

AZ Magma Mine: Preliminary Assessment & Site Inspection



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Northern Arizona University
CENE 476 – Fall 2016

Project Management

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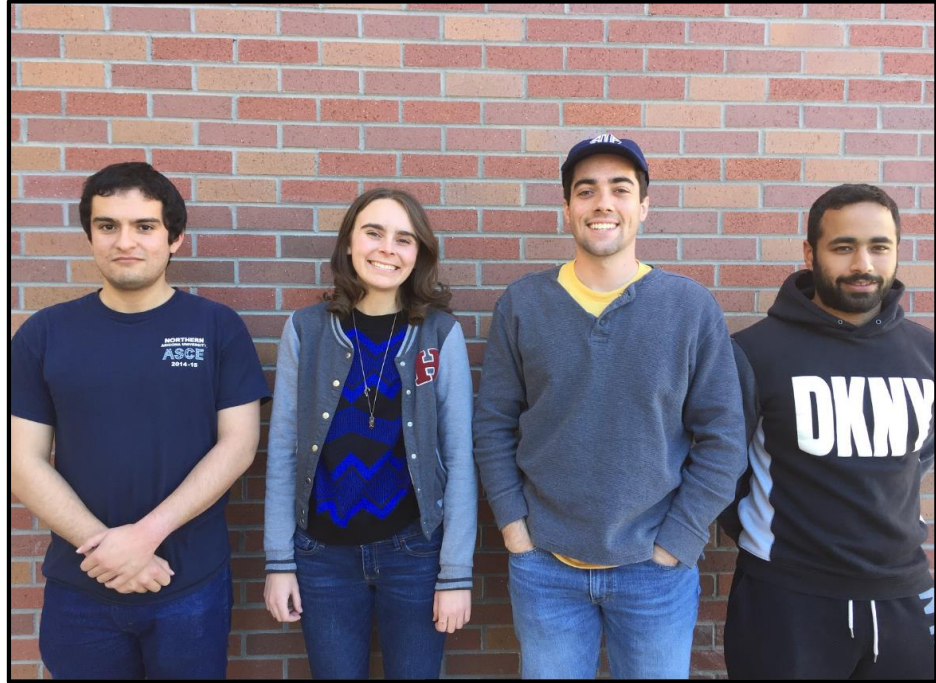


Figure 1. Magma Consulting Team [1]

Project Purpose

- Analyze soil from AZ Magma Mine for contaminants of concern (COCs)
- Preliminary assessment and site inspection document (PA/SI)

