Climax Molybdenum
A Freeport-McMoRan Company

Climax Mine
Highway 91 - Fremont Pass
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December 20, 2021

Mr. Lucas West
Environmental Protection Specialist
Division of Reclamation, Mining and Safety
Department of Natural Resources
1313 Sherman St. Room 215
Denver, Colorado 80203

RE: Climax Mine, Permit No. M-1977-493, Technical Revision 33 – Mill Building Apron and Associated Containment EPF

Dear Mr. Czapla,

Enclosed please find Technical Revision 33 that describes the containment of designated chemicals in the Climax Mill as discussed in the letter dated September 24, 2021.

The TR materials (electronic files) are attached to this letter. The $1,006.00 fee applicable to a 112d operation has been paid via credit card on the online portal as part of this submittal. We appreciate your review of the TR and look forward to your approval. Please contact me at 719-486-7525 if you need additional information.

Sincerely,

Diana Kelts
Environmental Manager

attachments

Technical Revision - 33

Climax Mine Mill Containment

December 2021

Climax Molybdenum
A Freeport-McMoRan Company

Contents

Introduction

In this Technical Revision is a summary of the Climax Mill circuit, a discussion of the containment and sumps, a description of the possible spills within the mill and their containment, an explanation of the designated chemicals storage in the mill, and lastly the geochemical data for the Climax Tailings.

Mill Summary

The Climax Mine is a primary molybdenum mine that processes molybdenum ore through its primary crusher and milling circuit. The Climax mill was completed in 2012 and contains crushing, grinding, concentration, and shipping facilities capable of processing upwards of 34,000 tons per day of ore. All facilities are designed for the continuous operation at 24 hours per day, 365 days per year. The original primary crusher, coarse ore stockpile and associated feeders and conveyors were refurbished during the 2012 restart of the operation.

The process design is based on proven technology and is suited for the types of ore anticipated during operations. The facilities locations were selected to utilize the existing primary crusher and coarse ore stockpile facilities. In addition, topographic advantage was taken to minimize process pumping requirement and allow gravity flow of tailing.

The major operations are:

- Primary crushing;
- Semi-autogenous (SAG) & ball mill grinding;
- Rougher flotation;
- Rougher concentrate thickening;
- Concentrate regrinding;
- Cleaner flotation;
- Final concentrate thickening;
- Final concentrate filtering and drying; and
- Product packaging.

Dried Grade B or Grade 1 molybdenum concentrate, the final product, is packaged in 2-ton supersacks and transported off-site for refining.

Mill Containment and Sumps

The Climax milling process is located inside the mill building which is contained by the concrete apron of the building. The building apron and associated containment are considered the Environmental Protection Facility (EPF). The building apron and associated containment were designed to contain spills within the building. The sumps located in each containment area are designed to return as much of that spilt material to the process. The area directly outside of the mill building is paved with asphalt. In the unlikely event that any material is spilled outside the mill building, it would report to Camp Drainage, East Tailings Delivery Line (EDTL), and finally the Tenmile TSF, which serves as tertiary containment.

The containment is broken up into two sections: Grinding and Flotation/Thickener area. The grinding area is denoted by the number 420 in the attached drawing AM-06-T-05 and contains the cyclones and the mills. The flotation and thickener containment are considered one containment area and is denoted by

the number 430 on the attached drawing and referred to Flotation/Thickener area in this document. This area contains the flotation cells, concentrate thickeners, and reagent tote storage. The drying and packaging area is denoted by the number 440 on the attached drawing and contains only dry product at this point in the process.

Below is a description of design criteria for the building apron and associated containment. The concrete floors in the Flotation/Thickener area are 8-12 inches thick and the walls are 24-30 thick. The concrete floors in the Grinding area are 15 inches thick and the walls are 12 inches thick. The concrete apron was also reinforced with steel rebar and an asphalt impregnated fiber joint filler was used. The asphalt impregnated fiber joint filler was selected because it is waterproof, won't degrade over time, is flexible, and has self-healing properties to prevent solutions from the mill from percolated through the concrete joints and under the mill building. The concrete was not coated because acidic chemicals and solutions are not used in the milling process that would corrode the concrete. The floors of the containment are sloped away from the entrances to the building towards the sumps in each area. The building apron and associated containment was also designed to withstand equipment, snow, wind, impact and seismic loading. A corrosion resistant concrete was used at the entrances to the building to prevent corrosion during the winter when salt is applied to walkways.

There are four sumps located within the building apron and associated containment area. If the event of a process upset the sumps are utilized to returned spilt material to the process in order to recover as much molybdenum as possible.

- The Grinding Sump which is located in the Grinding area (420) returns solutions back to the process by pumping them to the cyclone feed.
- The Flotation Sump which is location in the Flotation/Thickener area (430) returns solutions from the flotation area to the process by pumping them back to the rougher thickener.
- The Concentrate Thickener Sump which is located in the Flotation/Thickener area (430) returns solutions from the concentrate thickener area to the process by pumping them to the rougher thickener.
- The Underdrain Sump which is located in the Flotation/Thickener area (430) reports to Camp Drainage which goes to the East Tailings Delivery Line (ETDL) and finally to Tenmile Tailings Storage Facility (TSF). This sump is generally blocked and only opened during major upset conditions.

Each sump is inspected during the shift and inspection annually by the Environmental Department to look for cracks in the concrete and other integrity issues. The sumps are concrete and have swellstop/waterstop at the bottom joints.

Containment of Spills

In general, the building apron and associated containment is designed to contain spills that might occur within the building by returning them to the process via sumps.

The containment in the Grinding Area (420) is sloped toward the grinding sump and the Grinding Sump is be utilized when an upset occurs. The containment capacity of the grinding area is approximately 590,000 gallons. This is enough capacity to contain major upset in the grinding process as much of the material in this area is a solid. In the event of a major upset a valve can be opened and material from this area can be directed to the Tailings Delivery Line (TDL).

The Flotation and Thickener area (430) function as one containment. The Thickener Sump and Flotation sumps are used to return upsets to the process in those areas. The containment capacity for the Flotation/Thickener area is approximately 1,000,000 gallons. There are two major upset conditions that could occur in the Flotation/Thickener area, a failure of the concentrate thickener or a break in the rougher feed line. The concentrate thickener itself holds approximately 725,000 gallons of solution during operation so if the thickener were to fail the Flotation/Thickener area has enough capacity to contain a major upset. Another potential upset in the Flotation/Thickener area could come from a break in the rougher feed line which runs the length of area 430. The flows in this line are approximately 25,000 gallons per minute. There are alarms in place in the control room if this line loses pressure and valves would be closed within minutes of detection of a failure. Since this line runs the length of the area, solutions from this pipeline would report to the Flotation/Thickener area as described above. This upset would be contained within the Flotation/Thickener area and pumped back into the process to the flotation circuit. In the event of a major upset in the Flotation/Thickener area the Underdrain Sump is utilized, and solutions are redirected to Tenmile tailings via Camp Drainage and the ETDL.

Areas	Drawing Designation	Capacity	Worst Case Spill Amount	Sumps
Grinding Area	420	590,000 gallons	207,000 gallons, SAG and Ball Mill failure	Grinding Sump
Flotation/ Thickener Area	430	1,000,000 gallons	725,000 gallons, thickener failure 125,000 gallons, rougher feed line break	Flotation Sump Thickener Sump Underdrain Sump

Designated Chemical Storage

As discussed in the Climax Environmental Protection Plan in section T-3, several designated chemicals are used in the milling process. Their locations are illustrated on Figure AM-06-T-05 as room 450 on the bottom of the drawing. There are two enclosed reagent storage rooms within the mill building. There are three tanks in one room: the collector, frother and iron depressant tanks. The largest of these tanks is 13,500 gallons, or approximately 1,800 ft^3. The total maximum volume of reagents stored in this room is 32,800 gallons, or approximately 4,400 ft^3. As illustrated on Figure AM-06-T-06, this room has a total spill containment capacity of approximately 44,000 gallons, or 5,900 ft^3. The other room contains one tank, the liquid Nokes (iron/lead/copper depressant) tank, whose size is 18,000 gallons, or approximately 2,400 ft^3 with a spill containment capacity of approximately 29,000 gallons, or 4,000 ft^3. All of the reagent storage tanks within the reagent storage rooms (Area 450) are vented to atmosphere. Climax also stores containers (totes and/or drums) of designated chemicals on the floor of the mill building (Area 430) and may temporarily store containers in the Climax warehouse. Secondary containment for designated chemicals is achieved by use of containment structures (Area 450), spill pallets (warehouse and Area 430), and concrete floors/sumps (Area 430).

The reagent unloading area is located directly adjacent to the designated chemical storage room. If a release occurs while unloading chemicals, it reports to a sump in the floor that flows back into the designated chemical storage room. These tanks are inspected regularly under the site Spill Prevention, Control and Countermeasure (SPCC) plan since they contain petroleum products.

