

Memorandum - Meeting Minutes

To: Bridget Bero, P.E., Grading Instructor
 From: AZ Magma Mine Capstone Team;
 Naser Alqaoud, David Finley, Josue Juarez, and Jessica Szaro
 Date: 9/21/2016
 Re: Technical Advising Meeting #1

Attendance: Naser Alqaoud, David Finley, Josue Juarez, and Jessica Szaro
 Prepared by: Jessica Szaro

Topic	Notes
Introductions	<ul style="list-style-type: none"> ● Text and email communication with Taylor
TA Contract	<ul style="list-style-type: none"> ● All agreements read aloud and agreed to, signed
Project Understanding	<ul style="list-style-type: none"> ● Same project as Taylor, except for added groundwater <ul style="list-style-type: none"> ○ Maybe need it maybe not ● Based on analysis -- don't suggest remediation ● Big scale bar -- Need to read ALL maps! ● Make writings more brief, less fluffy, more concise words (about→ approximately) ● Does BLM own the mine? <ul style="list-style-type: none"> ○ Or just the tailings around the mine? ● Team name? <ul style="list-style-type: none"> ○ Make a logo and put it on the cover sheets for documents ● Technical considerations <ul style="list-style-type: none"> ○ Centrally vs. unaligned grids ● Challenges <ul style="list-style-type: none"> ○ Labeling samples correctly ○ Sieving samples ○ Shouldn't be taking samples differently ○ Weather may be a challenge ○ Terrain as a challenge ● May bring XRF in the field?
Background Document	<ul style="list-style-type: none"> ● GPS from Gary ● Put in all points into a GPS? ● 95% conc - data manipulation when you get to that step <ul style="list-style-type: none"> ○ Log regression

	<ul style="list-style-type: none"> ● We use lead models because there are models specifically for lead <ul style="list-style-type: none"> ○ There is no safe level for lead
Ecological Risk	<ul style="list-style-type: none"> ● Animals in the area -- find (1 kind of shrub, tree, cactus, etc.) <ul style="list-style-type: none"> ○ Taylor did 8 different risk assessments ○ Check body weight, soil ingestion, water drinking, etc. ○ Find a source to see what animals are in the area

Action Item	Notes & Responsibility	Due Date
Scope of Work	<ul style="list-style-type: none"> ● David: 1.0 Work Plan, 2.0 Training, 3.0 Sampling, copy edit ● Jessica: 4.0 Lab Analysis ● Josue: 5.0 Risk Assessment, 6.0 PA/SI ● Naser: 7.0 Project Management 	10/02/16

Memorandum - Meeting Minutes

To: Bridget Bero, P.E., Grading Instructor
 From: AZ Magma Mine Capstone Team;
 Naser Alqaoud, David Finley, Josue Juarez, and Jessica Szaro
 Date: 10/6/2016
 Re: Technical Advising Meeting #2

Attendance: David Finley, Josue Juarez, and Jessica Szaro
 Prepared by: Jessica Szaro

Topic	Notes
Scope of Work	<ul style="list-style-type: none"> ● Put subtasks in table of contents ● Preliminary assessment, site <u>inspection</u> not investigation ● Mention it is a <u>40-hour</u> OSHA HAZWOPER ● Acid digestion <ul style="list-style-type: none"> ○ Not all samples are digested, only a small percentage ● AA - subcontracted by NAU ● No design reports, just PA/SI <ul style="list-style-type: none"> ○ Making sure it's being written as a project management ● Exclusions: anything not covered in SAP or work plan will not be included in our analysis ● Health/ecological risk were a little short <ul style="list-style-type: none"> ○ Following 5 part processes, maybe explain the steps ○ Observing plants/animals at the site and determine the risk of the determined COCs ● Broader impacts: the people impacted by the project <ul style="list-style-type: none"> ○ People ATV'ing, BLM, etc.
Schedule	<ul style="list-style-type: none"> ● Do it by tasks <ul style="list-style-type: none"> ○ Include subtasks but not sub-subtasks ● Main dates for the bigger tasks <ul style="list-style-type: none"> ○ Smaller task dates within bigger tasks ● Work plan draft: Oct-end of Nov <ul style="list-style-type: none"> ○ Give Bero the draft, BLM final ● Sampling: 2 days (email Dr. Bero for the weekend that we'll do sampling) ● Lab analysis <ul style="list-style-type: none"> ○ Sieving -- 2-3 weeks <ul style="list-style-type: none"> ■ 50-60 hours total for sieving

