed when it is made available to Alton Coal. The remaining three items have been addressed with changes to Chapter 8 that are included with this submittal.

Changes to the MRP associated with this amendment have been uploaded to the DOGM's server for review. Upon approval, 2 (two) clean hard copies of the text for insertion into the MRP will be submitted. Please do not hesitate to contact me if you have any questions 435-691-1551.

Sincerely

B. Kirk Nicholes
Environmental Specialist

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change New Permit Renewal Exploration Bond Release Transfer

Permittee: Alton Coal Development, LLC

Mine: Coal Hollow Mine

Permit Number: C/025/0005

Title: Outstanding permit conditions and Division Order trequirements

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

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

- Yes No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ increase decrease.
- Yes No 2. Is the application submitted as a result of a Division Order? DO# DO15-A
- Yes No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
- Yes No 4. Does the application include operations in hydrologic basins other than as currently approved?
- Yes No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
- Yes No 6. Does the application require or include public notice publication?
- Yes No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
- Yes No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
- Yes No 9. Is the application submitted as a result of a Violation? NOV # _____
- Yes No 10. Is the application submitted as a result of other laws or regulations or policies?

Explain: _____

- Yes No 11. Does the application affect the surface landowner or change the post mining land use?
- Yes No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
- Yes No 13. Does the application require or include collection and reporting of any baseline information?
- Yes No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
- Yes No 15. Does the application require or include soil removal, storage or placement?
- Yes No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
- Yes No 17. Does the application require or include construction, modification, or removal of surface facilities?
- Yes No 18. Does the application require or include water monitoring, sediment or drainage control measures?
- Yes No 19. Does the application require or include certified designs, maps or calculation?
- Yes No 20. Does the application require or include subsidence control or monitoring?
- Yes No 21. Have reclamation costs for bonding been provided?
- Yes No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
- Yes No 23. Does the application affect permits issued by other agencies or permits issued to other entities?
- Yes No 24. Does the application include confidential information and is it clearly marked and separated in the plan?

Please attach three (3) review copies of the application. If the mine is on or adjacent to Forest Service land please submit four (4) copies, thank you. (These numbers include a copy for the Price Field Office)

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

B. Kirk Nicholes Environmental Specialist 06/12/2015 *B. Kirk Nicholes*
 Print Name Position Date Signature (Right-click above choose certify then have notary sign below)

Subscribed and sworn to before me this 12 day of June, 2015

Notary Public: *Marty Nicholes*, state of Utah.

My commission Expires: 9-11-17
 Commission Number: 670359
 Address: 1670 E Millstone Cir
 City: Enoch State: UT Zip: 84721



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

TABLE OF CONTENTS

Chapter 5

R645-301-500

Engineering

510.	INTRODUCTION	5-1
511	General Requirements	5-1
511.100–300.	Contents	5-1
512	CERTIFICATION	5-1
512.100.	Cross Sections and Drawings	5-1
512.200.	Plans and Engineering Designs	5-1
512.210 –230.	Excess Spoil Disposal Areas, Durable Rock Fills and Coal Mine Waste	5-2
512.240.	Impoundments	5-2
512.250.	Primary Roads	5-2
512.260.	Variance From Approximate Original Contour	5-2
513.	COMPLIANCE WITH MSHA REGULATIONS AND MSHA APPROVALS	5-3
513.100.	Coal Processing Waste Dams and Embankments	5-3
513.200.	Impoundments and Sedimentation Ponds	5-3
513.300.	Disposal of Underground Development Waste, Coal Processing Waste and Excess Spoil in Underground Mine Workings	5-3
513.400.	Refuse Piles	5-3
513.500.	Capping, Sealing and Backfilling Openings to the Surface from the Underground	5-3
513.600.	Discharges into an Underground Mine	5-5
513.800.	Coal Mine Waste Fires	5-5
514.	INSPECTIONS	5-6
514.100-140.	Excess Spoil	5-6
514.200-250.	Refuse Piles	5-6
514.300.	Impoundments	5-6
514.310-313.	Certified Inspection	5-7
514.320.	Inspection Standard and Frequency	5-7
515	REPORTING AND EMERGENCY PROCEDURES	5-8
515.100.	Slides	5-8
515.200.	Impoundment Hazards	5-8
515.300-320.	Temporary Cessation	5-8

516	PREVENTION OF SLIDES	5-9
520	OPERATION PLAN	5-10
521	GENERAL	5-10
521.100.	Cross-Sections and Drawings	5-10
521.110.	Previously Mined Areas	5-10
521.120.	Existing Surface and Subsurface Facilities and Features	5-10
521.121.	Buildings	5-10
521.122.	Surface and Subsurface Man-Made Features	5-11
521.123.	Public Roads	5-11
521.124.	Existing areas of spoil, waste, coal development waste, and non-coal waste disposals, dams, embankments, other impoundments, and water treatment and air pollution control facilities	5-11
521.125.	Ponds and Other Impoundments	5-11
521.130.	Landowners and Right of Entry and Public Interest Drawings	5-12
521.132	Permit Boundary	5-12
521.133	Public Roads	5-12
521.133.2	Relocating a Public Road	5-12
521.140.	Mine Drawings and Permit Area Drawings	5-12
521.143.	Disposal of Excess Spoil	5-13
521.150.	Land Surface Configuration Drawings	5-18
521.160.	Drawings and Cross Sections of the Proposed Features for the Proposed Permit Area	5-18
521.170.	Transportation Facilities Drawings	5-19
521.180.	Support Facilities	5-21
521.200.	Signs and Markers Specifications	5-21
521.240.	Mine and Permit Identification Signs	5-21
521.250.	Perimeter Markers	5-21
521.260.	Buffer Zone Markers	5-22
521.270.	Topsoil Markers	5-22
522	COAL RECOVERY	5-22
523	MINING METHODS	5-25
524	BLASTING AND EXPLOSIVES	5-28
524.100	Blaster Certification	5-28
524.300-350	Preblasting Survey	5-29
524.400.	Blasting Schedule	5-29
524.410.	Unscheduled Blasts	5-30
524.420.	Timing of Blasting	5-30
524.450-453.	Blasting Schedule Publication and Distribution	5-30
524.460-465.	Blasting Schedule Contents	5-30
524.500-532.	Blasting and Warning Signs, Access Control	5-31
524.600-610.	Adverse Effects of Blasting	5-31
524.620.	Airblast Limits	5-31

524.630.	Monitoring	5-31
524.633.	Flyrock	5-32
524.640-622.	Ground Vibration	5-32
524.690.	Standards not Applicable	5-33
524.700.	Records of Blasting Operations	5-33
524.800.	Use of Explosives	5-34
525.	SUBSIDENCE CONTROL PLAN	5-34
526.	MINING FACILITIES	5-35
526.110-115.	Existing Structures	5-35
526.116.	Public Roads	5-35
526.116.1.	Operations Within 100 ft. of a Public Road	5-35
526.116.2.	Relocating a Public Road	5-35
526.200.	Utility Installation and Support Facilities	5-35
526.210.	Existing Utilities	5-35
526.220	Support Facilities	5-36
526.300	Water Pollution Control Facilities	5-38
526.400	Air Pollution Control Facilities	5-39
527.	TRANSPORTATION FACILITIES	5-40
527.100.	Classification of Roads	5-40
527.200.	Description of Roads	5-40
527.220.	Alteration or Relocation of Natural Drainage ways	5-42
527.230.	Road Maintenance	5-43
527.250.	Geotechnical Analysis	5-43
528.	HANDLING AND DISPOSAL OF COAL, OVERBURDEN, EXCESS SPOIL, AND COAL MINE WASTE	5-44
528.100.	Coal Removal, Handling, Storage, Cleaning, and Transportation Areas and Structures	5-44
528.200.	Overburden	5-44
528.300.	Spoil, Coal Processing Waste, Mine Development Waste, and Non-coal Waste Removal, Handling, Storage, Transportation, and Disposal Areas and Structures	5-46
528.310.	Excess Spoil	5-46
528.320.	Coal Mine Waste	5-50
528.322.	Refuse Piles	5-50
528.323.	Burning and Burned Waste Utilization	5-50
528.330.	Non-coal Mine Waste	5-50
528.350.	Acid-Forming and Toxic Materials	5-51
528.400.	Dams, Embankments and other Impoundments	5-55
529.	MANAGEMENT OF MINE OPENINGS	5-52
530.	OPERATIONAL DESIGN CRITERIA AND PLANS	5-55

531.	GENERAL	5-55
532.	SEDIMENT CONTROL	5-55
532.100	Disturbed Area	5-55
532.200	Backfill Stabilization	5-55
533-100-714.	IMPOUNDMENTS	5-56
534	ROADS	5-59
534.100-200.	Roads will be located, designed, constructed, reconstructed, used maintained, and reclaimed so as to:	5-59
534.300-340.	Primary Roads	5-61
535.	SPOIL	5-62
535.100.	Disposal of Excess Spoil	5-62
535.200.	Disposal of Excess Spoil: Valley Fills/Head-of-Hollow Fills	5-65
535.300.	Disposal of Excess Spoil: Durable Rock Fills	5-65
535.400.	Disposal of Excess Spoil: Preexisting Benches	5-65
536.	COAL MINE WASTE	5-65
537.	REGRADED SLOPES	5-66
540.	RECLAMATION PLAN	5-66
541.100-400.	General	5-66
542.	NARRATIVE, DRAWINGS AND PLANS	5-68
542.100–600.	Plan and Timetable	5-68
542.700.	Final Abandonment of Mine Openings	5-70
542.720.	Disposal of Excess Spoil	5-72
542.730.	Disposal of Coal Mine Waste	5-72
542.740.	Disposal of Non-coal Mine Wastes	5-72
542.800	Reclamation Cost	5-72
550.	RECLAMATION DESIGN CRITERIA AND PLANS	5-73
551	SEALING AND CASING OF UNDERGROUND OPENINGS	5-73
552	PERMANENT FEATURES	5-74
553	BACKFILLING AND GRADING	5-75
553.200	Spoil and Waste	5-78
553. 300	Covering of Exposed Coal Seams, and Acid and Toxic-Forming	5-79
553.400	Cut and Fill Terraces	5-79
533.500	Previously Mined Areas and Continuously Mined Areas	5-79
553.600	Highwall Management	5-79
553.700	Backfilling and Grading: Thin Overburden	5-79