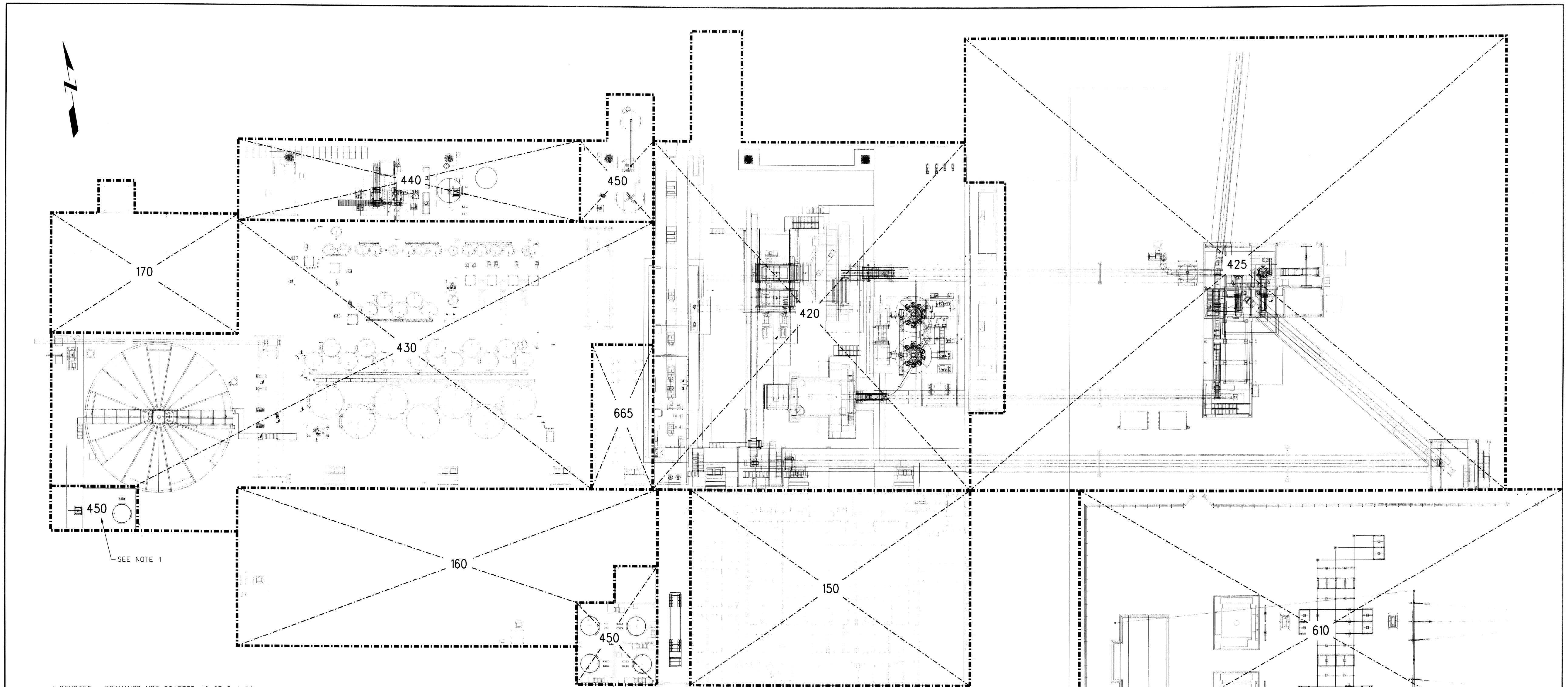
The area denoted as 450 at the top of the drawing contains the lime slaker for the milling process. This tank has its own containment and sump that returns the lime to the tank if a spill were to occur.

Tailings Chemistry

During the restart of the Climax mine the geochemistry of the tailings was determined by researching previous data from the existing TSF's completed by Shepard Miller Inc. in 1997. This data set included grab samples and core samples of Robinson, Tenmile and Mayflower TSF's and grab samples from 1, 3, and 5 dam. This data set includes metals, total sulfur and acid/base accounting. See attached tables in Appendix B

Appendix A

Drawing AM-06-T-05 and AM-06-T-06



∗ DENOTES – DRAWINGS NOT STARTED AS OF 3-1-09

150 ADMINSTRATION BUILDING

160 WAREHOUSE

170 LABORATORY

420 GRINDING

420-L-GA-001 G.A. GRINDING AREA – PLAN @ EL 11330'-0"
420-L-GA-002 G.A. GRINDING AREA – PLAN @ EL 11370'-0"
420-L-GA-003 G.A. GRINDING AREA – PLAN @ EL 11400'-0"
420-L-GA-004 G.A. GRINDING AREA – PLAN @ EL 11420'-0"
420-L-GA-005 G.A. GRINDING AREA – SECTIONS A & B
420-L-GA-006 G.A. GRINDING AREA – SECTIONS C & D
420-L-GA-007 G.A. GRINDING AREA – SECTIONS E & F
420-L-GA-008 G.A. GRINDING AREA – SECTIONS G & H
420-L-GA-009 G.A. GRINDING AREA – SECTIONS I & J

425 PEBBLE CRUSHER

425-L-GA-001 G.A. PEBBLE CRUSHING AREA – PLAN @ 11375'-0"
425-L-GA-002 G.A. PEBBLE CRUSHING AREA – PLAN @ 11345'-0"
425-L-GA-003 G.A. PEBBLE CRUSHING AREA – PLAN @ 11392'-9"
425-L-GA-004 G.A. PEBBLE CRUSHING AREA – PLAN @ 11408'-2"
∗ 425-L-GA-005 G.A. PEBBLE CRUSHING AREA – PLAN @ 11448'-0" & 11464'-2"
425-L-GA-006 G.A. PEBBLE CRUSHING AREA – SECTION A
425-L-GA-007 G.A. PEBBLE CRUSHING AREA – SECTION B
425-L-GA-008 G.A. PEBBLE CRUSHING AREA – SECTION C
425-L-GA-009 G.A. PEBBLE CRUSHING AREA – SECTION D

430 FLOTATION / THICKENER

430-L-GA-001 G.A. FLOTATION AREA – PLAN @ EL 11330'-0"
430-L-GA-002 G.A. FLOTATION AREA – PLAN @ EL 11308'-0"
430-L-GA-003 G.A. FLOTATION AREA – PLAN FROM COLUMN 3 TO 6
430-L-GA-004 G.A. FLOTATION AREA – PLAN @ EL 11410'-0"
430-L-GA-005 G.A. FLOTATION AREA – SECTION A
430-L-GA-006 G.A. FLOTATION AREA – SECTION B
430-L-GA-007 G.A. FLOTATION AREA – SECTION C
430-L-GA-008 G.A. FLOTATION AREA – SECTION D
430-L-GA-009 G.A. FLOTATION AREA – SECTION E
430-L-GA-010 G.A. THICKENER AREA – PLAN @ 11309'-0"
430-L-GA-011 G.A. THICKENER AREA – PLAN @ 11318'-6"
430-L-GA-012 G.A. THICKENER AREA – SECTION A & B
430-L-GA-013 G.A. THICKENER AREA – SECTION C & D

440 FILTERING / DRYING / PACKAGING

440-L-GA-001 G.A. FILTRATION/DRYING/PRODUCT HANDLING – PLAN @ 11338'0"
440-L-GA-002 G.A. FILTRATION/DRYING/PRODUCT HANDLING – PLAN @ 11360'0"
∗ 440-L-GA-003 G.A. FILTRATION/DRYING/PRODUCT HANDLING – PLAN @ 11386'0"
440-L-GA-004 G.A. FILTRATION/DRYING/PRODUCT HANDLING – PLAN @ 11397'0"
440-L-GA-005 G.A. FILTRATION/DRYING/PRODUCT HANDLING – SECTION A
440-L-GA-006 G.A. FILTRATION/DRYING/PRODUCT HANDLING – SECTION B & C

450 REAGENT

450-L-GA-001 G.A. LIME SYSTEM – PLAN @ 11340'0"
∗ 450-L-GA-002 G.A. LIME SYSTEM – PLAN @ 11354'0"
450-L-GA-003 G.A. LIME SYSTEM – SECTIONS A & B
450-L-GA-004 G.A. REAGENT AREA – PLAN & SECTIONS

610 ELECTRICAL SUBSTATION

SEE AREA 610 ELECTRICAL DRAWINGS

665 COMPRESSED AIR

HOLD FOR EQUIPMENT INFORMATION
(DRAWINGS NOT STARTED)

NOTES:

1. FLOCCULANT SYSTEM GA'S ARE INCLUDED IN 430 AREA GA DRAWINGS 430-L-GA-010 THRU 013

DOCUMENT APPROVAL
☐ Approved
☐ Not approved - resubmit
Date______ Approved by______

REFERENCE DRAWINGS

REV	DESCRIPTION	BY	CHECKED	APPROVED
A	ISSUED FOR REVIEW	LDA	LP 1-22-09	
B	ISSUED FOR APPROVAL	LDA	LP 2-11-09	
C	ISSUED FOR APPROVAL		2/13/09	2/13/09

PROJECT APPROVAL

ISSUED	REV	PROJ	DATE	CLIENT	DATE
PRELIMINARY	A	BD	1-26-09		
ISSUED FOR APPROVAL	C		2/16/09		
ISSUED FOR CONSTRUCTION					
REVISED ISSUED FOR CONSTRUCTION					

Climax Molybdenum
JACOBS

CLIMAX 2010
GENERAL ARRANGEMENT
MILL AREA
KEY PLAN

PROJECT NO 09KU6600 | SCALE 1" = 30' | DWG NO 410-L-GA-001 | REV C

examples q:\cmx02\09KU6600\mech\Drawings\410LGA001.dgn 4:04:38 PM 2/13/2009

TETRA TECH

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REVISIONS			
DATE	BY	DATE	BY