	<ul style="list-style-type: none"> ○ XRF -- 2-3 weeks <ul style="list-style-type: none"> ■ 50-60 hours total for XRF on work plan <ul style="list-style-type: none"> ● 40-45 hours total XRF ■ Training = XRF training - 3 hours total ○ AA - hard to control the chem lab for time (give it a lot of time) -- our part takes 2-3 days <ul style="list-style-type: none"> ■ Prepare samples in-house ■ Give lab 1-2 weeks ○ Data analysis - how to manipulate the data <ul style="list-style-type: none"> ■ Statistical (95% confidence) <ul style="list-style-type: none"> ● 1 week ■ GIS ● Conduct human/ecological risk ● Float = extra days you build in to make sure you don't get behind ● Risk assessment -- can be done simultaneous <ul style="list-style-type: none"> ○ Health/Ecological <ul style="list-style-type: none"> ■ 1 week for ecological, 2 weeks for health ● Can leave a really long time for your PA/SI to give you some float ● Have to finish PA/SI before you do your website ● Work Plan <ul style="list-style-type: none"> ○ Sparse body, just referencing the SAP & HASP ○ SAP will take a lot of time <ul style="list-style-type: none"> ■ Exact step-by-step of what you're gonna do ■ Grid ■ Equipment we need ■ Sampling techniques ■ Chain of custody ■ How you're gonna do acid digestion ■ Exactly how many samples we'll take ○ HASP, find a template and fill in what's appropriate for the project
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Action Item	Notes & Responsibility	Due Date
Tentative schedule	Josue	10/25/16
Confirm sampling date w/Dr. Bero	Jessica	10/12/16

Memorandum - Meeting Minutes

To: Bridget Bero, P.E., Grading Instructor
 From: AZ Magma Mine Capstone Team;
 Naser Alqaoud, David Finley, Josue Juarez, and Jessica Szaro
 Date: 10/20/2016
 Re: Technical Advising Meeting #3

Attendance: Naser Alqaoud, David Finley, Josue Juarez, and Jessica Szaro
 Prepared by: Jessica Szaro

Topic	Notes
Schedule	<ul style="list-style-type: none"> ● Give more time for writing PA/SI <ul style="list-style-type: none"> ○ More time for presentation ○ More time for website ● Could start PA/SI earlier for writing the beginning stuff-- can't discuss results yet but can start doc ● Website should have work plan, PA/SI <ul style="list-style-type: none"> ○ All documents included ● Make sure Microsoft Project can do weekends
Work Plan	<ul style="list-style-type: none"> ● Equipment: <ul style="list-style-type: none"> ○ What we need to bring, how much we need to bring, what it's being used for ○ How we are labeling <ul style="list-style-type: none"> ■ AZ Magma, Grid Node #, Hotspot #, Who took the sample, Date ○ Tucker-totes for storing bag ○ Freezer Gallon vs. gallon bag (one is stronger than the other one) ● Sampling Rationale <ul style="list-style-type: none"> ○ Why we put the grid this way (distances) ○ Potential COCs include but are not limited to lead and arsenic ● Analysis <ul style="list-style-type: none"> ○ XRF <ul style="list-style-type: none"> ■ Sieve this way to this #, put into the shaker for x min, cleaned this way