553.800	Backfilling and Grading: Thick Overburden	5-80
560	Performance Standards	5-84

APPENDICES

5-1	Geotechnical Analysis - Sediment Impoundments and Excess Spoil Structure
5-2	Sediment Impoundment and Diversion Structure Analysis
5-3	Robinson Creek Culvert and Diversion Analysis
5-4	Coal Hollow Mine Blasting Plan
5-5	Reclamation Slope Stability Evaluation/Analysis
5-6	Post-Mining Roads Backfill Analysis
5-7	Location of & Standards and Specifications for ASCAs and ASCMs in use at Coal Hollow Mine
5-8	Feasibility of Highwall Mining the Smirl Seam at the Alton Coal Development, LLC Coal Hollow Mine
5-9	Norwest Corporation Underground Letter Reports

DRAWINGS

General

5-1	Pre-mining Topography
5-2	Disturbance Sequence

Facilities (5-3 to 5-8C)

5-3	Facilities and Structures Layout
5-3A	Culverts
5-3B	Underground Facilities and Structures Layout
5-4	Loadout Elevation View 1
5-5	Loadout/Stockpile Elevation View 2
5-6	Office Elevation View
5-7	Maintenance Shop Elevation View
5-8	Wash Bay, Oil and Fuel Storage Elevation View
5-8A	Wash Bay Equipment Layout
5-8B	Facilities and Structural – Electrical
5-8C	Facilities and Structural – Water Plan

Coal Recovery (5-9 to 5-14)

5-9	Coal Extraction Overview
5-10	Coal Removal Sequence
5-11	Shallow Coal Recovery Cover Cross Section
5-12	Deep Coal Recovery Cross Section
5-13	Strip Ratio Isopach
5-14	Coal Thickness Isopach

Overburden Handling (5-15 to 5-19)

5-15	Overburden Isopach
5-16	Overburden Removal Sequence
5-17	Ultimate Disturbance
5-18	Not Used Bond Drawing

5-19 ~~Not Used~~ Bond Release Polygons

Robinson Creek Temporary Diversion and Reconstruction (5-20 to 5-21)

5-20 Robinson Creek Temporary Diversion Plan View
5-20A Robinson Creek Reconstruction Plan View
5-21 Robinson Creek Temporary Diversion Cross Sections/Detail
5-21A Robinson Creek Reconstruction Design and Details

Transportation (5-22 to 5-24)

5-22 Primary Mine Haul Roads Plan View
5-22A Primary Roadways – Facilities Roadways
5-22B Primary Roadways – Facilities Roadways
5-22C Postmining Roadways – Roadway to Pugh Property
5-22D Postmining Roadways – Roadway to Water Well
5-22E Postmining Roadways – Route 136 Reconstruction Details Option B
5-22F Postmining Roadways – Route 136 Reconstruction Details
5-22G Postmining Roadways – Route 136 Reconstruction Details
5-22H Postmining Roadways – Route 136 Reconstruction Details Option A
5-23 Primary Mine Haul Roads Cross Sections/Detail
5-24 Ancillary Roads Typical Cross Section

Sedimentation Diversions/Impoundments (5-25 to 5-34)

5-25 Diversion Ditch and Sediment Impoundment Plan View
5-26 Sediment Impoundment Watersheds
5-27 Diversion Ditch Watersheds
5-28 Sediment Impoundment 1 Details
5-28B Sediment Impoundment 1B Details
5-29 Sediment Impoundment 2 Details
5-30 Sediment Impoundment 3 Details
5-31 Sediment Impoundment 4 Details
5-32 Impoundment Spillway Detail
5-33 Diversion Ditch 1 Details
5-34 Diversion Ditch 2, 3 and 4 Details

Reclamation/Regrading (5-35 to 5-38)

5-35 Post Mining Topography Preferred Scenario
5-36 Post Mining Topography Preferred Scenario Cross Sections
5-37 Post Mining Topography Alternate Scenario
5-37A Post Mining Topography Alternate Scenario Cross Sections
5-38 Reclamation Sequence

Geotechnical (5-39)

5-39 Geotechnical Samples and Boring Locations
5-40 Dewatering Trench Details

Highwall Mining Details (5-41 to 5-44)

- 5-41 Typical Trench Detail for Highwall Mining
- 5-42 Typical Panel Detail 10 Holes per Panel for Under 100 feet Cover
- 5-43 Typical Panel Detail 10 Holes per Panel for Under 150 feet Cover
- 5-44 Typical Panel Detail 10 Holes per Panel for Over 150 feet Cover

CHAPTER 8

R645-301-800. BONDING AND INSURANCE

820. REQUIREMENT TO FILE A BOND

820.100 The Operator Agrees to File a Bond.

After the permit application is approved, but before the permit is issued, the applicant will file with the Division, on a form prescribed and furnished by the Division, a bond or bonds conditioned upon performance of all requirements of the State Program, the permit and the reclamation bond.

820.110-111 Area to be Covered by the Performance Bond

The disturbed area at the Coal Hollow Project will be bonded. ~~Bonding will be in Phases according to sequence of disturbance identified on Drawing 5-3~~ Bonding is representative of the full extent of current and expected disturbance for the permit area. -The areas to be mined-bonded are is-also located and identified on Drawing 5-193.

820.112-114 Incremental Bonding

Not applicable at this time.

820.120 Acceptance of Bond

The applicant agrees not to commence operations until the Division approves a performance bond for the Coal Hollow Project.

820.130 Coverage of Bond

The applicant will provide a performance bond for the disturbed area within the permit.

820.200 Form of the Performance Bond

820.223 Surety Bond

Alton Coal Development, LLC is proposing to submit a surety bond consistent with the requirements of R645-301-860.100 and any additional requirements in the State Program.

830. DETERMINATION OF BOND AMOUNT

830.100 Determined by the Division

The amount of the bond required will be determined by the Division.

830.140 Detailed Estimated Costs

The bonding amount for final reclamation will depend upon the approved permit and reclamation plan (R645-301-830.120). ~~The alternative highwall mining will reduce surface disturbance. Mining disturbance to the surface will be reduced along with reclamation needs. Thus, estimates have been completed for the individual mining phases shown in Drawings 5-17, 5-18 and 5-19. An estimate has been completed for the mining and reclamation scenario shown in Drawings 5-17 through 5-19 that will generate the largest disturbance and require the largest~~ bond. This scenario includes completion of surface mining through HWT 3, completion of highwall holes through the same, and full mining of the currently planned underground mine as entering through portals located in Pit 10. This scenario also accounts for all Coal Hollow Mine facilities and special reclamation areas. ~~Thise~~ se estimates ~~are is~~ provided as Appendix 8-1. These cost calculations are based on the specific details shown on these drawings, as well as the indicated plan and schedule for bond release application. ~~As requested by the Division, a separate bond estimate is completed for all three phases shown in the drawings and in general, each stage is representative of the expected reclamation liability for Phase 1, 2 and 3, respectively. If the alternative highwall mining is selected the bond will be reduced as appropriate for the area of disturbance generated. The remaining liability~~ bond estimate by Phase release stage, escalated for ~~the~~ 2017 (anticipated end of mining) is the following:

Phase 1:	\$5,346,000
Phase 2:	\$9,888,000
Phase 3:	\$6,573,000
Ultimate Disturbance:	\$34,702,758
January 2015 Release:	\$23,956,792
May 2015 Release:	\$13,888,854
July 2015 Release:	\$11,593,102
End 2015 Release:	\$5,834,202
End 2016 Release:	\$5,161,636
2017 Release:	\$4,839,179

This bonding and release schedule anticipates the opportunity for mining to commence on the North Private Lease as well as the potential for additional mining area to become available under the BLM's adjacent LBA tract. In both cases, the underground portals, coal facilities, and thereby Pit 10 would remain open requiring the continued surety shown at the end of 2017. As part of the application process for these additional areas, updated estimates and calculations will be provided.

A summary and supporting calculations for these cost estimates is provided in Appendix 8-1.

840. GENERAL TERMS AND CONDITIONS OF THE BOND

General terms and conditions of the bond as stated at R645-301-840 through R645-301-840.520 will be met by Alton Coal Development, LLC

850. BOND REQUIREMENTS FOR UNDERGROUND COAL MINING

Not Applicable

860. FORM OF BOND

860.100 Surety Bond

The applicant will submit a surety bond as defined under R645-100-200 and meet all the requirements under R645-301-860.110 to .120.

870. REPLACEMENT OF BONDS

Equivalent bond coverage will be provided if Alton Coal Development, LLC replaces the surety bond.

880. REQUIREMENT TO RELEASE PERFORMANCE BONDS

Upon completion of reclamation operations, the applicant will apply for bond release and meet the requirements of R645-301-880.

890. TERMS AND CONDITIONS FOR LIABILITY INSURANCE

890.100 Certificate of Liability Insurance

A copy of the Certificate of Liability Insurance is provided in Appendix 1-3. Alton Coal Development, LLC will meet the requirements of R645-301-890 prior to commencing any mining operations.

BONDING

Introduction

The purpose of this appendix is to provide a reclamation bond estimate as required by R645-301-830.140.

This estimate includes liability calculations for:

- All areas of surface disturbance requiring Phase 2 and Phase 3 reclamation
- All facilities and special areas requiring demolition, demobilization, etc.
- All excavated pits requiring Phase 1 through Phase 3 reclamation
- Surface areas of the long-term excess spoil structure that require Phase 1 through Phase 3 reclamation

This appendix includes the following details:

- Bond Estimate Summary and Release Application Plan
- Mine Facilities Line Item Reclamation Estimate
- Spoil Pile, Surface Disturbance Only, and Facility and Special Area surface reclamation Estimate
- Excavated Areas Reclamation Estimate
- Production Model and Cost Model Assumptions
- Pit Backfill - Truck/Shovel, Fleet Production and Cost Analysis (FPC)
- Subsoil - Truck/Shovel, Fleet Production and Cost Analysis (FPC)
- Topsoil - Truck/Shovel, Fleet Production and Cost Analysis (FPC)

All material volume and surface area calculations were performed utilizing Carlson Civil and Mining software.