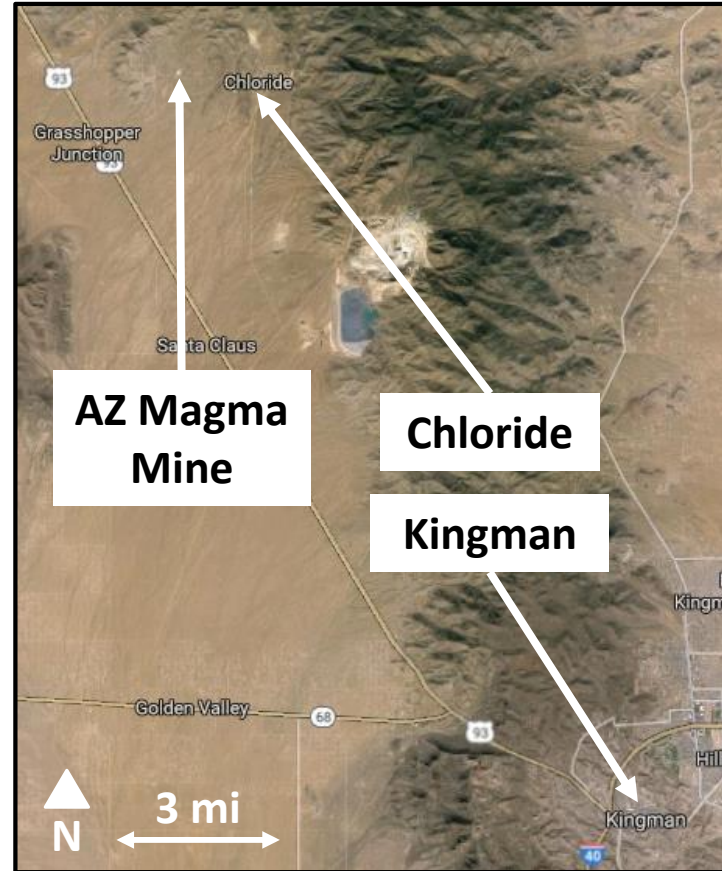


Figure 2. AZ Magma Mine in reference to Chloride and Kingman [2]

Project Understanding

- 10-ft deep tailings
- COCs include lead and arsenic
- Stakeholders
 - Bureau of Land Management
 - Chloride residents
 - General public



Figure 3. AZ Magma Mine tailings pile [2]

Project Understanding



Figure 4. Current condition of tailings [3]



Figure 5. Tailings in the wash [3]

Scope of Services

Task 1.0 Work Plan

- 1.1 Sampling and Analysis Plan (SAP)*
- 1.2 Health and Safety Plan (HASP)*

Task 2.0 Training

- 2.1 NAU Field Safety*
- 2.2 NAU Chemical Hygiene*
- 2.3 40-hr HAZWOPER*
- 2.4 XRF Device Use*

Task 3.0 Sampling

Task 4.0 Lab Analysis

- 4.1 Soil Sieving*
- 4.2 XRF Analysis*
- 4.3 Acid Digestion*
- 4.4 Atomic Absorption (AA)*
- 4.5 XRF and AA Correlation*
- 4.6 GIS Mapping*

Task 5.0 Screening Risk Assessment

- 5.1 Human Health*
- 5.2 Ecological*

Task 6.0 PA/SI Document

Task 7.0 Project Management

- 7.1 Team Meetings*
- 7.2 Client Communication*
- 7.3 Project Tracking*
- 7.4 Deliverables*