	<ul style="list-style-type: none"> ○ AA: used to find R squared value to find a correlation to confirm our XRF values (30% of samples) <ul style="list-style-type: none"> ■ Subcontracted to someone in the Wettaw building ■ Jeffrey.Propster@nau.edu, Wettaw Building Rm 108 <ul style="list-style-type: none"> ● Will cost \$, BLM funded ● Be in communication with Gary <ul style="list-style-type: none"> ○ Let him know when we're going to sample and send him a list of equipment ● Transport: how we're transporting the samples from the site to NAU (totes), how we're transporting the atomic absorption samples to the chemistry lab ● Chain of custody: find example form (who's taking the sample, where it was taken, when) ● Duplicate: if you have to take a second sample at a certain spot just in case <ul style="list-style-type: none"> ○ If it's really big particles- so take bigger sample to get enough info
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Action Item	Notes & Responsibility	Due Date
SAP and HASP draft content	SAP: <ul style="list-style-type: none"> ● Jessica: 1.0 Intro, 2.0 Sampling Rationale, 3.0 Request for Analysis ● Josue: 4.0 Field Methods and Procedures, 5.0 IDW ● Naser: 6.0 Sampling Containers, Preservation, and Storage, 7.0 Samples Documentation and Shipment, 8.0 Quality Control HASP: David	11/02/16

Memorandum - Meeting Minutes

To: Bridget Bero, P.E., Grading Instructor
 From: AZ Magma Mine Capstone Team;
 Naser Alqaoud, David Finley, Josue Juarez, and Jessica Szaro
 Date: 11/3/2016
 Re: Technical Advising Meeting #4

Attendance: David Finley, Josue Juarez, and Jessica Szaro
 Prepared by: Jessica Szaro

Topic	Notes
Work Plan	<ul style="list-style-type: none"> ● HASP <ul style="list-style-type: none"> ○ Closest medical facility (Kingman) and a map to it ● SAP <ul style="list-style-type: none"> ○ Label the grid with numbers and then put those in the table ○ Get lat/long points for ALL nodes, will make it easier when we get in the field ○ 2.2: Add a hotspot and background samples to the samples you acid digest to make it a more representative sample ○ Analysis table <ul style="list-style-type: none"> ■ Change it to # of samples you're doing for each analytical method ■ At the bottom: total # of samples ○ Why we're sieving, to homogenize the sample ● Equipment <ul style="list-style-type: none"> ○ 1 big table <ul style="list-style-type: none"> ■ Item, what you're using it for, quantity ■ Record data in logbook <ul style="list-style-type: none"> ● Logbook section shows exactly what you should record ○ Labeling sample: <ul style="list-style-type: none"> ■ GN1 (Grid Node 1) ■ HS1 (Hot spot 1) ■ BG1 (Background 1) ● Decontamination

	<ul style="list-style-type: none"> ○ Normal soap, DI water ○ Clean the shovel and dry after each sample with paper towels ● Section 5: <ul style="list-style-type: none"> ○ What to do with all of our decontamination fluids <ul style="list-style-type: none"> ■ Can just pour at the site ○ Decontamination solids <ul style="list-style-type: none"> ■ Take with you ● Section 6: Sample Containers and Storage ● Section 7: Field notes: who's on what job, if you see any plants/animals <ul style="list-style-type: none"> ○ Photographs, taken at every sample spot <ul style="list-style-type: none"> ■ Write the sample # on the flag, include that flag in the pic ○ Write down the sample labels BEFORE you go sampling so you don't miss a sample ● Include sample chain of custody in your SAP, can be included in the SAP or as an appendix <ul style="list-style-type: none"> ○ Print them out to use when sampling ● Atomic absorption <ul style="list-style-type: none"> ○ If these COCs are found, use FAAA ○ For lead/arsenic: use GFAA
<p>Cost of Services</p>	<ul style="list-style-type: none"> ● Can just use \$50/day for first draft ● Paying to decontaminate sieve after each sample ● Do hours before you do costs