Cost data sources include:

- RSMeans Heavy Cost Construction 2015
- RSMeans Construction Cost Data 2015
- CostMine Coal Cost Guide 2014
- CostMine Mine and Mill Equipment Cost Data, 2014 (latest version available)

These sources are applied where appropriate in each of the cost estimates. Each line item in the estimate lists specifies which source is utilized for cost data.

Summary

The following is a brief summary of the information and methods used to calculate the costs for each category. The overall cost estimates below include total escalated costs applicable for all three phases of reclamation (where appropriate):

Release Application Plan

While previous estimates for the Coal Hollow Mine were constructed as incremental bond packages, this estimate considers the permit area on a total disturbance basis and applies successive bond release applications as stepwise subtractions from the ultimate disturbance liability. Each release application potentially contains a combination of multiple pit & surface areas under different phases of reclamation. These area polygons can be viewed on Drawing 5-19.

Mine Facilities

This section includes line items for the demolition, disposal, earthwork and specialized land reclamation costs for the entire facilities area, including ponds and ditches. The calculations for this section is based on the facilities and pond drawings in the current version of the Mining and Reclamation Plan. These drawings are all provided in Chapter 5 as Drawings 5-3 through 5-8C. The RSMMeans Cost data is applied to this estimate. The overall cost estimate for the facilities reclamation is approximately \$1,078,792.

Spoil Pile, Surface Disturbance Only, and Specialized Reclamation Areas

The specialized reclamation areas include areas that only require surface (Phase 2 and Phase3) reclamation, the long term excess spoil structure, ditches 2, 3 and 4, ponds 3 and 4, along with the Lower Robinson Creek reconstruction. The surface reclamation for the loadout area is also included. The Phase 1 through Phase 3 (where applicable) calculations for these specific areas are provided separately and applied as appropriate. The overall cost estimate for this category is \$1,524,451.

Excavated Areas

As shown on Drawings 5-17, 5-18, 5-19 and described in Chapter 5 text, the Coal Hollow Mine permit area is nearing completion of the open pit portion of the mining process. The mining and backfilling sequence has followed the pit progression shown in chapter 5 and the final pit void comprised of Pit 10 (including the underground portals) and a portion of the highwall trench remain to be backfilled in this last stage of surface mining. All other mined pits have currently been backfilled to Approximate Original Contour (AOC) as required by the reclamation plan in Chapter 5. While a significant portion of the required backfill and surface reclamation had been completed prior to 2015, bond release applications had not been submitted for any of this work. Therefore it is expedient to now consider the Coal Hollow Mine permit area on a total disturbance basis as opposed to the original incremental bond system. The overall cost estimate for all pits assuming total excavation is \$32,099,515.

Production Model and Cost Assumptions

Caterpillar's Fleet Production and Cost analysis software was utilized to establish a baseline cost model with inputs from the appropriate cost guides. This model provided unit costs on a \$/BCY and \$/LCY basis.

The following documentation provides the details for each section of this bond estimate.

Stage of Reclamation / Release Application	Pits Included in Release Application	Phase 1 Bond Amount	Phase 2 Bond Amount	Phase 3 Bond Amount	Facilities Bond Amount	Total Bond Amount	Bond Remaining After Release
Beginning Worst Case Scenario Bond Amount (all pits excavated)		\$ 30,928,964	\$ 2,189,968	\$ 505,035	\$ 1,475,265	\$ 34,702,758	
January 2015 Release Submission							
	Phase 1 Pit 3	\$ 2,366,500				\$ 2,366,500	
	Phase 1 Pit 5	\$ 1,380,489				\$ 1,380,489	
	Phase 1 Pit 6	\$ 2,497,928				\$ 2,497,928	
	Phase 1 Pit 25	\$ 1,345,551				\$ 1,345,551	
	Phase 1 Pit 26	\$ 945,973				\$ 945,973	
	Phase 1 Pit 27	\$ 991,874				\$ 991,874	
	Phase 1 Pit 28	\$ 1,217,651				\$ 1,217,651	
	Subtotal	\$ 10,745,966	\$ -	\$ -		\$ 10,745,966	\$ 23,956,792
May 2015 Release Submission							
	Phase 1 Pit 1-A	\$ 561,929				\$ 561,929	
	Phase 1 Pit 2	\$ 991,022				\$ 991,022	
	Phase 1 Pit 4	\$ 666,392				\$ 666,392	
	Phase 1 Pit 7	\$ 3,491,603				\$ 3,491,603	
	Phase 1 Pit 8	\$ 1,322,937				\$ 1,322,937	
	Phase 1 Pit 21-A	\$ 311,556				\$ 311,556	
	Phase 1 Pit 22	\$ 1,093,614				\$ 1,093,614	
	Phase 1 Pit 23	\$ 870,965				\$ 870,965	
	Phase 1 Pit 24	\$ 757,920				\$ 757,920	
	Subtotal	\$ 10,067,937	\$ -	\$ -		\$ 10,067,937	\$ 13,888,854
July 2015 Release Submission							
	Phase 1 Pit 9-A	\$ 365,727				\$ 365,727	
	Phase 1 Pit 20-A	\$ 151,782				\$ 151,782	
	Phase 1 Pit 20-B	\$ 733,611				\$ 733,611	
	Phase 1 Pit 21-B	\$ 513,152				\$ 513,152	
	Phase 1 HWT 1-A	\$ 531,481				\$ 531,481	
	Subtotal	\$ 2,295,753	\$ -	\$ -		\$ 2,295,753	\$ 11,593,102
Q3/4 2015 Release Submission							
	Phase 1 Pit 1-B	\$ 452,665				\$ 452,665	
	Phase 1 Pit 9-B	\$ 1,255,109				\$ 1,255,109	
	Phase 1 HWT 1-B	\$ 1,478,183				\$ 1,478,183	
	Phase 1 HWT 2	\$ 1,397,903				\$ 1,397,903	
	Phase 1 HWT 3	\$ 1,175,041				\$ 1,175,041	
	Subtotal	\$ 5,306,235	\$ -	\$ -		\$ 5,758,900	\$ 5,834,202
2016 Release Submission							
	Phase 1 & 2 SURF1	\$ -	\$ 62,718			\$ 62,718	
	Phase 1 & 2 SURF4	\$ -	\$ 12,808			\$ 12,808	
	Phase 1 & 2 SURF5	\$ -	\$ 113,991			\$ 113,991	
	Phase 1 & 2 SURF6	\$ -	\$ 47,698			\$ 47,698	
	Phase 1 & 2 SURF7	\$ -	\$ 7,690			\$ 7,690	
	Phase 1 & 2 SPOIL1	\$ 41,774	\$ 36,329			\$ 78,102	
	Phase 1 & 2 SPOIL2	\$ 56,726	\$ 49,331			\$ 106,057	
	Phase 1 & 2 SPOIL3	\$ 16,913	\$ 14,708			\$ 31,621	
	Phase 1 & 2 SPOIL4	\$ 22,970	\$ 19,976			\$ 42,946	
	Phase 1 & 2 SPOIL5	\$ 54,957	\$ 47,794			\$ 102,751	
	Phase 1 & 2 SPOIL6	\$ 5,417	\$ 4,711			\$ 10,129	
	Phase 1 & 2 SPOIL7	\$ 14,542	\$ 12,646			\$ 27,188	
	Phase 1 & 2 SPOIL8	\$ 15,440	\$ 13,427			\$ 28,868	
	Subtotal	\$ 228,738	\$ 443,827	\$ -		\$ 672,566	\$ 5,161,636
2017 Release Submission							
	Phase 2 HWT 1		\$ -			\$ -	
	Phase 2 HWT 2		\$ 48,670			\$ 48,670	
	Phase 2 HWT 3		\$ 56,995			\$ 56,995	
	Phase 2 Pit 1		\$ -			\$ -	
	Phase 2 Pit 2		\$ 53,065			\$ 53,065	
	Phase 2 Pit 3		\$ 44,979			\$ 44,979	
	Phase 2 Pit 4		\$ 40,270			\$ 40,270	
	Phase 2 Pit 5		\$ 42,943			\$ 42,943	
	Phase 2 Pit 6		\$ 77,488			\$ 77,488	
	Phase 2 Pit 7		\$ 40,286			\$ 40,286	
	Phase 2 Pit 8		\$ 35,862			\$ 35,862	
	Phase 2 Pit 9		\$ -			\$ -	
	Phase 2 Pit 20		\$ -			\$ -	
	Phase 2 Pit 21		\$ -			\$ -	
	Phase 2 Pit 22		\$ 34,076			\$ 34,076	
	Phase 2 Pit 23		\$ 29,100			\$ 29,100	
	Phase 2 Pit 24		\$ 29,317			\$ 29,317	
	Phase 2 Pit 25		\$ 43,352			\$ 43,352	
	Phase 2 Pit 26		\$ 33,504			\$ 33,504	
	Phase 2 Pit 27		\$ 35,152			\$ 35,152	
	Phase 2 Pit 28		\$ 41,809			\$ 41,809	
	Subtotal	\$ -	\$ 322,457	\$ -		\$ 322,457	\$ 4,839,179