Drawing Scale: NA
Drawn By: NA
Checked By: NA
Approved By: NA
Date: FEB 2011

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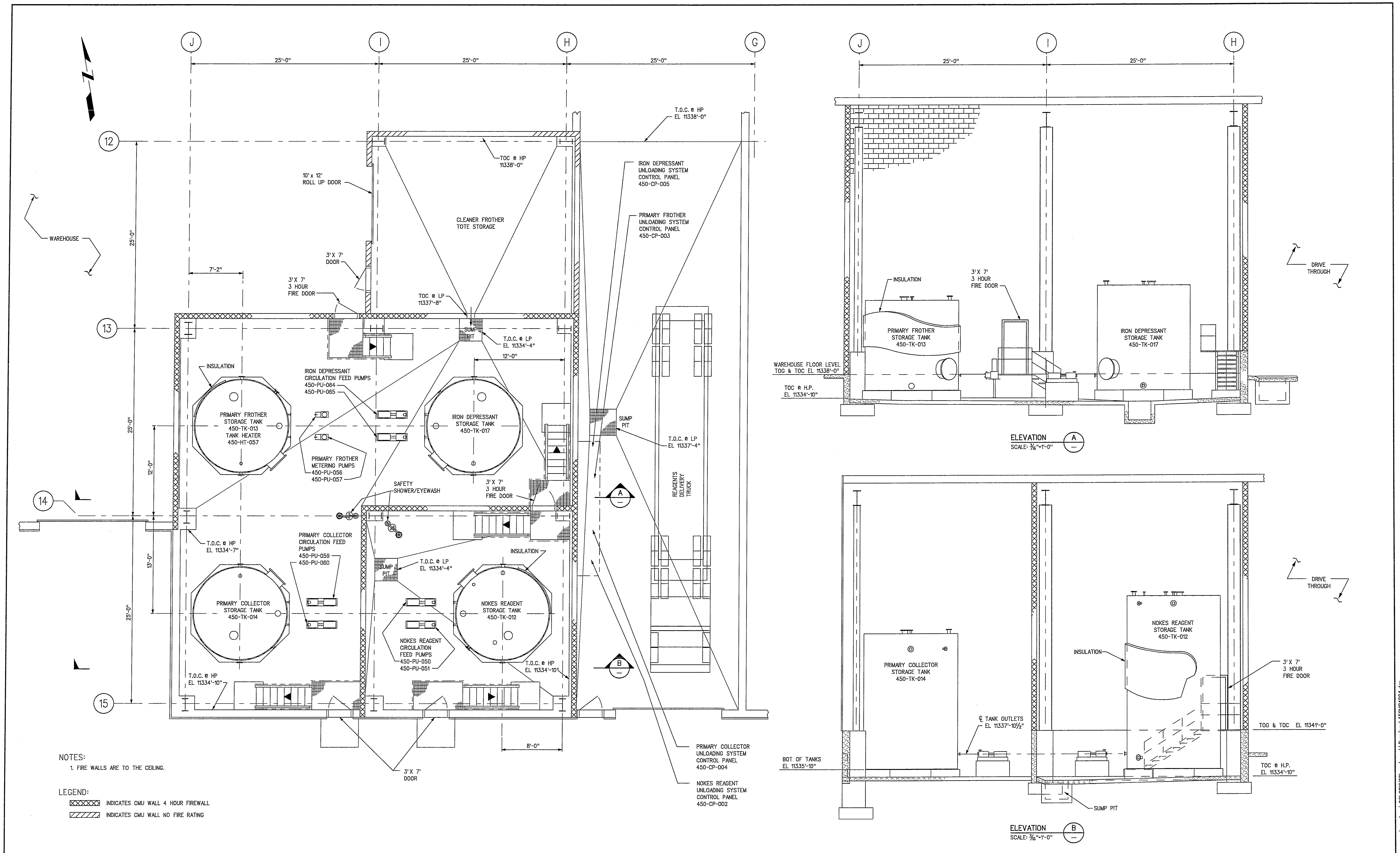
CLIMAX MINE

FIGURE AM-06-T-05
GENERAL ARRANGEMENT
MILL AREA
KEY PLAN



REFERENCE DRAWINGS	REV	DESCRIPTION	BY	CHECKED	APPROVED
	A	ISSUED FOR REVIEW	LDA	DP 1-16-09	
	B	ISSUED FOR APPROVAL	LDA	DP 2-2-09	DP 2-2-09
	C	ISSUED FOR APPROVAL			

PROJECT APPROVAL ISSUED	REV	PROJ	DATE	CLIENT	DATE
PRELIMINARY	A	BD	1-19-09		
ISSUED FOR APPROVAL	C	BD			
ISSUED FOR CONSTRUCTION					
REVISED ISSUED FOR CONSTRUCTION					

Climax Molybdenum — JACOBS

CLIMAX 2010
GENERAL ARRANGEMENT
REAGENT STORAGE & HANDLING
PLAN & SECTIONS

PROJECT NO 09KU6600 | SCALE 3/16" = 1'-0" | DWG NO 450-M-GA-004 | REV C

2/13/2009 8:38:00 AM

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REVISIONS			
DATE	BY	DATE	BY

Drawing Scale:	NA
Drawn By:	NA
Checked By:	NA
Approved By:	NA
Date:	FEB 2011

Climax Molybdenum
A Freeport-McMoRan Company

CLIMAX MINE

FIGURE AM-06-T-06
GENERAL ARRANGEMENT
REAGENT STORAGE & HANDLING
PLAN & SECTIONS

Appendix B

Tailings Data Tables

Environmental Protection Plan
Appendix T-E
Climax Molybdenum Company
Geochemical Data
Table T-E-1 - Synthetic Precipitation Leaching Procedure (SPLP) - Tailing and Road Fill Material

Sample ID	Matrix	Depth feet	Aluminum mg/L	Antimony mg/L	Arsenic mg/L	Cadmium mg/L	Calcium mg/L	Chromium mg/L	Copper mg/L	Fluoride mg/L	Iron mg/L	Lead mg/L	Magnesium mg/L	Manganese mg/L	Mercury mg/L	Molybdenum mg/L	Phosphorous mg/L	Potassium mg/L	Selenium mg/L	Sodium mg/L	Sulfate mg/L	Zinc mg/L	Total Dissolved Solids	pH saturated paste units
Shepherd Miller Report - January 1997																								
MAYFLOWER IMPOUNDMENT																								
MB-1-10-11.5	Core	10-11.5	0.172	<0.034		<0.0024	30.3	<0.005	0.004		0.235	0.003	2.12	0.571	<0.002	1.13		10.7	<0.005	2.58		0.044		6.84
MB-2-85-87	Core	85-87	0.377	<0.034		0.0048	242	<0.005	0.007		0.037	<0.004	9.68	2.49	<0.002	13.5		51	<0.005	18.6		0.064		7.25
T5-2	Surface	2	2.86	<0.034		<0.0024	256	<0.005	0.043		2.6	<0.004	3.53	1.42	<0.002	<0.014		8.08	<0.005	2.56		0.155		3.62
TENMILE IMPOUNDMENT																								
TB-1-10-12	Core	10-12	46.3	<0.034		0.0033	305	0.013	0.515		70.2	0.002	9.36	2.01	<0.002	0.038		7.87	<0.005	1.61		1.09		3.08
TB-2-125-126.5	Core	125.126.5	0.201	<0.034		<0.0024	67.1	<0.005	0.011		0.053	0.005	5.3	1.75	<0.002	17.1		23	<0.005	2.47		0.05		6.54
TM-T1-1	Surface	1	21.3	<0.034		0.0098	422	<0.005	1.71		1.84	0.016	4.2	1.83	<0.002	<0.014		7.79	<0.005	4.88		1.08		4.11
ROBINSON IMPOUNDMENT																								
RB-2-55-57	Core	55-57	0.161	<0.034		<0.0024	56.7	<0.005	0.006		<0.024	0.002	4.4	1.08	<0.002	7.18		29.7	<0.005	17.7		0.047		6.38
RB-4-10-12	Core	10-12	0.656	<0.034		<0.0024	343	<0.005	0.046		0.11	<0.0016	336	4.96	<0.002	66		43.4	<0.005	17.1		0.034		7.96
RT-T1-1	Surface	1	40.9	0.037		0.0034	208	0.048	0.411		101	0.028	7.31	1.25	<0.002	0.077		2.23	<0.005	1.35		1.07		2.88
Ceresco Ridge - Road Fill Material December 2010																								
CMC-CERESCO B 1-10					<0.0005	<0.0001			0.0015	0.4	0.03	0.0004		<0.005	<0.0002	<0.01	<0.01		0.0001		8	<0.01	40	6.0

Shepherd Miller, 1997 Characterization of Mine Tailings, Climax Mine, Climax, Colorado. Prepared for Climax Molybedenum Company by Shepherd Miller Inc. January 1997
Ceresco Ridge, 2010 Ceresco Ridge - Road Fill Material Analytical Results from Drill Chip Samples from Drilling and Blasting on Ceresco Ridge, December 2010.

