

Reclamation of the US Hill Mica Mine, New Mexico

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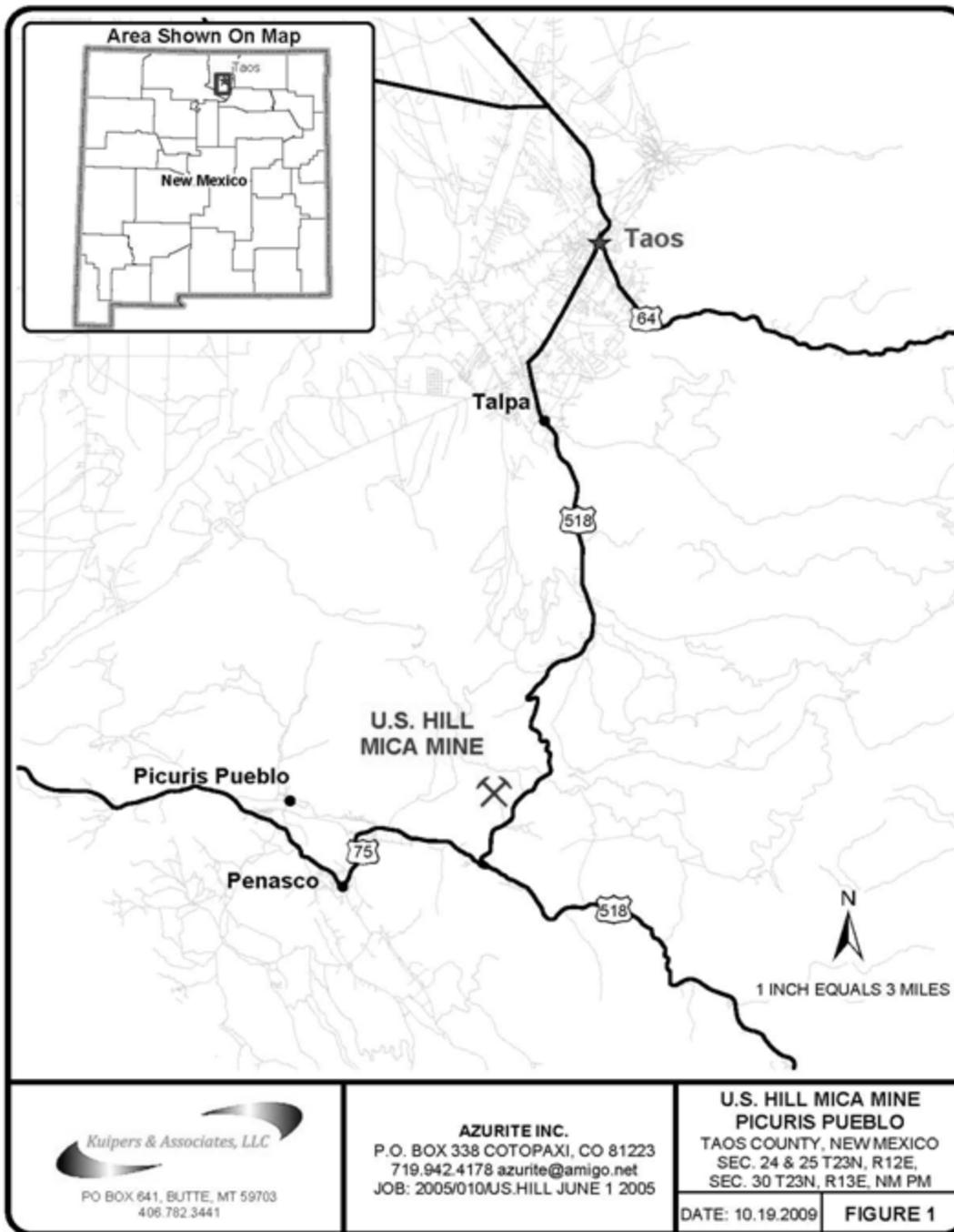
Kuipers & Associates, LLC, Butte, MT USA

2010 Mine Design, Operations & Closure Conference



US Hill Mica Mine

- History
- Site Takeover
- Reclamation Plan and Financial Assurance
- Reclamation
- Post-reclamation Plan and Financial Assurance