*All amounts escalated to 2017

Facilities Reclamation Cost Estimate

Concrete Demolition

Item	Unit	Quantity	Unit Cost (\$)	Cost	**Cost Data Reference
Office (footer)	lft	500	\$21.40	\$10,700	RSMMeans Building Constr., 02 41 16.17 1140
Shop (footer)	lft	616	\$25.68	\$15,819	RSMMeans Building Constr., 02 41 16.17 1140 & 1220
Shop (foundation)	ft ²	3,080	\$1.06	\$3,252	RSMMeans Building Constr., 02 41 16.17 2100 & 2200
Shop (floor)	ft ²	20,000	\$0.80	\$16,000	RSMMeans Building Constr., 02 41 16.17 0440
Wash Bay (footer)	lft	244	\$25.68	\$6,266	RSMMeans Building Constr., 02 41 16.17 1140 & 1220
Wash Bay (foundation)	ft ²	660	\$1.06	\$697	RSMMeans Building Constr., 02 41 16.17 2100 & 2200
Wash Bay (floor & sump)	ft ²	3,100	\$0.80	\$2,480	RSMMeans Building Constr., 02 41 16.17 0440
Fuel Storage (slab)	yd ³	111	\$109.55	\$12,172	RSMMeans Heavy Constr., 03 05 05.10 0060
Fuel Storage (containment wall)	yd ³	9	\$109.55	\$974	RSMMeans Heavy Constr., 03 05 05.10 0060
Oil Storage (slab)	yd ³	89	\$109.55	\$9,738	RSMMeans Heavy Constr., 03 05 05.10 0060
Oil Storage (containment wall)	yd ³	12	\$109.55	\$1,339	RSMMeans Heavy Constr., 03 05 05.10 0060
Coal Hopper/Feeder Breaker (Tunnel Access)	yd ³	95	\$109.55	\$10,387	RSMMeans Heavy Constr., 03 05 05.10 0060
Coal Hopper/Feeder Breaker (Hopper Supports)	yd ³	190	\$109.55	\$20,774	RSMMeans Heavy Constr., 03 05 05.10 0060
Coal Hopper/Feeder Breaker (Belt Tunnel)	yd ³	133	\$109.55	\$14,542	RSMMeans Heavy Constr., 03 05 05.10 0060
Crusher Building (Footer)	lft	80	\$25.68	\$2,054	RSMMeans Building Constr., 02 41 16.17 1140 & 1220
Feed Conveyor (Support Footers)	lft	30	\$25.68	\$770	RSMMeans Building Constr., 02 41 16.17 1140 & 1220
Reclaim Belt (Support Footers)	lft	25	\$25.68	\$642	RSMMeans Building Constr., 02 41 16.17 1140 & 1220
Loadout (Footers)	lft	72	\$25.68	\$1,849	RSMMeans Building Constr., 02 41 16.17 1140 & 1220
Loadout (Scale Footer)	lft	60	\$25.68	\$1,541	RSMMeans Building Constr., 02 41 16.17 1140 & 1220

Concrete Disposal

*Concrete Disposal (All Facilities)	yd ³	1,551	\$15.70	\$24,346	RSMMeans Building Constr., 02 41 16.17 4250
-------------------------------------	-----------------	-------	---------	----------	---

Subtotal Concrete Demolition & Disposal	\$156,342
--	------------------

*Concrete is disposed of on site (in pits) within five miles of facilities

**All cost data is from the 2015 editions of either the RS Means Heavy Construction or Building Construction Cost Data Manuals (Total Bare Cost)

Facilities Reclamation Cost Estimate

Structure Demolition & Disposal

Item	*Unit	Quantity	Unit Cost (\$)	Cost	**Cost Data Reference
Office	ft ³	150,000	\$0.30	\$45,000	RSMMeans Heavy Constr., 02 41 16.13 0100
Office (Sewage Tank)	Ea.	1	\$3,455.00	\$3,455	RSMMeans Heavy Constr., 02 65 10.30 1233 & 1213
Shop	ft ³	1,000,000	\$0.28	\$280,000	RSMMeans Heavy Constr., 02 41 16.13 0020
Wash Bay	ft ³	150,000	\$0.28	\$42,000	RSMMeans Heavy Constr., 02 41 16.13 0020
Fuel Storage (3 tanks)	Ea.	3	\$2,370.00	\$7,110	RSMMeans Heavy Constr., 02 65 10.30 0130 & 1029
Coal Hopper/Feeder Breaker (Demolition)	Ton	64	\$186.50	\$11,936	RSMMeans Heavy Constr., 05 05 05.10 0260
Coal Hopper/Feeder Breaker (Disposal)	yd ³	570	\$10.57	\$6,025	RSMMeans Heavy Constr., 02 41 19.18 0200
Crusher (structure)	ft ³	9,200	\$0.28	\$2,576	RSMMeans Heavy Constr., 02 41 16.13 0020
Crusher (equipment demolition)	Ton	60	\$186.50	\$11,190	RSMMeans Heavy Constr., 05 05 05.10 0260
Crusher (equipment disposal)	yd ³	150	\$10.57	\$1,586	RSMMeans Heavy Constr., 02 41 19.18 0200
Coal Reclaim System (demolition)	Ton	50	\$186.50	\$9,325	RSMMeans Heavy Constr., 05 05 05.10 0260
Coal Reclaim System (disposal)	yd ³	233	\$10.57	\$2,463	RSMMeans Heavy Constr., 02 41 19.18 0200
Loadout (structure)	ft ³	19,000	\$0.28	\$5,320	RSMMeans Heavy Constr., 02 41 16.13 0020
Loadout (equipment demolition)	Ton	68	\$186.50	\$12,682	RSMMeans Heavy Constr., 05 05 05.10 0260
Loadout (equipment disposal)	yd ³	185	\$10.57	\$1,955	RSMMeans Heavy Constr., 02 41 19.18 0200
100 lb/cu. Ft material - 48" Conveyors (demolition)	ft	545	\$147.71	\$80,502	CostMine - Mine and Mill Equipment Costs 2014 (Estimated as 25% of Construction Cost)
12" Drainage Culvert (demolition)	ft	50	\$2.25	\$113	RSMMeans Heavy Constr., 02 41 13.40 0150
18" Drainage Culvert (demolition)	ft	413	\$3.37	\$1,392	RSMMeans Heavy Constr., 02 41 13.40 0160
24" Drainage Culvert (demolition)	ft	455	\$10.10	\$4,596	RSMMeans Heavy Constr., 02 41 13.40 0170
36" Drainage Culvert (demolition)	ft	184	\$12.15	\$2,236	RSMMeans Heavy Constr., 02 41 13.40 0180
96" Drainage Culvert (demolition)	ft	184	\$34.30	\$6,311	RSMMeans Heavy Constr., 02 41 13.40 0200
Culvert Excavation 6' - 10' Deep	yd ³	1,485	\$3.82	\$5,673	RSMMeans Heavy Constr., 31 23 16.13 0510
Culvert Excavation 14' - 20' Deep	yd ³	2,208	\$4.77	\$10,532	RSMMeans Heavy Constr., 31 23 16.13 1300
Perimeter Fencing (demolition)	ft	22,000	\$2.15	\$47,300	RSMMeans Heavy Constr., 02 41 13.60 1650
Water Monitoring Wells - PVC (demolition)	VLF	1,919	\$7.27	\$13,947	RSMMeans Heavy Constr., 02 41 13.76 0900
Water Monitoring Wells - Steel (demolition)	VLF	201	\$14.55	\$2,925	RSMMeans Heavy Constr., 02 41 13.76 1000
Water System (tanks)	Ea.	2	\$1,050.00	\$2,100	RSMMeans Heavy Constr., 02 65 10.30 1029

Subtotal Structure Demolition & Disposal **\$620,248**

Exact makes and models of equipment are not currently known, therefore estimates are included for weights and yardages of equipment

** RS Means does not have direct cost data references for some specific items. Where needed, reasonable substitutes are utilized.

All cost data is from the 2015 editions of either the RS Means Heavy Construction or Building Construction Cost Data Manuals except where specifically noted (Total Bare Cost)

Facilities Reclamation Cost Estimate

Facilities Earthwork

Item	*Unit	Quantity	Unit Cost (\$)	Cost	**Cost Data Reference
Pond 1 backfill from embankment	yd ³	1,156	\$1.95	\$2,254	RSMeans Heavy Constr., 31 23 23.17 0020
Pond 1 backfill from subsoil pile	yd ³	3,200	\$5.88	\$18,816	RSMeans Heavy Constr., 31 23 23.20 3014 & 31 23 16.42 1300 & 31 23 23.17 0020
Pond 1B backfill from embankment	yd ³	146	\$1.95	\$285	RSMeans Heavy Constr., 31 23 23.17 0020
Pond 1B backfill from subsoil pile	yd ³	794	\$5.88	\$4,669	RSMeans Heavy Constr., 31 23 23.20 3014 & 31 23 16.42 1300 & 31 23 23.17 0020
Pond 2 backfill from embankment	yd ³	160	\$1.95	\$312	RSMeans Heavy Constr., 31 23 23.17 0020
Pond 2 backfill from subsoil pile	yd ³	7,122	\$5.88	\$41,877	RSMeans Heavy Constr., 31 23 23.20 3014 & 31 23 16.42 1300 & 31 23 23.17 0020
Pond 3 backfill from embankment	yd ³	4,767	\$1.95	\$9,296	RSMeans Heavy Constr., 31 23 23.17 0020
Pond 3 backfill from subsoil pile	yd ³	6,107	\$5.88	\$35,909	RSMeans Heavy Constr., 31 23 23.20 3014 & 31 23 16.42 1300 & 31 23 23.17 0020
Pond 4 backfill from embankment	yd ³	1,410	\$1.95	\$2,750	RSMeans Heavy Constr., 31 23 23.17 0020
Pond 4 backfill from subsoil pile	yd ³	13,282	\$5.88	\$78,098	RSMeans Heavy Constr., 31 23 23.20 3014 & 31 23 16.42 1300 & 31 23 23.17 0020
Robinson Creek Rip-Rap	yd ³	562	\$52.90	\$33,709	RS Means Heavy Constr., 31 37 13.10 0100
Robinson Creek Grass Matting	yd ²	2,189	\$5.08	\$17,402	RS Means Heavy Constr., 31 25 14.16 0120
Ditch 1 recontouring	yd ³	3,096	\$1.95	\$6,037	RSMeans Heavy Constr., 31 23 23.17 0020
Ditch 2 recontouring	yd ³	2,014	\$1.95	\$3,927	RSMeans Heavy Constr., 31 23 23.17 0020
Ditch 3 recontouring	yd ³	11,556	\$1.95	\$22,534	RSMeans Heavy Constr., 31 23 23.17 0020
Ditch 4 recontouring	yd ³	2,333	\$1.95	\$4,550	RSMeans Heavy Constr., 31 23 23.17 0020
Ripping of haul roads and compacted surfaces	yd ³	9,600	\$2.06	\$19,776	RSMeans Heavy Constr., 31 23 16.32 2310

Subtotal Facilities Earthwork	\$302,201
--------------------------------------	------------------

Total Facilities Reclamation Cost Estimate	\$1,078,792
---	--------------------

** RS Means does not have direct cost data references for some specific items. Where needed, reasonable substitutes are utilized.
 All cost data is from the 2015 editions of either the RS Means Heavy Construction or Building Construction Cost Data Manuals except where specifically noted (Total Bare Cost)