Environmental Protection Plan
Appendix T-E
Climax Molybdenum Company
Geochemical Data
Table T-E-2 - Acid Base Accounting - Waste Rock, Tailing, and Road Fill Material

Sample ID	Matrix	Depth feet	Acid Generating Potential (AGP) based on Sulfide Sulfur tons $CaCO_3$/kton	Acid Neutralization Potential (NP or ANP) tons CaCO3/kton	Net Neutralization Potential (NNP) (ANP-AGP) tons $CaCO_3$/kton	Neutralization Potential Ratio (NPR) (ANP/AGP) unitless	Saturated Paste pH pH units	Sulfur - T %	Sulfate Sulfur (HCl extractable sulfur) %	Sulfide Sulfur (HNO_3 extractable sulfur) %	Hot Water extractable sulfur %	Residual Sulfur (Insoluble) %
Miscellaneous Data									See Note 1	See Note 2		
CM-SRTP-WR-BS01	Soil		2.2	0.0	-2.2	0	4.4	0.45	0.13	0.07		0.25
CM-SRTP-WR-BS02	Soil		2.2	0.3	-1.9	0.01	4.5	0.69	0.19	0.07		0.43
Ceresco Ridge - Road Fill Material December 2010									See Note 1	See Note 2		
CMC-CERESCO B 1-10	drill chips		14.1	0.0	-14.1	0.0	4.6	0.56	0.11	0.45		<0.01
CMC-CERESCO B-1/2-10	drill chips		5.9	2.0	-3.9	0.3	4.7	0.21	0.02	0.19		<0.01
CMC-CERESCO B-1/2-R-10	drill chips		9.7	3.0	-6.7	0.3	5.0	0.39	0.08	0.31		<0.01
CMC CERESCO B 2-10	drill chips		9.4	0.0	-9.4	0.0	4.6	0.41	0.11	0.3		<0.01
CMC CERESCO B 2-11	drill chips		9.7	1.0	-8.7	0.1	4.3	0.42	0.11	0.31		<0.01
CMC CERESCO B 2-20	drill chips		16.3	0.0	-16.3	0.0	4.3	0.62	0.1	0.52		<0.01
CMC-CERESCO B-3-10	drill chips		7.2	3.0	-4.2	0.4	4.6	0.28	0.05	0.23		<0.01
ProMac Systems - September 9, 1988									See Note 1	See Note 2		
88049-1	Core		1.7	2.77	1.11	1.7	5.5	0.219	0.164	0.053		0.002
88049-2	Core		2.8	4.05	1.24	1.4	6.0	0.12	0.03	0.09		<0.001
88049-3	Core		35.6	5.18	-30.45	0.1	6.3	1.238	0.07	1.14		0.028
88049-4	Core		30.2	6.26	-23.9	0.2	5.9	1.18	0.196	0.965		0.019
88049-5	Core		19.0	82.19	63.16	4.3	7.2	0.799	0.179	0.609		0.011
88049-6	Core		69.4	25.42	-43.96	0.4	5.7	2.683	0.43	2.22		0.033
88049-7	Core		29.5	5.57	-23.96	0.2	5.6	1.07	0.092	0.945		0.033
88049-8	Core		19.4	6.75	-12.63	0.3	6.5	0.782	0.137	0.62		0.025
88049-9	Core		22.6	3.17	-19.46	0.1	5.7	0.884	0.16	0.724		<0.001
88049-10	Core		15.5	2.36	-13.17	0.2	6.3	0.64	0.143	0.497		<0.001
Shepherd Miller Report - January 1997												
MAYFLOWER IMPOUNDMENT												
MB-1	Core	10.75	38	3	-35	0.1	6.84	1.42	0.16	1.2	<0.01	0.06
MB-1	Core	31	63	3	-60	0.0	5.15	2.34	0.15	2.02	0.13	0.04
MB-1	Core	51	86	4	-82	0.0	5.61	2.8	<0.01	2.74	<0.01	0.06
MB-1	Core	96	34	6	-28	0.2	7.65	1.11	<0.01	1.09	<0.01	0.02
MB-1	Core	126	15	4	-11	0.3	8.10	0.56	0.04	0.49	0.02	0.01
MB-2	Core	7.1	17	5	-12	0.3	6.29	0.61	<0.01	0.55	0.05	0.01
MB-2	Core	28	21	3	-18	0.1	7.35	0.79	<0.01	0.68	0.08	0.03
MB-2	Core	41	24	5	-19	0.2	8.13	0.85	0.05	0.78	0.01	0.01
MB-2	Core	66	20	5	-15	0.3	7.49	0.7	0.02	0.64	0.04	<0.01
MB-2	Core	86	20	4	-16	0.2	7.25	0.67	<0.01	0.63	0.04	<0.01
T5-1	Surface	0.5	20	4	-16	0.2	4.9	0.63	<0.01	0.63	<0.01	<0.01
T5-2	Surface	2	16	4	-12	0.3	3.62	0.58	<0.01	0.52	0.06	<0.01

Environmental Protection Plan
Appendix T-E
Climax Molybdenum Company
Geochemical Data
Table T-E-2 - Acid Base Accounting - Waste Rock, Tailing, and Road Fill Material

Sample ID	Matrix	Depth feet	Acid Generating Potential (AGP) based on Sulfide Sulfur tons $CaCO_3$/kton	Acid Neutralization Potential (NP or ANP) tons CaCO3/kton	Net Neutralization Potential (NNP) (ANP-AGP) tons $CaCO_3$/kton	Neutralization Potential Ratio (NPR) (ANP/AGP) unitless	Saturated Paste pH pH units	Sulfur - T %	Sulfate Sulfur (HCl extractable sulfur) %	Sulfide Sulfur (HNO_3 extractable sulfur) %	Hot Water extractable sulfur %	Residual Sulfur (Insoluble) %
T5-4	Surface	3	17	3	-14	0.2	4.59	0.64	<0.01	0.55	0.07	0.02
T5-5	Surface	4	29	3	-26	0.1	4.78	1.1	0.1	0.94	0.02	0.04
T6-3	Surface	4.6	16	2	-14	0.1	2.92	0.66	0.07	0.5	0.09	<0.01
T6-4	Surface	5	19	3	-16	0.2	2.69	0.8	0.09	0.62	0.09	<0.01
T6-7	Surface	20	71	3	-68	0.0	3.85	2.41	0.01	2.27	0.03	0.1
MF-T1-3.5	Surface	3.5	33	5	-28	0.2	3.11	1.19	0.1	1.06	<0.01	0.03
MF-T1-7	Surface	7	18	1	-17	0.1	2.83	0.77	0.02	0.58	0.17	<0.01
MF-T2-2	Surface	2	31	3	-28	0.1	6.75	1.03	0.02	0.99	<0.01	0.02
MF-T2-4	Surface	4	26	3	-23	0.1	4.57	0.87	0.02	0.83	<0.01	0.02
MF-T3-1.2	Surface	1.2	12	16	4	1.3	8.51	0.62	0.04	0.39	0.18	0.01
MF-T3-2.2	Surface	2.2	20	14	-6	0.7	8.40	0.68	0.02	0.63	<0.01	0.03
MF-T3-2.3	Surface	2.3	16	104	88	6.5	8.39	0.95	0.11	0.51	0.32	0.01
NO. 5 DAM												
N5D-T1-8.5A	Surface	8.5	41	6	-35	0.1	3.33	1.52	<0.01	1.31	0.16	0.05
N5D-T2-4	Surface	4	33	3	-30	0.1	2.78	1.48	0.1	1.07	0.29	0.02
N5D-T2-7	Surface	7	31	7	-24	0.2	3.36	1.09	0.07	0.99	<0.01	0.03
N5D-T3-4	Surface	4	48	4	-44	0.1	3.42	1.78	0.12	1.53	0.08	0.05
N5D-T3-6.5	Surface	6.5	140	3	-137	0.0	3.45	5.6	0.57	4.49	0.32	0.22
N5D-T4-4	Surface	4	41	3	-38	0.1	3.18	1.57	<0.01	1.31	0.2	0.06
N5D-T4-9	Surface	9	15	4	-11	0.3	3.38	0.68	<0.01	0.48	0.15	0.05
TENMILE IMPOUNDMENT												
TB-1	Core	11	43	3	-40	0.1	3.08	1.48	<0.01	1.38	0.07	0.03
TB-1	Core	31	49	4	-45	0.1	4.64	1.67	0.06	1.58	<0.01	0.03
TB-1	Core	51	34	5	-30	0.1	5.73	1.2	0.04	1.1	0.05	0.01
TB-1	Core	91	38	5	-33	0.1	7.68	1.27	0.04	1.2	<0.01	0.03
TB-1	Core	121	44	5	-39	0.1	8.05	1.59	<0.01	1.4	0.17	0.02
TB-2	Core	8.85	16	3	-13	0.2	6.01	0.57	<0.01	0.52	0.05	<0.01
TB-2	Core	31	20	6	-14	0.3	6.95	0.72	0.01	0.63	0.08	<0.01
TB-2	Core	51	27	7	-20	0.3	6.84	1.04	0.04	0.86	0.12	0.02
TB-2	Core	57.75	24	5	-19	0.2	6.65	0.87	0.03	0.78	0.06	<0.01
TB-2	Core	125.75	37	6	-31	0.2	6.54	1.25	0.04	1.19	0.01	0.01
TMD	Surface		14	18	4	1.3		0.74	0.03	0.44	0.27	<0.01
T3-1	Surface	1	30	2	-28	0.1	8.40	1.09	0.07	0.96	0.04	0.02
T3-2	Surface	2.5	13	3	-10	0.2	4.27	0.63	0.05	0.43	0.15	<0.01
T3-3	Surface	3.7	32	9	-23	0.3	5.98	1.05	<0.01	1.04	<0.01	0.01
T4-1	Surface	0.9	16	4	-12	0.3	3.73	0.53	0.03	0.5	0.03	<0.01