US Hill Mica Mine History

- Pre 1950 Historic use by Picuris Pueblo for traditional clay pottery
- 1950-60's Mine site located, patented and mining initiated
- 1998 MMD approves Franklin Minerals U.S. Hill Mine Closeout/Reclamation Plan
- 1999 Oglebay-Norton Specialty Minerals (ONSM) purchases U.S. Hill Mine
- 2002 MMD approves ONSM Revised Closeout/Reclamation Plan
- 2004 ONSM ceases mining operations
- 2005 Picuris Pueblo purchases U.S. Hill Mine
- 2006 Picuris Pueblo submits draft Revised Closeout/Reclamation Plan
- 2007 Picuris Pueblo initiates mine reclamation activities
- 2009 Picuris Pueblo completes mine reclamation activities
- 2009 Picuris Pueblo submits current draft Revised Closeout/Reclamation Plan

Picuris Pueblo Traditional Use

- In the Tiwa language of the Picuris people it is known as “Mowlownan-a” or “pot dirt place.”
- This site not only provided the best micaceous clay source but also had deep religious and traditional cultural significance for the Picuris people who had been gathering clay here for over 400 years.
- During the 1960s when mining operations commenced in the area this important clay source was fenced in with the rest of the land mines making it extremely difficult for potters to access the site.
- By the mid 1990s the Picuris people had lost all access to the site of “Mowlownan-a” which is now buried under tons of waste rock from mining activities.