	Pit	Phase 1 Cost										Phase 2 Cost										Phase 3 Cost						Facilities Cost		Total Bonded Amount - Escalated
		BCF	BCY	LCY	Area (sf)	Area (acres)	Backfill Cost	Subsoil Quantity (LCY)	Subsoil Cost	Total Direct Cost	Indirect Cost	Total Phase 1 Cost	Total Phase 1 Cost - Escalated	Topsoil Quantity (LCY)	Topsoil Cost	Mulching Quantity (M.S.F)	Mulching Cost	Seeding Quantity (M.S.F)	Seeding Cost	Total Direct Cost	Indirect Cost	Total Phase 2 Cost	Total Phase 2 Cost - Escalated	Re-Seed Quantity	Re-Seed Cost	Total Direct Cost	Indirect Cost	Total Phase 3 Cost	Total Phase 3 Cost - Escalated	
Excavated Areas	HWT 1-A	9,635,258	356,861	395,135	139,392	3.2	\$ 385,767	18,448	\$ 17,897	\$ 403,664	\$ 108,182	\$ 511,846	\$ 531,481	3,690	\$ 3,579	139	\$ 8,396	139	\$ 3,589	\$ 15,564	\$ 4,171	\$ 19,736	\$ 20,493	139	\$ 3,589	\$ 3,589	\$ 962	\$ 4,551	\$ 4,726	\$ 556,700
	HWT 1-B	26,798,061	992,521	1,098,969	387,684	8.9	\$ 1,072,915	51,308	\$ 49,777	\$ 1,122,692	\$ 300,881	\$ 1,423,573	\$ 1,478,183	10,262	\$ 9,955	388	\$ 23,350	388	\$ 9,983	\$ 43,288	\$ 11,601	\$ 54,890	\$ 56,995	388	\$ 9,983	\$ 9,983	\$ 2,675	\$ 12,658	\$ 13,144	\$ 1,548,322
	HWT 2	25,456,746	942,842	1,043,962	331,056	7.6	\$ 1,019,213	43,814	\$ 42,506	\$ 1,061,719	\$ 284,541	\$ 1,346,259	\$ 1,397,903	8,763	\$ 8,501	331	\$ 19,940	331	\$ 8,525	\$ 36,965	\$ 9,907	\$ 46,872	\$ 48,670	331	\$ 8,525	\$ 8,525	\$ 2,285	\$ 10,809	\$ 11,224	\$ 1,457,797
	HWT 3	21,047,412	779,534	863,139	387,684	8.9	\$ 842,676	51,308	\$ 49,777	\$ 892,453	\$ 239,177	\$ 1,131,630	\$ 1,175,041	10,262	\$ 9,955	388	\$ 23,350	388	\$ 9,983	\$ 43,288	\$ 11,601	\$ 54,890	\$ 56,995	388	\$ 9,983	\$ 9,983	\$ 2,675	\$ 12,658	\$ 13,144	\$ 1,245,180
	Pit 1-A	10,156,972	376,184	416,530	156,816	3.6	\$ 406,655	20,754	\$ 20,134	\$ 426,789	\$ 114,380	\$ 541,169	\$ 561,929	4,151	\$ 4,027	157	\$ 9,445	157	\$ 4,038	\$ 17,510	\$ 4,693	\$ 22,203	\$ 23,054	157	\$ 4,038	\$ 4,038	\$ 1,082	\$ 5,120	\$ 5,317	\$ 590,300
	Pit 1-B	8,182,005	303,037	335,538	126,324	2.9	\$ 327,583	16,718	\$ 16,219	\$ 343,803	\$ 92,139	\$ 435,942	\$ 452,665	3,444	\$ 3,244	126	\$ 7,608	126	\$ 3,253	\$ 14,105	\$ 3,780	\$ 17,885	\$ 18,572	126	\$ 3,253	\$ 3,253	\$ 872	\$ 4,125	\$ 4,283	\$ 475,519
	Pit 2	17,642,275	653,418	723,497	360,952	8.3	\$ 706,344	47,770	\$ 46,344	\$ 752,689	\$ 201,721	\$ 954,409	\$ 991,022	9,554	\$ 9,269	361	\$ 21,740	361	\$ 9,295	\$ 40,304	\$ 10,801	\$ 51,105	\$ 53,065	361	\$ 9,295	\$ 9,295	\$ 2,491	\$ 11,785	\$ 12,238	\$ 1,056,324
	Pit 3	43,911,691	1,626,359	1,800,786	305,947	7.0	\$ 1,758,094	40,491	\$ 39,282	\$ 1,797,376	\$ 481,697	\$ 2,279,073	\$ 2,366,500	8,098	\$ 7,856	306	\$ 18,427	306	\$ 7,878	\$ 34,162	\$ 9,155	\$ 43,317	\$ 44,979	306	\$ 7,878	\$ 7,878	\$ 2,111	\$ 9,989	\$ 10,373	\$ 2,421,852
	Pit 4	11,763,124	435,671	482,397	273,917	6.3	\$ 470,961	36,252	\$ 35,170	\$ 506,130	\$ 135,643	\$ 641,773	\$ 666,392	7,250	\$ 7,034	274	\$ 16,498	274	\$ 7,053	\$ 30,585	\$ 8,197	\$ 38,782	\$ 40,270	274	\$ 7,053	\$ 7,053	\$ 1,890	\$ 8,944	\$ 9,287	\$ 715,949
	Pit 5	25,251,319	935,234	1,035,538	292,103	6.7	\$ 1,010,988	38,659	\$ 37,505	\$ 1,048,493	\$ 280,996	\$ 1,329,489	\$ 1,380,489	7,732	\$ 7,501	292	\$ 17,593	292	\$ 7,522	\$ 32,616	\$ 8,741	\$ 41,357	\$ 42,943	292	\$ 7,522	\$ 7,522	\$ 2,016	\$ 9,537	\$ 9,903	\$ 1,433,336
	Pit 6	49,464,773	1,692,435	1,873,948	527,076	12.1	\$ 1,829,522	69,756	\$ 67,674	\$ 1,897,196	\$ 508,449	\$ 2,405,645	\$ 2,497,928	13,951	\$ 13,535	527	\$ 31,746	527	\$ 13,572	\$ 58,853	\$ 15,773	\$ 74,625	\$ 77,488	527	\$ 13,572	\$ 13,572	\$ 3,637	\$ 17,210	\$ 17,870	\$ 2,593,285
	Pit 7	65,357,401	2,420,644	2,680,259	274,027	6.3	\$ 2,616,717	36,266	\$ 35,184	\$ 2,651,900	\$ 710,709	\$ 3,362,610	\$ 3,491,603	7,253	\$ 7,037	274	\$ 16,505	274	\$ 7,056	\$ 30,598	\$ 8,200	\$ 38,798	\$ 40,286	274	\$ 7,056	\$ 7,056	\$ 1,891	\$ 8,947	\$ 9,290	\$ 3,541,179
	Pit 8	26,865,130	900,519	997,100	243,936	5.6	\$ 973,461	32,284	\$ 31,320	\$ 1,004,782	\$ 269,281	\$ 1,274,063	\$ 1,322,937	6,457	\$ 6,264	244	\$ 14,692	244	\$ 6,281	\$ 27,238	\$ 7,300	\$ 34,537	\$ 35,862	244	\$ 6,281	\$ 6,281	\$ 1,683	\$ 7,965	\$ 8,270	\$ 1,056,070
	Pit 9-A	6,323,244	234,194	259,312	191,664	4.4	\$ 253,164	25,366	\$ 24,609	\$ 277,773	\$ 74,443	\$ 352,216	\$ 365,727	5,073	\$ 4,922	192	\$ 11,544	192	\$ 4,935	\$ 21,401	\$ 5,735	\$ 27,136	\$ 28,177	192	\$ 4,935	\$ 4,935	\$ 1,323	\$ 6,258	\$ 6,498	\$ 400,403
	Pit 9-B	21,700,222	803,712	889,910	657,756	15.1	\$ 868,813	87,051	\$ 84,453	\$ 953,265	\$ 255,475	\$ 1,208,740	\$ 1,255,109	17,410	\$ 16,891	658	\$ 39,617	658	\$ 16,937	\$ 73,444	\$ 19,683	\$ 93,127	\$ 96,700	658	\$ 16,937	\$ 16,937	\$ 4,539	\$ 21,476	\$ 22,300	\$ 1,374,109
	Pit 10	31,855,374	1,179,829	1,306,365	901,962	20.7	\$ 1,275,395	119,335	\$ 115,773	\$ 1,391,168	\$ 372,833	\$ 1,764,000	\$ 1,831,669	23,867	\$ 23,155	902	\$ 54,309	902	\$ 23,219	\$ 100,682	\$ 26,983	\$ 127,665	\$ 132,562	902	\$ 23,219	\$ 23,219	\$ 6,223	\$ 29,441	\$ 30,571	\$ 1,994,802
	Pit 20-A	2,711,685	100,433	111,204	52,272	1.2	\$ 108,568	6,918	\$ 6,711	\$ 115,279	\$ 30,895	\$ 146,174	\$ 151,782	1,384	\$ 1,342	52	\$ 3,148	52	\$ 1,346	\$ 5,837	\$ 1,564	\$ 7,401	\$ 7,685	52	\$ 1,346	\$ 1,346	\$ 361	\$ 1,707	\$ 1,772	\$ 161,239
	Pit 20-B	13,106,480	485,425	537,487	252,648	5.8	\$ 524,745	33,437	\$ 32,439	\$ 557,183	\$ 149,325	\$ 706,509	\$ 733,611	6,687	\$ 6,488	253	\$ 15,217	253	\$ 6,506	\$ 28,210	\$ 7,560	\$ 35,771	\$ 37,143	253	\$ 6,506	\$ 6,506	\$ 1,744	\$ 8,249	\$ 8,566	\$ 779,320
	Pit 21-A	5,672,788	210,103	232,637	74,052	1.7	\$ 227,122	9,800	\$ 9,508	\$ 236,630	\$ 63,417	\$ 300,046	\$ 311,556	1,960	\$ 1,902	74	\$ 4,460	74	\$ 1,907	\$ 8,269	\$ 2,216	\$ 10,485	\$ 10,887	74	\$ 1,907	\$ 1,907	\$ 511	\$ 2,418	\$ 2,511	\$ 324,954
	Pit 21-B	9,343,416	346,052	383,167	121,968	2.8	\$ 374,083	16,142	\$ 15,660	\$ 389,743	\$ 104,451	\$ 494,194	\$ 513,152	3,228	\$ 3,132	122	\$ 7,346	122	\$ 3,141	\$ 13,619	\$ 3,650	\$ 17,269	\$ 17,931	122	\$ 3,141	\$ 3,141	\$ 842	\$ 3,982	\$ 4,135	\$ 535,218
	Pit 22	20,002,682	740,840	820,295	231,787	5.3	\$ 800,848	30,676	\$ 29,760	\$ 830,608	\$ 222,603	\$ 1,053,211	\$ 1,099,614	6,135	\$ 5,952	232	\$ 13,961	232	\$ 5,969	\$ 25,881	\$ 6,936	\$ 32,817	\$ 34,076	232	\$ 5,969	\$ 5,969	\$ 1,600	\$ 7,568	\$ 7,858	\$ 1,135,548
	Pit 23	15,887,560	588,428	651,537	197,937	4.5	\$ 636,091	26,196	\$ 25,414	\$ 661,505	\$ 177,283	\$ 838,788	\$ 870,965	5,239	\$ 5,083	198	\$ 11,922	198	\$ 5,097	\$ 22,101	\$ 5,923	\$ 28,025	\$ 29,100	198	\$ 5,097	\$ 5,097	\$ 1,366	\$ 6,463	\$ 6,711	\$ 906,776
	Pit 24	13,738,342	508,827	563,399	199,413	4.6	\$ 550,043	26,391	\$ 25,604	\$ 575,646	\$ 154,273	\$ 729,919	\$ 757,920	5,278	\$ 5,121	199	\$ 12,011	199	\$ 5,135	\$ 22,266	\$ 5,967	\$ 28,234	\$ 29,317	199	\$ 5,135	\$ 5,135	\$ 1,376	\$ 6,511	\$ 6,761	\$ 793,997
	Pit 25	24,579,611	910,356	1,007,992	294,885	6.8	\$ 984,095	39,027	\$ 37,862	\$ 1,021,957	\$ 273,884	\$ 1,295,841	\$ 1,345,551	7,805	\$ 7,572	295	\$ 17,761	295	\$ 7,593	\$ 32,927	\$ 8,824	\$ 41,751	\$ 43,352	295	\$ 7,593	\$ 7,593	\$ 2,035	\$ 9,628	\$ 9,998	\$ 1,398,901
	Pit 26	17,214,403	637,570	705,950	227,894	5.2	\$ 689,214	30,161	\$ 29,260	\$ 718,474	\$ 192,551	\$ 911,025	\$ 945,973	6,032	\$ 5,852	228	\$ 13,726	228	\$ 5,868	\$ 25,446	\$ 7,155	\$ 32,266	\$ 33,504	228	\$ 5,868	\$ 5,868	\$ 1,573	\$ 7,441	\$ 7,726	\$ 987,203
	Pit 27	18,049,211	668,489	740,185	239,102	5.5	\$ 722,637	31,644	\$ 30,700	\$ 753,336	\$ 201,894	\$ 955,231	\$ 991,874	6,329	\$ 6,140	239	\$ 14,401	239	\$ 6,157	\$ 26,698	\$ 7,155	\$ 33,853	\$ 35,152	239	\$ 6,157	\$ 6,157	\$ 1,650	\$ 7,807	\$ 8,106	\$ 1,035,132
	Pit 28	22,187,018	821,741	909,873	284,384	6.5	\$ 888,302	37,637	\$ 36,513	\$ 924,816	\$ 247,851	\$ 1,172,667	\$ 1,217,651	7,527	\$ 7,303	284	\$ 17,128	284	\$ 7,323	\$ 31,754	\$ 8,510	\$ 40,264	\$ 41,809	284	\$ 7,323	\$ 7,323	\$ 1,963	\$ 9,285	\$ 9,642	\$ 1,269,101
	Excavated Areas Totals	563,904,201	20,651,261	22,866,109	7,734,366	177.6	\$ 22,324,014	1,023,610	\$ 993,054	\$ 23,317,068	\$ 6,248,974	\$ 29,566,042	\$ 30,700,225	204,722	\$ 198,611	7,734	\$ 465,841	7,734	\$ 199,160	\$ 5,128,368	\$ 231,448	\$ 1,095,060	\$ 1,137,067	7,734	\$ 199,160	\$ 199,160	\$ 53,375	\$ 252,535	\$ 262,222	\$ 32,099,515
Spoil Pile Areas	SPOIL1				247,108	5.7	\$ -	32,704	\$ 31,727	\$ 31,727	\$ 8,503	\$ 40,230	\$ 41,774	6,541	\$ 6,345	247	\$ 14,883	247	\$ 6,363	\$ 27,592	\$ 7,395	\$ 34,986	\$ 36,329	247	\$ 6,363	\$ 6,363	\$ 1,705	\$ 8,068	\$ 8,378	\$ 86,480
	SPOIL2				335,554	7.7	\$ -	44,409	\$ 43,083	\$ 43,083	\$ 11,546	\$ 54,630	\$ 56,726	8,882	\$ 8,617	336	\$ 20,210	336	\$ 8,641	\$ 37,468	\$ 10,041	\$ 47,509	\$ 49,331	336	\$ 8,641	\$ 8,641	\$ 2,316	\$ 10,956	\$ 11,376	\$ 117,433
	SPOIL3				100,047	2.3	\$ -	13,241	\$ 12,846	\$ 12,846	\$ 3,443	\$ 16,288	\$ 16,913	2,648	\$ 2,569	100	\$ 6,026	100	\$ 2,576	\$										