Environmental Protection Plan
Appendix T-E
Climax Molybdenum Company
Geochemical Data
Table T-E-2 - Acid Base Accounting - Waste Rock, Tailing, and Road Fill Material

Sample ID	Matrix	Depth feet	Acid Generating Potential (AGP) based on Sulfide Sulfur tons $CaCO_3$/kton	Acid Neutralization Potential (NP or ANP) tons CaCO3/kton	Net Neutralization Potential (NNP) (ANP-AGP) tons $CaCO_3$/kton	Neutralization Potential Ratio (NPR) (ANP/AGP) unitless	Saturated Paste pH pH units	Sulfur - T %	Sulfate Sulfur (HCl extractable sulfur) %	Sulfide Sulfur (HNO_3 extractable sulfur) %	Hot Water extractable sulfur %	Residual Sulfur (Insoluble) %
T4-3	Surface	3	30	5	-25	0.2	3.35	0.98	0.01	0.96	0.01	0.01
T4-4	Surface	3.4	24	0.5	-23.5	0.0	2.86	1.01	<0.01	0.76	0.25	<0.01
TM-T1-1	Surface	1	19	3	-16	0.2	4.11	0.72	0.04	0.61	0.06	0.01
TM-T1-3	Surface	3	28	9	-19	0.3	5.44	0.9	<0.01	0.89	<0.01	0.01
TM-T2-1	Surface	1	38	4	-34	0.1	5.33	1.26	0.03	1.21	<0.01	0.02
TM-T2-3	Surface	3	17	6	-11	0.4	6.85	0.54	<0.01	0.53	<0.01	0.01
TM-T3-1	Surface	1	23	2	-21	0.1	3.66	0.81	0.08	0.73	<0.01	<0.01
TM-T3-3.3	Surface	3.3	39	2	-37	0.1	3.93	1.37	0.07	1.24	0.02	0.04
NO. 3 DAM												
N3D-T1-2	Surface	2	11	7	-3.6	0.6	3.38	0.49	<0.01	0.34	0.11	0.04
N3D-T1-4	Surface	4	8.4	2	-6.4	0.2	2.88	0.37	<0.01	0.27	0.09	0.01
N3D-T2-2	Surface	2	18	3	-15	0.2	3.04	0.64	0.03	0.57	<0.01	0.04
N3DT2-4	Surface	4	13	3	-10	0.2	2.96	0.59	0.09	0.41	0.05	0.04
N3D-T3-1.5	Surface	1.5	21	1	-20	0.0	2.80	0.76	0.05	0.66	0.01	0.04
N3D-T3-3	Surface	3	52	2	-50	0.0	3.12	1.77	<0.01	1.66	<0.01	0.11
N3S-T3-5	Surface	5	48	2	-46	0.0	3.02	1.93	0.15	1.53	0.08	0.17
ROBINSON IMPOUNDMENT												
RB-1	Core	11	22	0.5	-21.5	0.0	3.19	0.9	<0.01	0.71	0.18	0.01
RB-1	Core	31	32	3	-29	0.1	3.42	1.16	0.1	1.02	0.03	0.01
RB-1	Core	55.3	40	1	-39	0.0	3.47	1.47	0.01	1.27	0.19	<0.01
RB-1	Core	81	20	2	-18	0.1	4.92	0.76	0.09	0.65	0.02	<0.01
RB-1	Core	121	21	5	-16	0.2	5.32	0.83	0.09	0.68	0.06	<0.01
RB-2	Core	13	21	5	-16	0.2	5.14	0.75	0.05	0.68	<0.01	0.02
RB-2	Core	35.75	39	3	-36	0.1	4.82	1.35	<0.01	1.25	0.06	0.04
RB-2	Core	56	43	0.5	-42.5	0.0	6.38	1.44	0.03	1.39	<0.01	0.02
RB-2	Core	76	24	2	-22	0.1	7.40	0.79	<0.01	0.78	0.01	<0.01
RB-2	Core	121	23	3	-20	0.1	5.21	0.75	<0.01	0.73	0.02	<0.01
RB-3	Core	11	2.5	0.5	-2	0.2	2.82	0.29	0.03	0.08	0.16	0.02
RB-3	Core	51	60	3	-57	0.1	3.85	2.24	0.25	1.93	<0.01	0.06
RB-3	Core	126.5	14	4	-10	0.3	5.93	0.5	<0.01	0.46	0.02	0.02
RB-4	Core	11	21	33	12	1.6	7.96	0.96	<0.01	0.68	0.25	0.03
RB-4	Core	26	30	13	-17	0.4	6.81	1.07	<0.01	0.96	0.11	<0.01
RB-4	Core	46	0.93	7	6.07	7.5	6.15	0.05	<0.01	0.03	0.02	<0.01
T1-1	Surface	1.25	50	9	-41	0.2	3.07	1.84	<0.01	1.6	0.2	0.04
T1-2	Surface	1.625	40	1	-39	0.0	3.18	1.41	<0.01	1.29	0.09	0.03
T1-3	Surface	2.25	50	8	-42	0.2	6.22	1.67	<0.01	1.61	0.02	0.04

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Appendix T-E
Climax Molybdenum Company
Geochemical Data
Table T-E-2 - Acid Base Accounting - Waste Rock, Tailing, and Road Fill Material

Sample ID	Matrix	Depth feet	Acid Generating Potential (AGP) based on Sulfide Sulfur tons $CaCO_3$/kton	Acid Neutralization Potential (NP or ANP) tons CaCO3/kton	Net Neutralization Potential (NNP) (ANP-AGP) tons $CaCO_3$/kton	Neutralization Potential Ratio (NPR) (ANP/AGP) unitless	Saturated Paste pH pH units	Sulfur - T %	Sulfate Sulfur (HCl extractable sulfur) %	Sulfide Sulfur (HNO_3 extractable sulfur) %	Hot Water extractable sulfur %	Residual Sulfur (Insoluble) %
T1-4	Surface	3.25	134	8	-126	0.1	4.07	4.43	<0.01	4.3	<0.01	0.13
T2-1	Surface	1.25	42	4	-38	0.1	4.86	1.4	<0.01	1.36	<0.01	0.04
T2-2	Surface	2.5	43	0.5	-42.5	0.0	3.34	1.47	<0.01	1.38	0.08	0.01
T2-4	Surface	4.5	3.1	3	-0.1	1.0	3.22	0.33	0.04	0.1	0.19	<0.01
RT-T1-1	Surface	1	31	2	-29	0.1	2.88	1	<0.01	0.99	<0.01	0.01
RT-T1-3.6	Surface	3.6	120	4	-116	0.0	3.07	3.85	<0.01	3.71	<0.01	0.14
RT-T2-1.5	Surface	1.5	36	0.5	-35.5	0.0	3.04	1.29	0.05	1.15	0.04	0.05
RT-T2-2	Surface	2	9.4	1	-8.y	0.1	3.17	0.34	0.03	0.3	0.01	<0.01
RT-T3-2	Surface	2	3.1	0.5	-2.6	0.2	2.95	0.22	0.03	0.1	0.09	<0.01
RT-T3-3	Surface	3	14	0.5	-13.5	0.0	3.13	0.56	0.01	0.45	0.1	<0.01
RT-T4-2	Surface	2	34	4	-30	0.1	2.99	1.14	<0.01	1.1	<0.01	0.04
RT-T4-3	Surface	3	28	4	-24	0.1	3.19	0.92	0.01	0.91	<0.01	<0.01
NO. 1 DAM												
N1D-T1-2.5	Surface	2.5	9.1	1	-8.1	0.1	2.86	0.46	<0.01	0.29	0.11	0.06
N1D-T1-4	Surface	4	14	3	-11	0.2	3.54	0.71	<0.01	0.45	0.24	0.02
N1D-T2-2	Surface	2	15	1	-14	0.1	3.00	0.5	<0.01	0.48	<0.01	0.02
N1D-T2-3	Surface	3	5	1	-4	0.2	3.08	0.25	0.01	0.16	0.08	<0.01
N1D-T3-3.5	Surface	3.5	110	3	-107	0.0	3.06	3.69	<0.01	3.53	0.01	0.15
N1D-T3-6	Surface	6	25	3	-22	0.1	3.13	1.02	<0.01	0.8	0.19	0.03

Notes
1. Sulfate Sulfur could be HCl or HNO_3 extratable
2. Sulfide Sulfur could be HCl or Hot Water extractable
3. AGP Calculated based on Sulfide Sulfur

Miscellaneous Data	Soil Analysis Report for two samples from the South Robinson Tailings Pond-Waste Rock-Biosolids at the Climax Mine
Ceresco Ridge, 2010	Ceresco Ridge - Road Fill Material Analytical Results from Drill Chip Samples from Drilling and Blasting on Ceresco Ridge, December 2010.
ProMac Systems , 1988	Quote to the Climax Molybdenum Company for the Treatment of the McNulty Rock Dump, prepared by ProMac Systems, September 9, 1988
Shepherd Miller, 1997	Characterization of Mine Tailings, Climax Mine, Climax, Colorado. Prepared for Climax Molybedenum Company by Shepherd Miller Inc. January 1997