April 2006 Site Takeover Visit



April 2006 Site Takeover Visit



April 2006 Site Takeover Visit



April 2006 Site Takeover Visit



April 2006 Site Takeover Visit

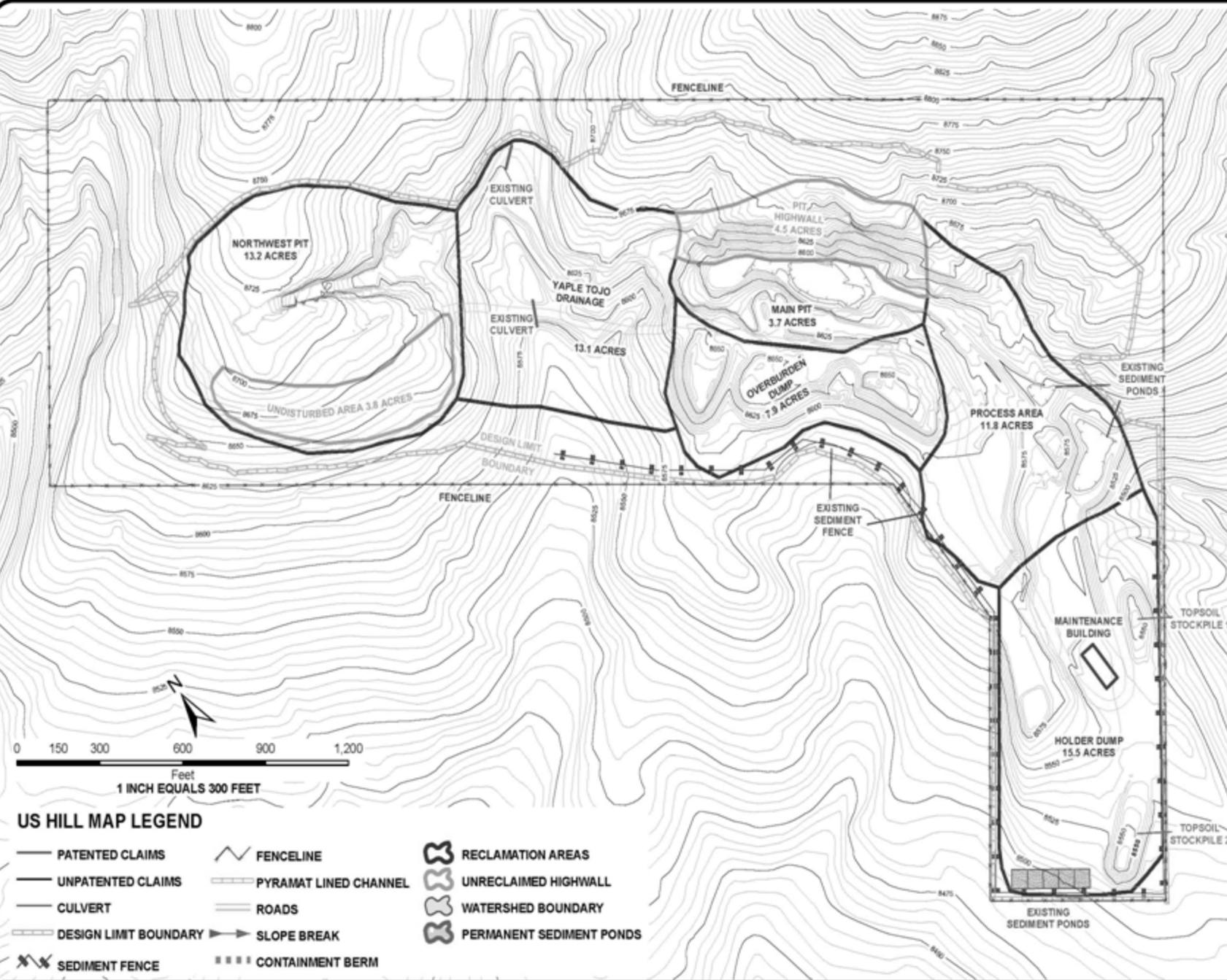


April 2006 Site Takeover Visit



New Mexico Mining Regulations

- Rule 506 and 507.A of the New Mexico Administrative Code established by the New Mexico Mining Act.
- The post-reclamation activities are required until such time as a sustainable ecosystem is achieved in accordance with the New Mexico Mining Act.



US HILL MAP LEGEND

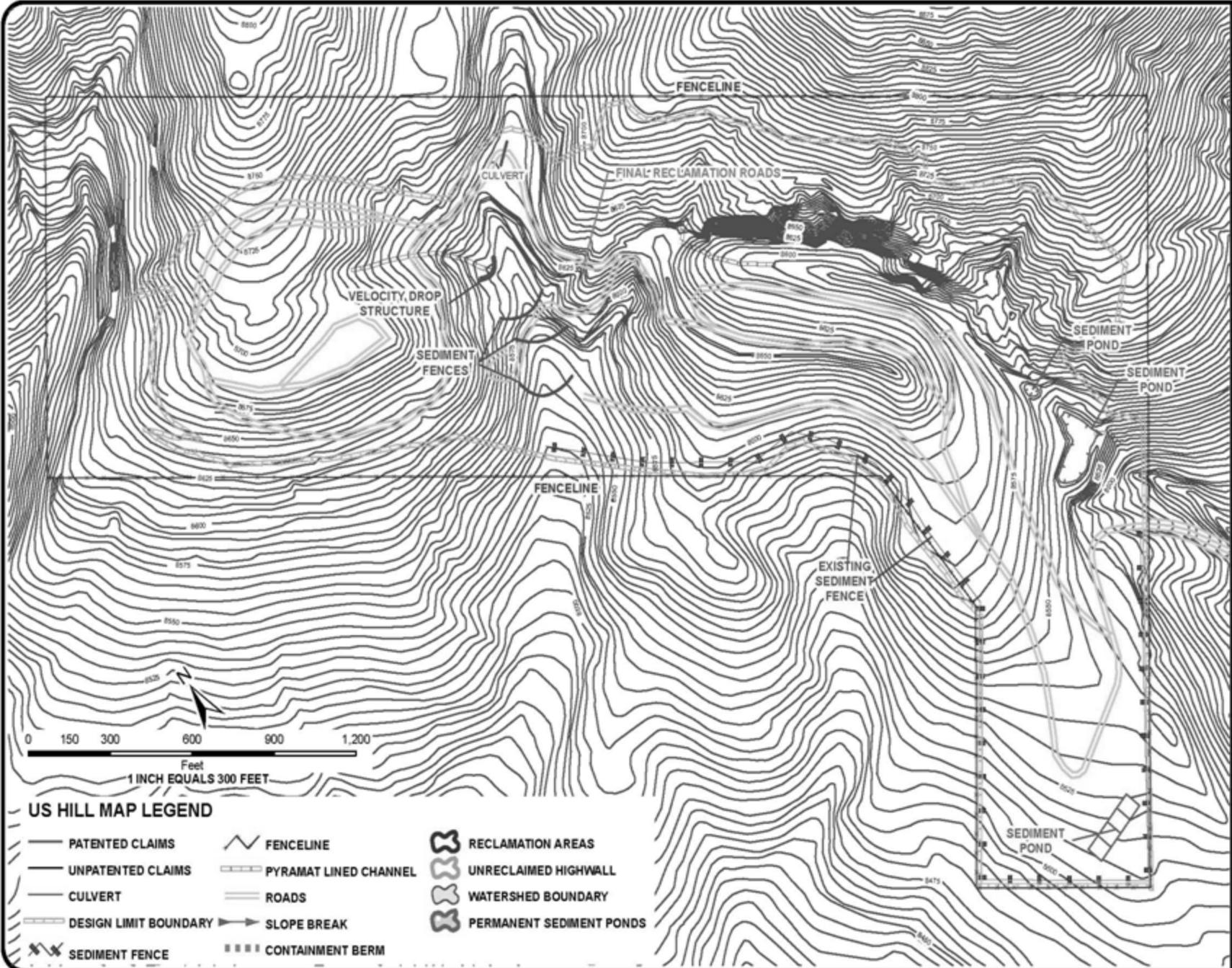
- | | | |
|-------------------------|-------------------------|----------------------------|
| — PATENTED CLAIMS | ~ FENCELINE | ⊕ RECLAMATION AREAS |
| — UNPATENTED CLAIMS | ▬ PYRAMAT LINED CHANNEL | ⊕ UNRECLAIMED HIGHWALL |
| — CULVERT | ▬ ROADS | ⊕ WATERSHED BOUNDARY |
| ▬ DESIGN LIMIT BOUNDARY | ▶ SLOPE BREAK | ⊕ PERMANENT SEDIMENT PONDS |
| ⊕ SEDIMENT FENCE | ▬ CONTAINMENT BERM | |