Equipment Cost Data

Equipment Description	Equipment Cost	Equip + Labor
	\$/hr	Cost \$/hr
7 yd. Excavator (385C LME)	\$97.83	\$134.32
40 Ton (30 CY) Haul Truck (769C)	\$58.88	\$94.25
5,000 Gal. Water Truck	\$37.78	\$74.27
14 Grader	\$53.34	\$89.83
D10 Dozer	\$112.03	\$148.52
D7 Dozer	\$60.46	\$96.95

Sourced from Cost Mine 2014 Coal Cost Guide and 2014 Mine and Mill Equipment Costs

Labor Cost Data

Manpower Type	Base Wage (\$/hr)	Labor Cost @ 36% burden (\$/hr)
Heavy Equipment Operator	\$26.83	\$36.49
Truck Drivers	\$26.01	\$35.37

Labor Data from 2014 Coal Cost Guide Table LA-6 for Western Surface Coal Mines (Non-Union)

Unit Cost Data

Movement Type	Cost/BCY	Cost/LCY	Unit Swell Factor
Rehandle with Truck/Shovel	\$ 1.08	\$ 0.98	10.7%
Subsoil	\$ 1.04	\$ 0.97	7.2%
Topsoil	\$ 1.04	\$ 0.97	7.2%
		Cost/M.S.F	
Mulching		\$ 60.23	
Seeding		\$ 25.75	

Indirect Cost Factor
26.8%

RS Means Heavy Constr., 32 91 13.16 0350 (2015 Bare)

RS Means Heavy Constr., 32 92 19.14 3700 (2015 Bare)

Unit Costs calculated from FPC production model using 2014 cost data and updated GEM swell factors

Escalation Factor 2014 to 2017
1.038361

Cycle Times

Hauler Cycle Time	
	5 769C
Load with Exchange (min)	1.25
Haul (min)	1.12
Dump and Maneuver (min)	1.2
Return (min)	1.33
Potential Cycle Time (min)	4.9
Wait on Slow Hauler (min)	0
Wait to Load (min)	1.35
Additional Bunching (min)	0.36
Wait to Dump (min)	0
TMPH Wait (min)	
Total Cycle Time (min)	6.61
Bunching	Avg
Haul Start mph	0
Haul End mph	0
Return Start mph	0
Return End mph	0

Loader Cycle Time	
	5 769C
Loader Model	385C LME
Loader Quantity	1
Bucket Capacity (CY)	7.25
Loader Fill Factor (%)	100
Loose Density (Lbs/LCY)	2,498
Tons per Pass	9.06
System Passes per Hauler	3
Hauler Payload (Tons)	27.17
% of Max GVW	103.52
Hauler Volume (LCY)	21.75
% of Body Fill	70
Loader Cycle Time (min)	0.25
First Bucket Dump (min)	0.05
Hauler Exchange Time (min)	0.7

Fleet Production

Fleet Estimates	
Operating Schedule	90 %
Operator Efficiency	
Schedule Period	Shift
Scheduled Hours	2,000.00
Fleet Estimates	
Fleet Availability	87.87 %
Production per Sched Hr	696.55 BCY
Total Production	20,651,261 BCY
Sched Hrs Required	29,648.01
Total Cost (\$)	22,982,038
Cost per BCY (\$)	1.113
Production per Shift	1,393,096 BCY
Shifts Required	14.82

Theoretical Production				
	Quantity	Model	BCY per Hour	Cycles per Hour
	1	1 385C LME	932	
	2	5 769C	1,188	12.2

Actual Production					
	Quantity	Model	Cycles per Hour	Payload in Tons	Tons per Hour
	1	5 769C	9.07	27.17	1,232.24
Fleet Tons per Operating Hour					1,232.24
x 90.00% Operator Efficiency =					1,109.01
x 87.87% Fleet Availability =					974.47

Cost

	Qty	Model	Machine Code	Hourly Cost Each Unit	Operating Hours	Total \$	\$ per BCY	
Loaders	1	385C LME		134.32	26,683	3,584,088	0.174	
Haulers:	5	769C	C202	107.26	130,256	0	0.677	
Totals	5				130,256	0	0.677	
Support	1	5,000 Gal. Water Truck		74.27	19,538	1,451,115	0.07	
		1 14 Grader		89.83	13,026	1,170,088	0.057	
		1 D7 Dozer		96.95	22,143	2,146,811	0.104	
Totals	3				54,707	4,768,013	0.231	
Fleet Totals	9				211,646	8,352,101	1.081	

Cycle Times

Hauler Cycle Time

	5 769C	
Load with Exch:		1.25
Haul (min)		1.11
Dump and Man		1.2
Return (min)		1.33
Potential Cycle		4.9
Wait on Slow H		0
Wait to Load (n		1.35
Additional Bunc		0.36
Wait to Dump (0
TMPH Wait (min)		
Total Cycle Tim		6.61
Bunching Avg		
Haul Start mph		0
Haul End mph		0
Return Start m		0
Return End mpl		0