Environmental Protection Plan
Appendix T-E
Climax Molybdenum Company
Geochemical Data
Table T-E-4-Tailing Storage Facility Metals and Additional Parameter Data

Sample ID	Matrix	Depth feet	pH saturated paste units	Calcium mg/kg	Potassium mg/kg	Magnesium mg/kg	Sodium mg/kg	Aluminum mg/kg	Arsenic mg/kg	Antimony mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Manganese mg/kg	Mercury mg/kg	Molybdenum mg/kg	Selenium mg/kg	Zinc mg/kg	Residual Sulfur (%)	Temp (field) C
Shepherd Miller Report - January 1997																						
MAYFLOWER IMPOUNDMENT																						
MB-1	Core	10.75	6.84																		0.06	
MB-1	Core	31	5.15																		0.04	14
MB-1	Core	51	5.61																		0.06	10.9
MB-1	Core	96	7.65																		0.02	
MB-1	Core	126	8.1																		0.01	15.3
MB-1	Core	5.8	6.31																			
MB-1	Core	16	3.24																			2.9
MB-1	Core	21	3.96																			
MB-1	Core	25																				2.8
MB-1	Core	26	4.76																			
MB-1	Core	36	4.85																			11.2
MB-1	Core	41	4.6																			
MB-1	Core	45.2	4.81																			
MB-1	Core	46	4.8																			11.1
MB-1	Core	46.8	4.46																			
MB-1	Core	56	6.91																			
MB-1	Core	61	7.27																			16.8
MB-1	Core	71	7.17																			15.7
MB-1	Core	81	8.14																			15
MB-1	Core	91	7.71																			9.5
MB-1	Core	105	9.55																			
MB-1	Core	116	7.53																			
MB-1	Core	136	8.3																			15.2
MB-1	Core	151	7.41																			10
MB-1-10-11.5	Core	10-11.5	6.84	3900	1550	790	43	2890	<0.1	4.1	0.66	4.9	23.3	15300	9.5	113	<0.1	532	<0.500	170		
MB-1-50-52	Core	50-52	5.61	4010	1400	691	52	2330	NM	NM	0.55	NM	32.6	14200	2.1	179	NM	384	NM	82		
MB-1-125-127	Core	125-127	8.1	3140	1710	1110	61	2750	NM	NM	0.41	NM	34.4	8290	4.9	138	NM	440	NM	73.1		
MB-2	Core	7.1	6.29																		0.01	
MB-2	Core	28	7.35																		0.03	
MB-2	Core	41	8.13																		0.01	4.2
MB-2	Core	66	7.49																		<0.01	-1.9
MB-2	Core	86	7.25																		<0.01	
MB-2	Core	6	6.01																			
MB-2	Core	6	5.49																			
MB-2	Core	8.1	6.74																			
MB-2	Core	16	7.2																			
MB-2	Core	25.5																				2.2
MB-2	Core	26	6.56																			
MB-2	Core	46	7.5																			
MB-2	Core	47.2	7.65																			
MB-2	Core	48.2	8.04																			
MB-2	Core	56	7.65																			frozen
MB-2	Core	58	7.49																			
MB-2	Core	58	7.86																			
MB-2	Core	67.8	7.64																			
MB-2	Core	68.6	7.34																			
MB-2	Core	69	7.31																			
MB-2	Core	76	7.99																			4.3
MB-2	Core	78	8.31																			3.3
MB-2	Core	86	7.22																			
MB-2	Core	96	7.17																			
MB-2	Core	106	7.1																			
MB-2	Core	121	7.12																			
MB-2	Core	122.5	7.38																			

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Appendix T-E
Climax Molybdenum Company
Geochemical Data
Table T-E-4-Tailing Storage Facility Metals and Additional Parameter Data

Sample ID	Matrix	Depth feet	pH saturated paste units	Calcium mg/kg	Potassium mg/kg	Magnesium mg/kg	Sodium mg/kg	Aluminum mg/kg	Arsenic mg/kg	Antimony mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Manganese mg/kg	Mercury mg/kg	Molybdenum mg/kg	Selenium mg/kg	Zinc mg/kg	Residual Sulfur (%)	Temp (field) C
MB-2-7-7.2	Core	7-7.2	6.29	6400	4680	2440	105	12200	NM	NM	2.23	NM	90.1	12900	49.7	241	NM	858	NM	249		
MB-2-40-42	Core	40-42	8.13	4070	1690	962	59	2870	NM	NM	0.52	NM	32.2	10400	16.4	154	NM	377	NM	74.6		
MB-2-85-87	Core	85-87	7.25	6560	2770	1230	130	5630	<0.1	9.2	0.83	9.5	75.9	11300	7.1	188	<0.1	606	<0.500	115		
T5-1	Surface	0.5	4.9																		<0.01	
T5-2	Surface	2	3.62	4660	2160	1550	64	3590	0.2	<3.4	<0.24	8.8	15.5	8590	14	119	<0.1	311	<0.500	42.3	<0.01	
T5-3	Surface	2	4.42																			
T5-4	Surface	3	4.59																		0.02	
T5-5	Surface	4	4.78																		0.04	
T6-1	Surface	0.17	2.88																			
T6-2	Surface	3.5	3.1																			
T6-3	Surface	4.6	2.92																		<0.01	
T6-4	Surface	5	2.69																		<0.01	
T6-5	Surface	6	2.62																			
T6-6	Surface	15	4.01																			
T6-7	Surface	20	3.85																		0.1	
MF-T1-3.5	Surface	3.5	3.11																		0.03	
MF-T1-7	Surface	7	2.83																		<0.01	
MF-T1-14	Surface	14	3.63																			
MF-T2-2	Surface	2	6.75																		0.02	
MF-T2-4	Surface	4	4.57																		0.02	
MF-T2-5	Surface	5	6.61																			
MF-T2-8	Surface	8	7.02																			
MF-T2-12	Surface	12	6.51																			
MF-T3-1.2	Surface	1.2	8.51																		0.01	
MF-T3-2.2	Surface	2.2	8.4																		0.03	
MF-T3-2.3	Surface	2.3	8.39																		0.01	
MF-T3-3	Surface	3	7.9																			
MF-T3-4	Surface	5	8.12																			
MF-T3-5	Surface	5	6.76																			
MF-T3-7	Surface	7	6.96																			
Mayflower 3'	Tailings	3	2.7																			
NO. 5 DAM																						
N5D-T1-8.5A	Surface	8.5	3.33																		0.05	
N5D-T1-8.5B	Surface	8.5	3.33																			
N5D-T2-4	Surface	4	2.78																		0.02	
N5D-T2-7	Surface	7	3.36																		0.03	
N5D-T2-12	Surface	12	3.57																			
N5D-T3-4	Surface	4	3.42																		0.05	
N5D-T3-6.5	Surface	6.5	3.45																		0.22	
N5D-T3-11.5	Surface	11.5	3.59																			
N5D-T4-4	Surface	4	3.18																		0.06	
N5D-T4-9	Surface	9	3.38																		0.05	
N5D-T4-12.5	Surface	12.5	3.26																			
TENMILE IMPOUNDMENT																						
TB-1	Core	11	3.08																		0.03	
TB-1	Core	31	4.64																		0.03	
TB-1	Core	51	5.73																		0.01	5.9
TB-1	Core	91	7.68																		0.03	8.4
TB-1	Core	121	8.05																		0.02	
TB-1	Core	6	3.05																			
TB-1	Core	6.6	2.71																			
TB-1	Core	16	3.49																			4.7
TB-1	Core	20.6	4.07																			
TB-1	Core	21.35	4.57																			
TB-1	Core	26	4.28																			
TB-1	Core	31.3	4.3																			
TB-1	Core	35.6	4.62																			

Environmental Protection Plan
Appendix T-E
Climax Molybdenum Company
Geochemical Data
Table T-E-4-Tailing Storage Facility Metals and Additional Parameter Data