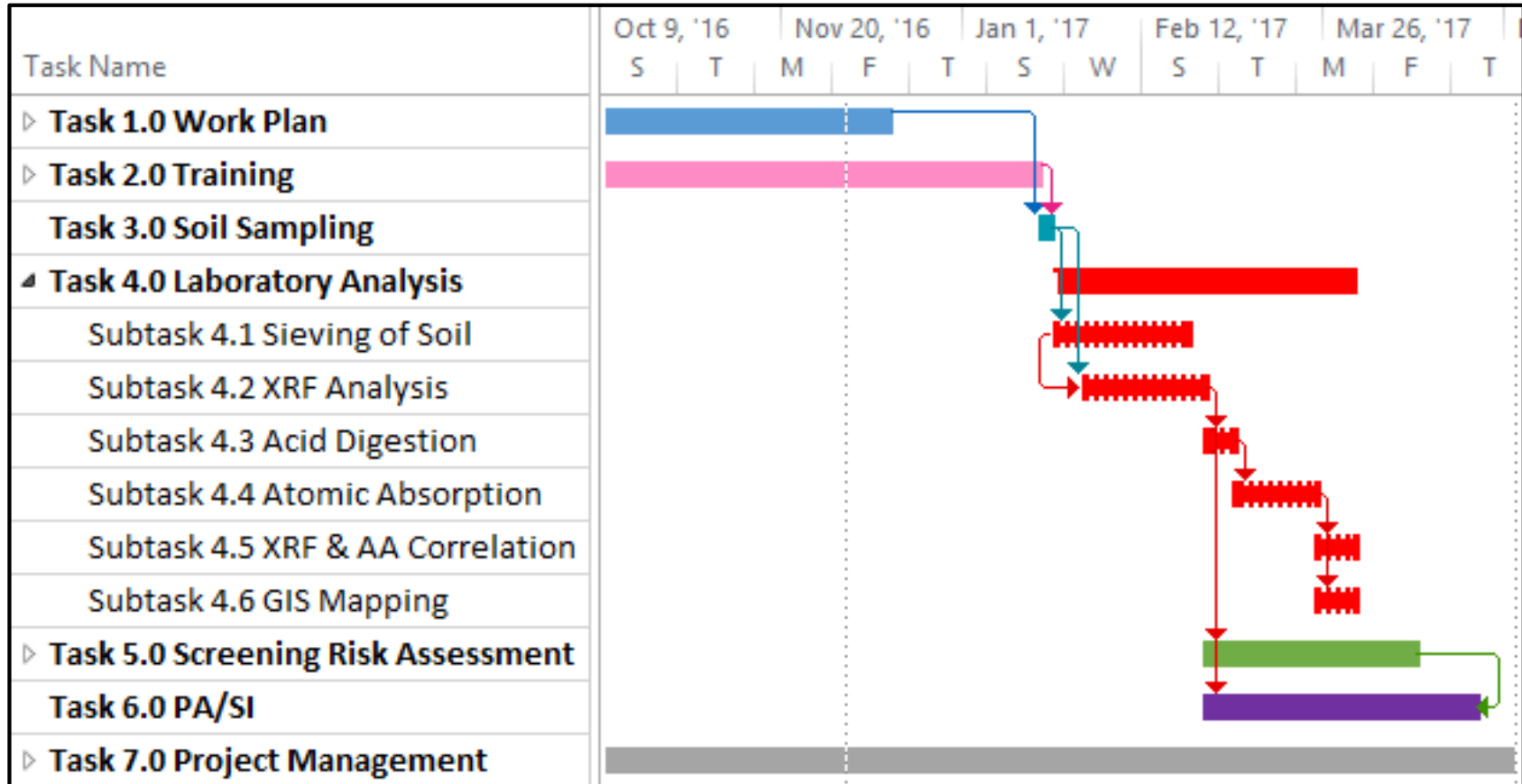
Exclusions

- Sampling to depth
- Water samples
- Remediation recommendations

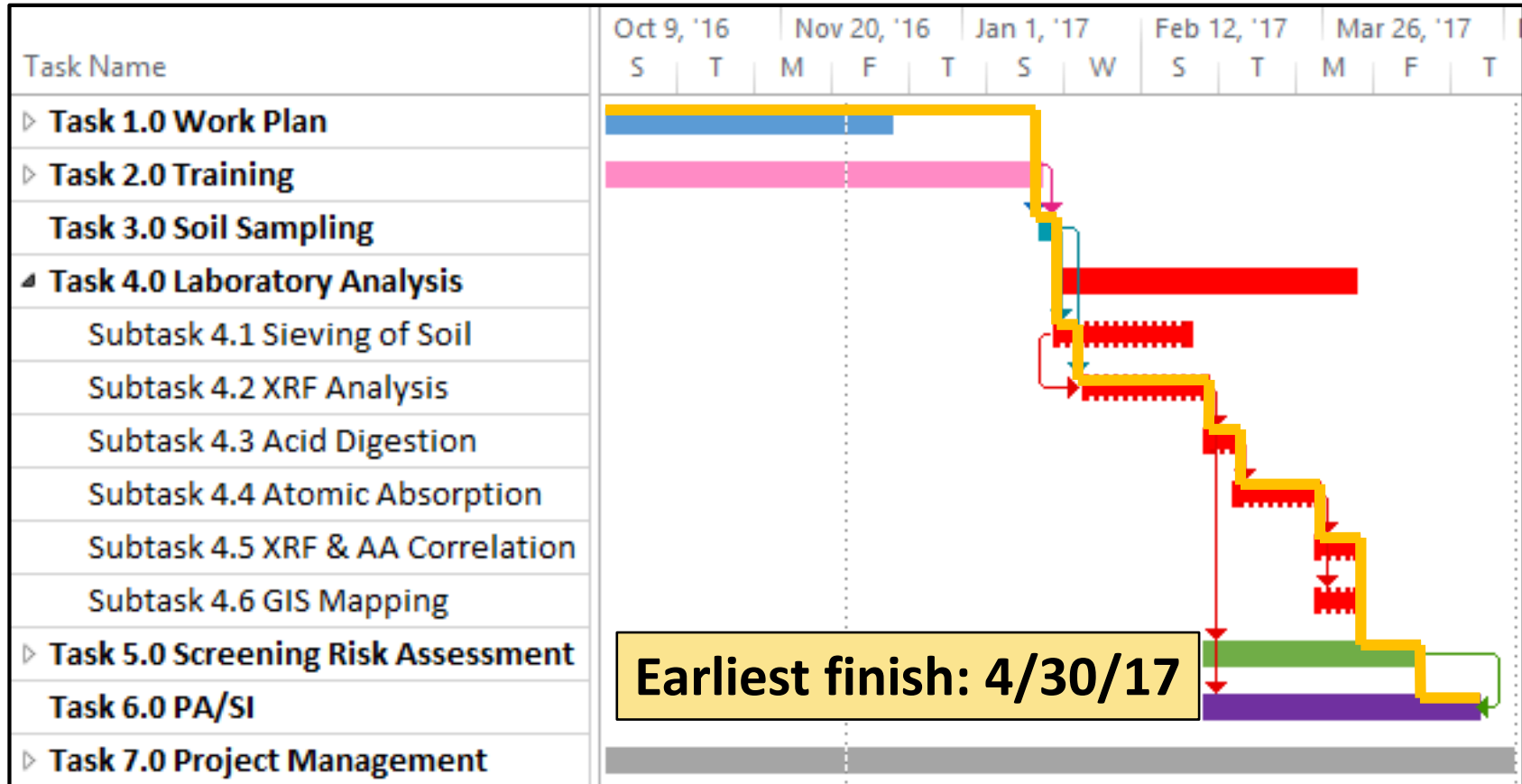


Figure 6. AZ Magma Mine tailings pile [3]

Schedule – Gantt Chart



Schedule – Critical Path



Staffing Plan

Task	Senior Engineer (hrs)	Engineer (hrs)	Lab Tech (hrs)	Intern (hrs)	Administrative Assistant (hrs)
1.0 Work Plan	26	26	-	-	-
2.0 Training	-	42	90	48	-
3.0 Sampling	-	16	32	16	-
4.0 Lab Analysis	-	16	116	92	-
5.0 Risk Assessment	30	30	-	-	-
6.0 PA/SI	22	22	-	-	-
7.0 Project Management	34	28	22	34	48
Subtotals	112	180	260	190	48
TOTAL	790				

Cost of Services

	Billing Rate	Multiplier	Cost
1.0 Personnel			
SENG	\$ 168/hr	x 112 hrs	\$ 18,816
ENG	\$ 90/hr	x 180 hrs	\$ 16,200
LAB	\$ 69/hr	x 260 hrs	\$ 17,940
INT	\$ 27/hr	x 190 hrs	\$ 5,130
ADMA	\$ 52.5/hr	x 48 hrs	\$ 2,520
			\$ 60,606
2.0 Subcontract			
AA Analysis	\$ 9.70/smpl	x 20 smpl	\$ 194
3.0 Materials			
Sampling Materials	varies	varies	\$ 315

	Billing Rate	Multiplier	Cost
4.0 Travel			
Lodging	\$ 125/rm-night	x 3 room x 1 night	\$ 375
Vehicle Rental	\$ 55/day	x 2 days	\$ 110
Mileage	\$ 0.40/mile	x 400 miles	\$ 160
Food	\$ 34/person-day	x 5 persons x 2 days	\$ 340
			\$ 985
5.0 Lab Rental			
Lab Rental	\$ 50/day	x 48 days	\$ 2,400
TOTAL			\$ 64,500

References

- [1] Photo taken by Taylor Oster
- [2] Google Earth, “AZ Magma Mill,” 35°25’00” N 114°13’27” W, Accessed: December 4, 2016.
- [3] Zielske E., BLM Client interview, September 7, 2016.