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**U.S. HILL MICA MINE
 PICURIS PUEBLO**
 TAOS COUNTY, NEW MEXICO
 SEC. 24 & 25 T23N, R12E,
 SEC. 30 T23N, R13E, NM PM
FIGURE 3 DATE: 10.19.2009



US HILL MAP LEGEND

- | | | |
|-------------------------|-------------------------|--------------------------|
| — PATENTED CLAIMS | ~ FENCELINE | RECLAMATION AREAS |
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**U.S. HILL MICA MINE
 PICURIS PUEBLO
 FINAL RECLAMATION MAP
 AUGUST 2009**

FIGURE 4 DATE: 10.19.2009

US Hill Mine Reclamation Schedule

Activity	Year Initiated	Year Completed	Duration of Closure Activity
Site Fence / Signage	2006	2006	One Month
Interim Stormwater Grading and Maintenance	2006	2006	One Month
Northwest Pit	2006	2006	Three Months
Haul Road Removal	2006	2006	One Month
Core Removal	2006	2006	One Month
Yaple/Tojo Watershed Restoration	2006	2009	One Month
Erosion Control Structure Maintenance	2006	2009	5 days/year
Process Area	2007	2007	One Month
Holder #9 Dump	2007	2007	One Month
Overburden Dump	2007	2007	One Month
Building Removal	2007	2007	One Month
Mine Site Revegetation Maintenance	2007	2009	5 days/year
Erosion Control Structure Removal, Final Seeding/Mulching	2009	2009	One Month
Revegetation Monitoring and Inspections	2010	2021	5 days/year

TABLE 3.1
Mine Site Acres of Design Limits (by Units)

Unit	2009 Condition (Reclaimed Areas)
Pit Operations Area	15.4
Roads and Building	6.0
Sediment Ponds	2.5
Overburden Stockpiles	35.2
Topsoil Stockpiles	3.4
Pit Backfill Area	3.7
Total	66.2

**Table 1 - US Hill Mine
Reclamation Cost Estimate Summary**

Task Area	Total Costs
Capital Costs	
Hazardous Waste and Substances	\$0
Demolition, Removal and Disposal of Facilities and Equipment	\$60,571
Earthwork	\$224,898
Revegetation	\$47,567
Sub-total	\$333,036
Annual Costs	
Interim Operations Y1-3	\$0
Long-term Operations and Maintenance - 5 years	\$45,922
Monitoring - 5 years	\$10,927
Sub-total	\$56,849
Direct Cost Subtotal	\$389,885
Indirect Cost, as % of Capital Cost	
Contingency	10.0%
Engineering Redesign	7.0%
Mobilization/Demobilization	3.0%
Contractor Overhead and Profit	25.0%
Agency Contract Administration	5.0%
Agency Indirect Costs	7.0%
Total Indirect Cost Multiplier	57.0%
Indirect Cost, \$'s	
Contingency	\$38,988
Engineering Redesign	\$27,292
Mobilization/Demobilization	\$11,697
Contractor Overhead and Profit	\$97,471
Agency Contract Administration	\$19,494
Agency Indirect Costs	\$27,292
Total Indirect Cost	\$222,234
Total Cost Estimate	\$612,119













TABLE 4.1
Summary of Closure Activities and Schedule

Activity	Frequency	Year(s) Completed
Reclamation Completed		2009
Storm Water Management	Annual	2010-2021
Pyramat Demonstration	Five-year	2014
Revegetation Maintenance and Monitoring	Bi-annual	2011, 13, 15, 17, 19, 21
Soil and Erosion Maintenance and Monitoring	Bi-annual	2011, 13, 15, 17, 19, 21
Wildlife Monitoring	4-year	2013, 17, 21
Final Closure Application	12-year	2021

Post-Reclamation Financial Assurance
(12-year bonding period, 2009 Costs)

Area	Total Cost
Long-Term Operations and Maintenance	\$66,346
Monitoring	\$27,000
Erosion Control Contingency	\$31,330
Indirect Costs	\$42,390
Total Costs	\$167,066