Sample ID	Matrix	Depth feet	pH saturated paste units	Calcium mg/kg	Potassium mg/kg	Magnesium mg/kg	Sodium mg/kg	Aluminum mg/kg	Arsenic mg/kg	Antimony mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Manganese mg/kg	Mercury mg/kg	Molybdenum mg/kg	Selenium mg/kg	Zinc mg/kg	Residual Sulfur (%)	Temp (field) C
TB-1	Core	36.6	5.1																			6.7
TB-1	Core	41	4.41																			15.7
TB-1	Core	46	4.17																			
TB-1	Core	46.2	4.45																			
TB-1	Core	56	4.7																			8.4
TB-1	Core	61	4.14																			9.8
TB-1	Core	71	6.08																			9.3
TB-1	Core	81	7.28																			12.1
TB-1	Core	101	7.92																			
TB-1	Core	111	7.89																			11.1
TB-1	Core	131	7.14																			14.1
TB-1	Core	136	7.4																			
TB-1-10-12	Core	10-12	3.08	4440	1730	754	56	3010	<0.1	6.3	0.3	2.9	20.3	15900	<0.1	77.7	<0.1	702	<0.500	43.4		
TB-1-30-32	Core	30-32	4.64	4650	1260	699	38	2230	NM	NM	<0.24	NM	67.2	24500	<0.1	131	NM	635	NM	67		
TB-1-50-52	Core	50-52	5.73	4950	1930	1180	63	3400	NM	NM	<0.24	NM	23.9	11700	8.8	264	NM	391	NM	73.3		
TB-1-120-122	Core	120-122	8.05	4620	2250	1090	66	3270	NM	NM	0.58	NM	59.3	13600	20.8	202	NM	563	NM	108		
TB1-16	Tailings	16	3.49																			
TB1-50	Tailings	50	5.73																			
TB1-60	Tailings	60	4.14																			
TB1-92-A	Tailings	92	7.68																			
TB1-92-B	Tailings	92	7.68																			
TB-2	Core	8.85	6.01																		<0.01	
TB-2	Core	31	6.95																		<0.01	-6.3
TB-2	Core	51	6.84																		0.02	frozen
TB-2	Core	57.75	6.65																		<0.01	
TB-2	Core	125.75	6.54																		0.01	
TB-2	Core	6	5.71																			
TB-2	Core	7.5	5.19																			
TB-2	Core	7.8	5.54																			
TB-2	Core	16	6.72																			
TB-2	Core	21	7.05																			
TB-2	Core	36	6.42																			frozen
TB-2	Core	41	7.22																			frozen
TB-2	Core	56	6.84																			frozen
TB-2	Core	57.2	6.93																			
TB-2	Core	57.8																				
TB-2	Core	66	6.99																			frozen
TB-2	Core	76	7.4																			frozen
TB-2	Core	81	6.97																			frozen
TB-2	Core	96	7.01																			frozen
TB-2	Core	106	7.36																			frozen
TB-2	Core	116	7.31																			frozen
TB-2	Core	126																				frozen
TB-2	Core	136	6.77																			-0.2
TB-2-8.7-9	Core	8.7-9	6.01	3890	1850	1310	50	3060	NM	NM	<0.24	NM	16.1	11500	1.5	161	NM	275	NM	56.4		
TB-2-57.5-58	Core	57.5-58	6.65	6740	3120	1160	148	5120	NM	NM	0.55	NM	34.6	9780	2.4	227	NM	329	NM	95.3		
TB-2-125-126.5	Core	125.126	6.54	6610	2570	791	71	4000	<0.1	3.8	<0.24	6.5	63.7	9740	5	147	<0.1	357	<0.500	87.8		
TMD	Surface																				<0.01	
T3-1	Surface	1	8.4																		0.02	
T3-2	Surface	2.5	4.27																		<0.01	
T3-3	Surface	3.7	5.98																		0.01	
T3-4	Surface	4	5.49																			
T3-5	Surface	4.5	5.62																			
T4-1	Surface	0.9	3.73																		<0.01	
T4-2	Surface	2	3.15																			
T4-3	Surface	3	3.35																		0.01	

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Climax Molybdenum Company
Geochemical Data
Table T-E-4-Tailing Storage Facility Metals and Additional Parameter Data

Sample ID	Matrix	Depth feet	pH saturated paste units	Calcium mg/kg	Potassium mg/kg	Magnesium mg/kg	Sodium mg/kg	Aluminum mg/kg	Arsenic mg/kg	Antimony mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Manganese mg/kg	Mercury mg/kg	Molybdenum mg/kg	Selenium mg/kg	Zinc mg/kg	Residual Sulfur (%)	Temp (field) C
T4-4	Surface	3.4	2.86																			
T4-5	Surface	4.5	3.62																			
T4-6	Surface	20	4.12																			
T4-4	Surface	3.4	2.86																		<0.01	
TM-T1-1	Surface	1	4.11	5610	2250	1180	64	5080	<0.1	5.6	<0.24	9.6	43.9	9170	6.7	121	<0.1	451	<0.005	88.8	0.01	
TM-T1-2	Surface	2	5.32																			
TM-T1-3	Surface	3	5.44																		0.01	
TM-T1-4	Surface	4	5.55																			
TM-T1-5	Surface	5	6.52																			
TM-T2-1	Surface	1	5.33																		0.02	
TM-T2-2	Surface	2	4.73																			
TM-T2-3	Surface	3	6.85																		0.01	
TM-T2-3.5	Surface	3.5	6.51																			
TM-T2-7	Surface	7	4.59																			
TM-T2-10	Surface	10	8.53																			
TM-T3-1	Surface	1	3.66																		<0.01	
TM-T3-2	Surface	2	6.28																			
TM-T3-3.3	Surface	3.3	3.93																		0.04	
TM-T3-4	Surface	4	3.15																			
TM-T3-8	Surface	8	3.65																			
TM-T3-10	Surface	10	3.22																			
Tenmile 1'	Tailings	1	3.1																			
NO. 3 DAM																						
N3D-T1-2	Surface	2	3.38																		0.04	
N3D-T1-4	Surface	4	2.88																		0.01	
N3D-T1-5	Surface	5	3.01																			
N3D-T1-10	Surface	10	2.83																			
N3D-T2-2	Surface	2	3.04																		0.04	
N3DT2-4	Surface	4	2.96																		0.04	
N3DT2-6	Surface	6	2.93																			
N3DT2-10.5	Surface	10.5	3.07																			
N3D-T3-1.5	Surface	1.5	2.8																		0.04	
N3D-T3-3	Surface	3	3.12																		0.11	
N3S-T3-5	Surface	5	3.02																		0.17	
N3S-T3-7	Surface	7	3.13																			
N3S-T3-10	Surface	10	3.3																			
ROBINSON IMPOUNDMENT																						
RB-1	Core	11	3.19																		0.01	6.3
RB-1	Core	16																				2.4
RB-1	Core	31	3.42																		0.01	
RB-1	Core	55.3	3.47																		<0.01	
RB-1	Core	81	4.92																		<0.01	8.1
RB-1	Core	121	5.32																		<0.01	
RB-1	Core	6	2.88																			
RB-1	Core	15.7	2.97																			
RB-1	Core	16.4	2.79																			
RB-1	Core	21	3.1																			
RB-1	Core	25.5																				2
RB-1	Core	25.7	3.05																			
RB-1	Core	26.7	2.99																			
RB-1	Core	36	4.7																			0.9
RB-1	Core	36.2	4.51																			
RB-1	Core	41	4.54																			2.8
RB-1	Core	45.4	3.64																			
RB-1	Core	45.8	3.94																			
RB-1	Core	46.4	3.79																			
RB-1	Core	51	3.75																			3

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Table T-E-4-Tailing Storage Facility Metals and Additional Parameter Data

Sample ID	Matrix	Depth feet	pH saturated paste units	Calcium mg/kg	Potassium mg/kg	Magnesium mg/kg	Sodium mg/kg	Aluminum mg/kg	Arsenic mg/kg	Antimony mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Manganese mg/kg	Mercury mg/kg	Molybdenum mg/kg	Selenium mg/kg	Zinc mg/kg	Residual Sulfur (%)	Temp (field) C
RB-1	Core	56.1	4.63																			
RB-1	Core	56.8	4.37																			
RB-1	Core	61	4.52																			4.4
RB-1	Core	71	4.88																			6.6
RB-1	Core	90.7	5.4																			
RB-1	Core	91.7	4.94																			
RB-1	Core	91																				8.6
RB-1	Core	100.9	4.88																			
RB-1	Core	101																				13.7
RB-1	Core	101.9	5.1																			
RB-1	Core	111	4.87																			6.2
RB-1	Core	131	4.79																			
RB-1	Core	136	4.39																			0.9
RB-1	Core	146	4.69																			
RB-1	Core	151	4.34																			6.4
RB-1-30-32	Core	30-32	3.42	4540	1610	634	39	2670	NM	NM	0.29	NM	27.5	13000	5.3	88.3	NM	417	NM	110		
RB-1-55-55.6	Core	55-55.6	3.47	6590	1770	562	49	2630	NM	NM	0.57	NM	61.7	14100	12.8	216	NM	256	NM	198		
RB-1-120-122	Core	120-122	5.32	3220	1120	374	39	1930	NM	NM	0.46	NM	20.6	16200	4.5	58.2	NM	751	NM	31.7		
RB-2	Core	13	5.14																		0.02	
RB-2	Core	35.75	4.82																		0.04	
RB-2	Core	56	6.38																		0.02	-.0.6
RB-2	Core	76	7.4																		<0.01	frozen
RB-2	Core	121	5.21																		<0.01	-7.6
RB-2	Core	6	3.67																			
RB-2	Core	8	3.2																			8.7
RB-2	Core	11	5.43																			-3.2
RB-2	Core	13	5.26																			
RB-2	Core	16	5.17																			
RB-2	Core	18	4.95																			
RB-2	Core	21	5.38																			-3.4
RB-2	Core	25.5																				-4.1
RB-2	Core	26	5.74																			
RB-2	Core	36																				-2.4
RB-2	Core	36.8	4.03																			
RB-2	Core	41	6.78																			
RB-2	Core	46	6.61																			-2.4
RB-2	Core	66	6.32																			
RB-2	Core	70.3	6.08																			
RB-2	Core	70.8	7.18																			
RB-2	Core	71																				frozen
RB-2	Core	91	7.36																			2.4
RB-2	Core	96	6.51																			
RB-2	Core	106	6.04																			-4.5
RB-2	Core	126	6.15																			
RB-2	Core	126	6.09																			
RB-2-12-14	Core	12-14	5.14	6760	3950	1310	75	9250	NM	NM	5.62	NM	92.4	11700	66.3	226	NM	732	NM	134		
RB-2-35-36.5	Core	35-36.5	4.82	6260	3860	1270	83	7610	NM	NM	1.03	NM	111	13500	57.3	292	NM	492	NM	130		
RB-2-55-57	Core	55-57	6.38	3860	1220	327	68	1800	<0.1	7.7	0.4	1.9	52.1	13900	<1.0	57.1	<0.1	358	<0.500	88.3		
RB-3	Core	11	2.82																		0.02	
RB-3	Core	51	3.85																		0.06	
RB-3	Core	126.5	5.93																		0.02	
RB-3	Core	6	2.82																			12.6
RB-3	Core	8	3.03																			12.6
RB-3	Core	13	2.91																			9.9
RB-3	Core	16	2.88																			
RB-3	Core	18	2.97																			12.3