Loader Cycle Time

	5 769C	
Loader Model	385C LME	
Loader Quantit		1
Bucket Capacity		7.25
Loader Fill Fact		100
Loose Density (2,143
Tons per Pass		7.77
System Passes		3
Hauler Payload		23.31
% of Max GVW		97.21
Hauler Volume		21.75
% of Body Fill		70
Loader Cycle Ti		0.25
First Bucket Du		0.05
Hauler Exchang		0.7

Fleet Production

Fleet Estimates

Operating Schedule	
Operator Efficie	90 %
Schedule Period Shift	
Scheduled Hour	2,000.00
Fleet Estimates	
Fleet Availabilit	87.87 %
Production per	724.11 BCY
Total Productio	1,190,524 BCY
Sched Hrs Requ	1,644.12
Total Cost (\$)	1,274,461
Cost per BCY (\$	1.071
Production per	1,448,220 BCY
Shifts Required	0.82

Theoretical Production

Quantity	Model	BCY per Hour	Cycles per Hour
1	1 385C LME	969	
2	5 769C	1,237	12.3

Actual Production

Quantity	Model	Cycles per Hour	Payload in Tons	Tons per Hour
1	5 769C	9.07	23.31	1,057.12
Fleet Tons per Operating Hour				1,057.12
x 90.00% Operator Efficiency =				951.41
x 87.87% Fleet Availability =				835.99

Cost

Qty	Model	Machine Code	Hourly Cost Each Unit	Operating Hours	Total \$	\$ per BCY
Loaders	1 385C LME		134.32	1,480	198,754	0.167
Haulers:	5 769C	C202	107.26	7,223	0	0.651
Totals	5			7,223	0	0.651
Support	1 5,000 Gal. Water Truck		74.27	1,083	80,471	0.068
	1 14 Grader		89.83	722	64,887	0.055
	1 D7 Dozer		96.95	1,228	119,051	0.1
Totals	3			3,034	264,409	0.222
Fleet Totals	9			11,737	463,163	1.04

Cycle Times

Hauler Cycle Time

5 769C

Load with Exch:	1.25
Haul (min)	1.11
Dump and Man	1.2
Return (min)	1.33
Potential Cycle	4.9
Wait on Slow H	0
Wait to Load (n	1.35
Additional Bunc	0.36
Wait to Dump (0
TMPH Wait (min)	
Total Cycle Tim	6.61
Bunching Avg	
Haul Start mph	0
Haul End mph	0
Return Start m	0
Return End mpl	0

Loader Cycle Time

5 769C

Loader Model 385C LME

Loader Quantit	1
Bucket Capacity	7.25
Loader Fill Fact	100
Loose Density (2,143
Tons per Pass	7.77
System Passes	3
Hauler Payload	23.31
% of Max GVW	97.21
Hauler Volume	21.75
% of Body Fill	70
Loader Cycle Ti	0.25
First Bucket Du	0.05
Hauler Exchang	0.7

Fleet Production

Fleet Estimates

Operating Schedule	
Operator Efficie	90 %
Schedule Period Shift	
Scheduled Hour	2,000.00
Fleet Estimates	
Fleet Availabilit	87.87 %
Production per	724.11 BCY
Total Productio	336,238 BCY
Sched Hrs Requ	464.35
Total Cost (\$)	359,944
Cost per BCY (\$	1.071
Production per	1,448,220 BCY
Shifts Required	0.23

Theoretical Production

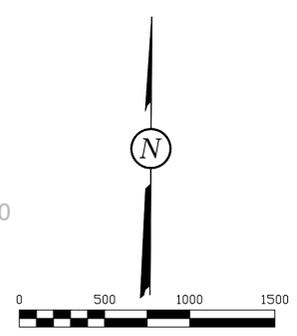
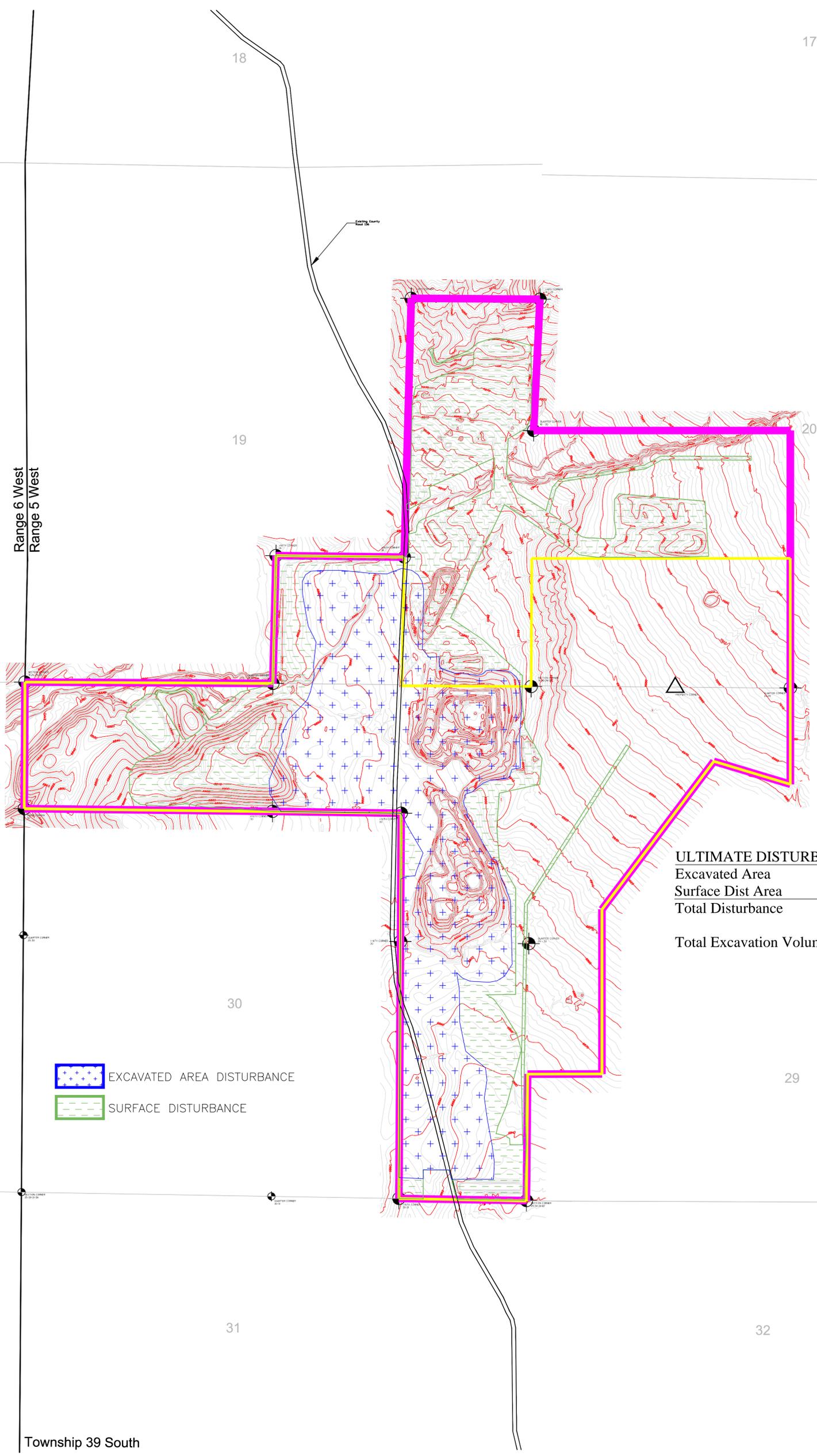
Quantity	Model	BCY per Hour	Cycles per Hour
1	1 385C LME	969	
2	5 769C	1,237	12.3

Actual Production

Quantity	Model	Cycles per Hour	Payload in Tons	Tons per Hour
1	5 769C	9.07	23.31	1,057.12
Fleet Tons per Operating Hour				1,057.12
x 90.00% Operator Efficiency =				951.41
x 87.87% Fleet Availability =				835.99

Cost

Qty	Model	Machine Code	Hourly Cost Each Unit	Operating Hours	Total \$	\$ per BCY
Loaders	1 385C LME		134.32	418	56,134	0.167
Haulers:	5 769C	C202	107.26	2,040	0	0.651
Totals	5			2,040	0	0.651
Support	1 5,000 Gal. Water Truck		74.27	306	22,727	0.068
	1 14 Grader		89.83	204	18,326	0.055
	1 D7 Dozer		96.95	347	33,623	0.1
Totals	3			857	74,677	0.222
Fleet Totals	9			3,315	130,810	1.04



ULTIMATE DISTURBANCE:
 Excavated Area = 177.6 acres
 Surface Dist Area = 164.4 acres
 Total Disturbance = 342.0 acres