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Table T-E-4-Tailing Storage Facility Metals and Additional Parameter Data

Sample ID	Matrix	Depth feet	pH saturated paste units	Calcium mg/kg	Potassium mg/kg	Magnesium mg/kg	Sodium mg/kg	Aluminum mg/kg	Arsenic mg/kg	Antimony mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Manganese mg/kg	Mercury mg/kg	Molybdenum mg/kg	Selenium mg/kg	Zinc mg/kg	Residual Sulfur (%)	Temp (field) C
RB-3	Core	21	2.95																			
RB-3	Core	23	2.98																			7.8
RB-3	Core	26	3.01																			
RB-3	Core	28	4.27																			8.2
RB-3	Core	31	3.94																			
RB-3	Core	33	4.1																			
RB-3	Core	36	4.07																			
RB-3	Core	37.9	4.16																			
RB-3	Core	38																				11.4
RB-3	Core	38.9	3.83																			
RB-3	Core	41	3.94																			
RB-3	Core	43	4.05																			5.4
RB-3	Core	46	3.85																			
RB-3	Core	47.8	3.71																			
RB-3	Core	48																				6.2
RB-3	Core	48.8	3.55																			
RB-3	Core	53	3.37																			2.6
RB-3	Core	61	4.45																			-0.1
RB-3	Core	76																				3.3
RB-3	Core	76.5	4.57																			
RB-3	Core	86																				5
RB-3	Core	86.5	4.75																			
RB-3	Core	96.5	4.59																			
RB-3	Core	106																				4
RB-3	Core	106.5	5.81																			
RB-3	Core	116																				6.2
RB-3	Core	117	5.46																			
RB-3	Core	117.2	6.01																			
RB-3	Core	126																				3.4
RB-3	Core	136																				12.9
RB-3	Core	136.5	6.45																			
RB-3-10-12	Core	10-12	2.82	3260	1540	349	24	1440	NM	NM	<0.24	NM	14.5	5080	15.8	44.3	NM	674	NM	35.9		
RB-3-50-52	Core	50-52	3.85	3910	897	211	21	1220	NM	NM	0.57	NM	32	21800	23.8	62.1	NM	403	NM	106		
RB-3-126-127	Core	126-127	5.93	2600	1120	351	41	1540	NM	NM	0.26	NM	13.6	6900	18	67.3	NM	727	NM	41.5		
RB-4	Core	11	7.96																		0.03	
RB-4	Core	26	6.81																		<0.01	
RB-4	Core	46	6.15																		<0.01	
RB-4	Core	6	5.57																			
RB-4	Core	8	5.92																			
RB-4	Core	16	6.95																			
RB-4	Core	21	6.73																			-1.2
RB-4	Core	31	6.2																			
RB-4	Core	36	6.17																			
RB-4-10-12	Core	10-12	7.96	18100	5590	6660	215	24800	1.5	39	9.45	11.1	422	25800	78.5	1800	<0.1	3560	<0.5	825		
RB-4-45-47	Core	45-47	6.15	2170	1410	1510	56	3970	NM	NM	0.35	NM	17.1	7940	20.6	150	NM	167	NM	76		
T1-1	Surface	1.25	3.07																		0.04	
T1-2	Surface	1.625	3.18																		0.03	
T1-3	Surface	2.25	6.22																		0.04	
T1-4	Surface	3.25	4.07																		0.13	
T1-5	Surface	4.3	3.69																			
T1-6	Surface	5	3.92																			
T2-1	Surface	1.25	4.86																		0.04	
T2-2	Surface	2.5	3.34																		0.01	
T2-3	Surface	3	3.48																			
T2-4	Surface	4.5	3.22																		<0.01	
T2-5	Surface	4.9	3.78																			

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Table T-E-4-Tailing Storage Facility Metals and Additional Parameter Data

Sample ID	Matrix	Depth feet	pH saturated paste units	Calcium mg/kg	Potassium mg/kg	Magnesium mg/kg	Sodium mg/kg	Aluminum mg/kg	Arsenic mg/kg	Antimony mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Manganese mg/kg	Mercury mg/kg	Molybdenum mg/kg	Selenium mg/kg	Zinc mg/kg	Residual Sulfur (%)	Temp (field) C
T2-6	Surface	6.5	3.77																			
RT-T1-1	Surface	1	2.88	4620	1860	724	59	2860	0.5	7.1	0.42	3.6	21.3	13400	19.4	63.9	<0.1	665	<0.500	61.8	0.01	
RT-T1-3.6	Surface	3.6	3.07																		0.14	
RT-T1-5	Surface	5	2.8																			
RT-T1-6	Surface	6	3.07																			
RT-T1-12	Surface	12	2.82																			
RT-T2-1.5	Surface	1.5	3.04																		0.05	
RT-T2-2	Surface	2	3.17																		<0.01	
RT-T2-4.3	Surface	4.3	3.69																			
RT-T2-6.5	Surface	6.5	3.71																			
RT-T2-10	Surface	10	3.77																			
RT-T2-13	Surface	13	3.67																			
RT-T3-2	Surface	2	2.95																		<0.01	
RT-T3-3	Surface	3	3.13																		<0.01	
RT-T3-3.5	Surface	3.5	2.9																			
RT-T3-5	Surface	5	3.29																			
RT-T3-8	Surface	8	3.17																			
RT-T3-10	Surface	10	3.54																			
RT-T4-2	Surface	2	2.99																		0.04	
RT-T4-3	Surface	3	3.19																		<0.01	
RT-T4-5	Surface	5	3.1																			
RT-T4-8	Surface	8	2.8																			
RT-T12	Surface	12	2.84																			
Trench # 1	Surface	0.5																				10.6
Trench # 1	Surface	1.75																				9
Trench # 1	Surface	2.8																				6.9
Trench # 1	Surface	4.2																				4.5
Trench # 2	Surface	0.5																				12.9
Trench # 2	Surface	1																				12
Trench # 2	Surface	2																				10.5
Trench # 2	Surface	3																				8.8
Trench # 2	Surface	4																				7.1
Trench # 2	Surface	5																				6.5
Trench # 3	Surface	1																				4.7
Trench # 3	Surface	2																				3.9
Trench # 3	Surface	3																				2.8
Trench # 3	Surface	4																				2.4
Trench # 3	Surface	4.5																				1.6
Trench # 3	Surface																					2
Trench # 4	Surface	0.5																				10.4
Trench # 4	Surface	1																				6.5
Trench # 4	Surface	2																				4.2
Trench # 4	Surface	3																				2.3
Trench # 4	Surface	4																				0.9
Trench # 4	Surface	5																				-0.5
Trench # 5	Surface	1																				8
Trench # 5	Surface	2																				7.2
Trench # 5	Surface	3																				7.1
Trench # 5	Surface	4																				6.1
Trench # 6	Surface	2																				8.8
Trench # 6	Surface	3.5																				7.1
Trench # 6	Surface	4																				5.3
Trench # 6	Surface	5																				4.4
Trench # 6	Surface	6																				2.3
Robinson 2.5'	Tailings	2.5	2.7																			

Table T-E-4-Tailing Storage Facility Metals and Additional Parameter Data

Sample ID	Matrix	Depth feet	pH saturated paste units	Calcium mg/kg	Potassium mg/kg	Magnesium mg/kg	Sodium mg/kg	Aluminum mg/kg	Arsenic mg/kg	Antimony mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Manganese mg/kg	Mercury mg/kg	Molybdenum mg/kg	Selenium mg/kg	Zinc mg/kg	Residual Sulfur (%)	Temp (field) C
NO. 1 DAM																						
N1D-T1-2.5	Surface	2.5	2.86																		0.06	
N1D-T1-4	Surface	4	3.54																		0.02	
N1D-T1-5	Surface	5	3.03																			
N1D-T1-8	Surface	8	3.06																			
N1D-T1-11	Surface	11	3.14																			
N1D-T2-2	Surface	2	3																		0.02	
N1D-T2-3	Surface	3	3.08																		<0.01	
N1D-T2-4	Surface	4	3.25																			
N1D-T2-8	Surface	8	3.22																			
N1D-T2-10	Surface	10	3.16																			
N1D-T3-3.5	Surface	3.5	3.06																		0.15	
N1D-T3-6	Surface	6	3.13																		0.03	
N1D-T3-8	Surface	8	3.24																			
N1D-T3-10	Surface	10	3.25																			

Shepherd Miller, Characterization of Mine Tailings, Climax Mine, Climax, Colorado. Prepared for Climax Molybedenum Company by Shepherd Miller Inc. January 1997