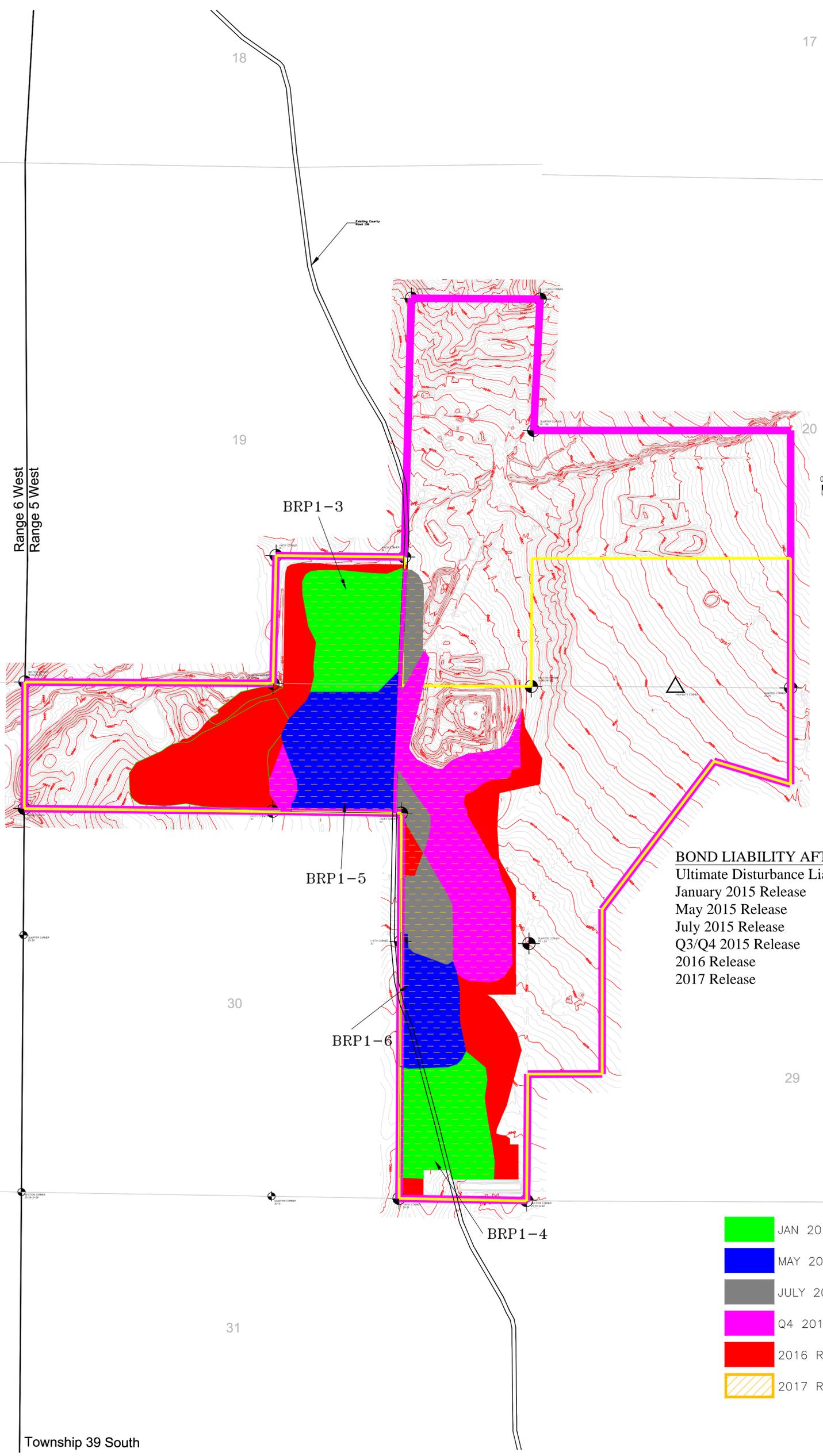
 Total Excavation Volume = 20,651,261 BCY

EXCAVATED AREA DISTURBANCE
 SURFACE DISTURBANCE

Range 6 West
 Range 5 West

Township 39 South

LEGEND: PERMIT BOUNDARY PRIVATE COAL OWNERSHIP ULTIMATE PIT BOUNDARY DISTURBANCE BNDY SECTION LINE FOUND SECTION CORNER FOUND PROPERTY CORNER	DRAWN BY: K NICHOLS	CHECKED BY: LWJ	REVISIONS		OVERBURDEN REMOVAL ULTIMATE DISTURBANCE COAL HOLLOW PROJECT ALTON, UTAH DRAWING: 5-17		 463 North 100 West, Suite 1 Cedar City, Utah 84721 Phone (435)867-5331 Fax (435)867-1192
	DRAWING: 5-17	DATE: 12/24/2014	DATE: 01/19/15	BY: KN			
	JOB NUMBER: 1400	SCALE: 1" = 500'	DATE: 6/15/15	BY: AC			
	SHEET	SHEET	SHEET	SHEET			

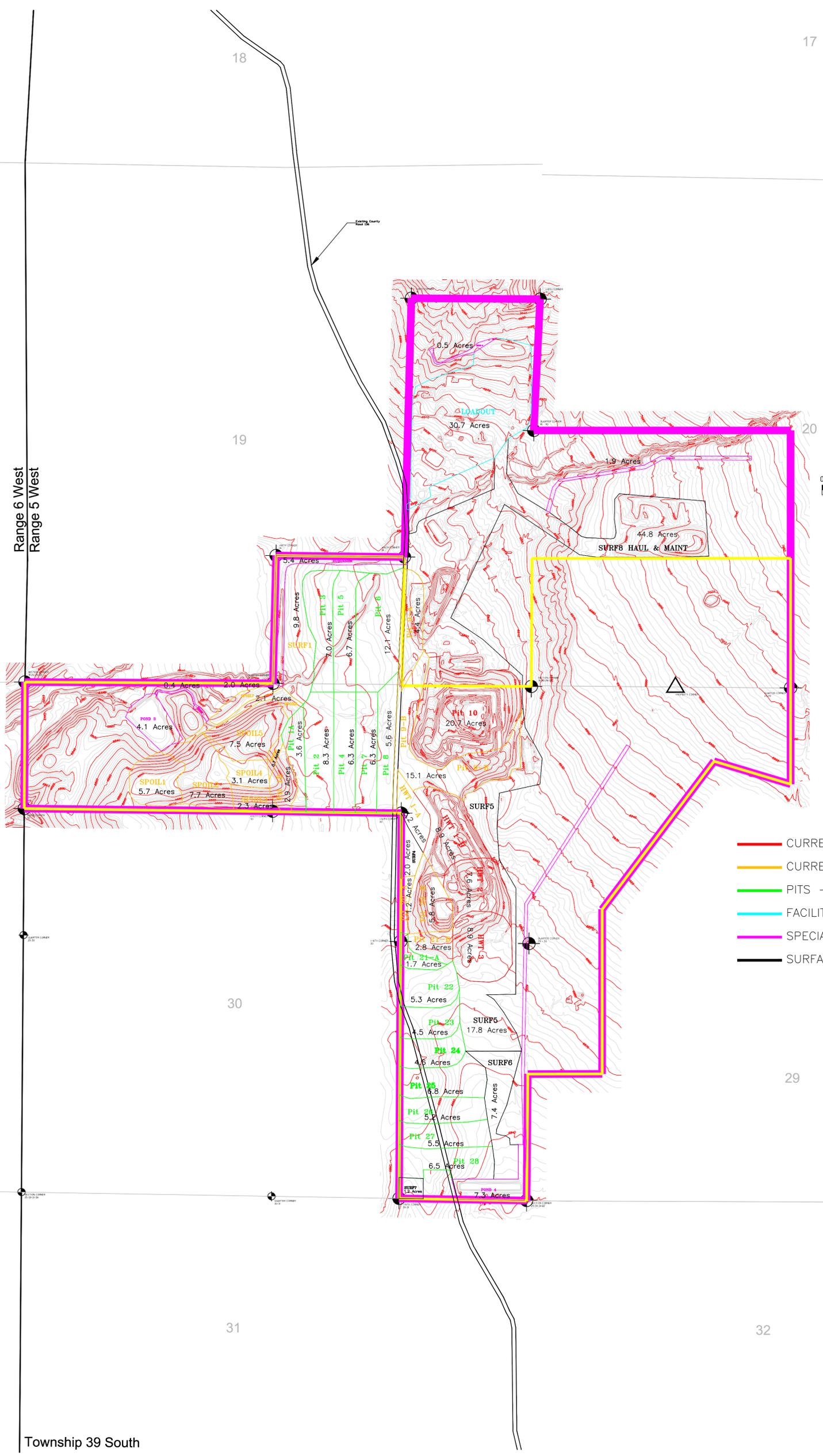


BOND LIABILITY AFTER RELEASE:

Ultimate Disturbance Liability	= \$34,702,758
January 2015 Release	= \$23,956,792
May 2015 Release	= \$13,888,854
July 2015 Release	= \$11,593,102
Q3/Q4 2015 Release	= \$ 5,834,202
2016 Release	= \$ 5,161,636
2017 Release	= \$ 4,839,179

	JAN 2015 RELEASE - PHASE 1
	MAY 2015 RELEASE - PHASE 1
	JULY 2015 RELEASE - PHASE 1
	Q4 2015 RELEASE - PHASE 1
	2016 RELEASE - PHASE 1 & 2
	2017 RELEASE - PHASE 2

LEGEND: PERMIT BOUNDARY PRIVATE COAL OWNERSHIP ULTIMATE PIT BOUNDARY DISTURBANCE BNDY SECTION LINE FOUND SECTION CORNER FOUND PROPERTY CORNER	DRAWN BY: A CHRISTENSEN	CHECKED BY: DWG	REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">DATE:</th> <th style="width: 50%;">BY:</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> </tbody> </table>	DATE:	BY:													BOND SEQUENCE COAL HOLLOW PROJECT ALTON, UTAH DRAWING: 5-18		 Alton Coal Development Coal Hollow Project 463 North 100 West, Suite 1 Cedar City, Utah 84721 Phone (435)867-5331 Fax (435)867-1192
	DATE:	BY:																		
DRAWING: 5-18	DATE: 6/15/2015	SCALE: 1" = 500'																		
JOB NUMBER: 1400	SHEET																			



17

18

19

20

30

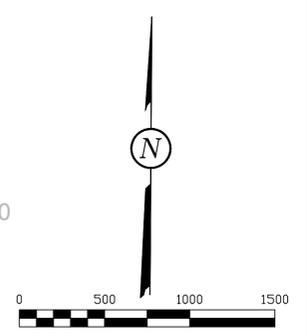
29

31

32

Range 6 West
Range 5 West

Township 39 South



- CURRENT MINING
- CURRENT BACKFILL
- PITS - PHASE 1 COMPLETE
- FACILITIES
- SPECIAL AREAS
- SURFACE DISTURBANCE

LEGEND: PERMIT BOUNDARY PRIVATE COAL OWNERSHIP ULTIMATE PIT BOUNDARY DISTURBANCE BNDY SECTION LINE FOUND SECTION CORNER FOUND PROPERTY CORNER	DRAWN BY: A CHRISTENSEN	CHECKED BY: DWG	REVISIONS		BOND POLYGONS COAL HOLLOW PROJECT ALTON, UTAH DRAWING: 5-19		 Alton Coal Development Coal Hollow Project 463 North 100 West, Suite 1 Cedar City, Utah 84721 Phone (435)867-5331 Fax (435)867-1192												
	DRAWING: 5-19	DATE: 6/15/2015	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">DATE:</th> <th style="width: 50%;">BY:</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> </tbody> </table>					DATE:	BY:										
	DATE:	BY:																	
JOB NUMBER: 1400	SCALE: 1" = 500'	SHEET																	