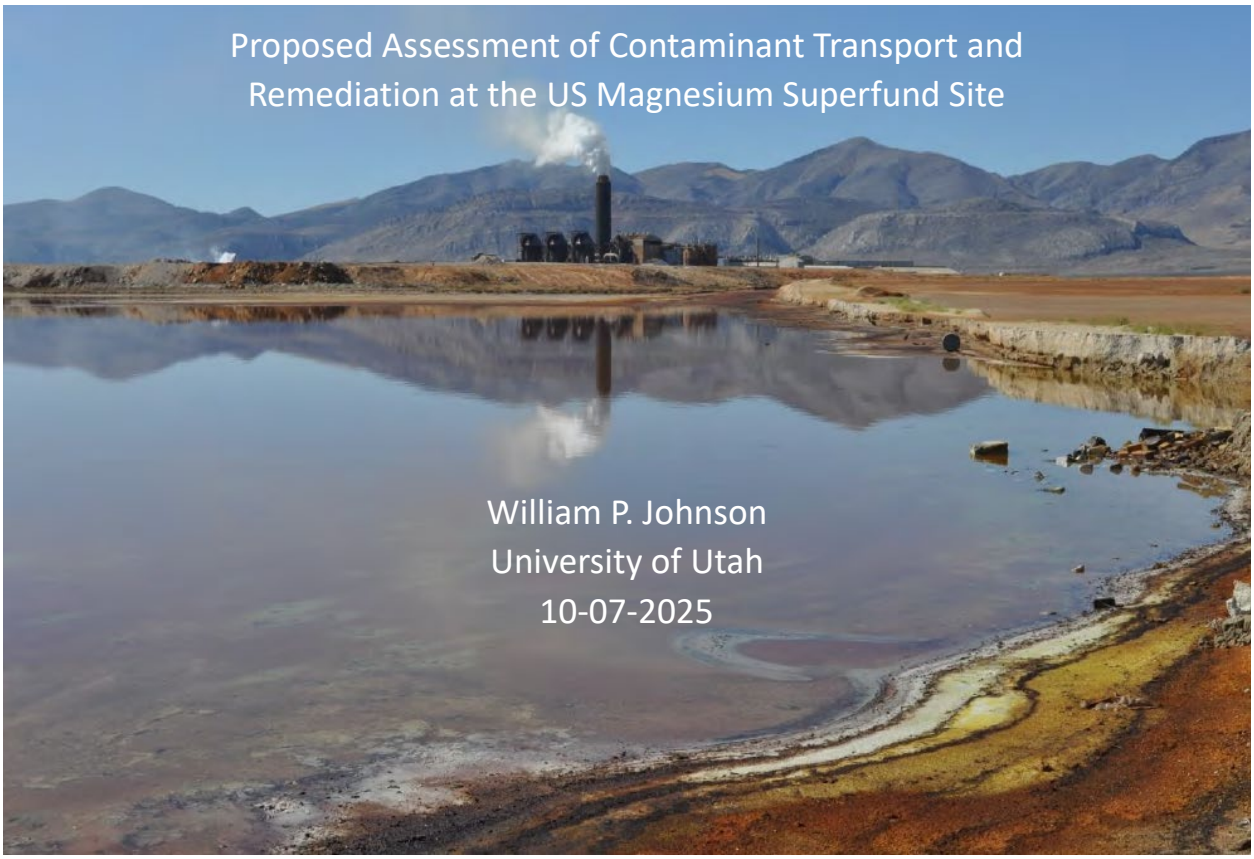

Four steps were previously outlined to determine the extent to which contaminants have moved, are moving, and could continue to move, outward from the US Magnesium site (What's Next Analysis of the US Magnesium Superfund Site Technical Advisory Group, 2025). This document is a proposal and budget to accomplish those steps in the geohydrologic framework as currently understood from previous work (Figure 1), as follows:

a) Review of existing documents to assess contamination levels in the CERCLA portion (Old Waste Pond) of the site (Figure 2), as existed during site operation.
b) Resampling of well hydraulic heads in existing wells (Figure 2) to understand changes in groundwater flow, and retrieval of samples for analysis of selected contaminants (i.e., dioxins, hexachlorobenzene, and metals) in selected (ten to fifteen) existing wells to assess current contaminant concentrations.
c) Installation of additional piezometers for sampling of hydraulic head and contaminant concentrations at four to five locations in unmonitored zones on the perimeter of the Old Waste Pond (Figure 2). This phase will include 3D numerical modeling of contaminant transport conditioned to current hydraulic head and contaminant concentrations in existing wells to simulate likely transport scenarios for contaminants outward from the site.

d) Based on results obtained during execution of (a) through (c), geophysical surveys (multi-frequency ground penetrating radar and electrical resistivity tomography keyed to stratigraphy from installed piezometers) will be conducted to improve understanding of the geohydrologic system lakeward of the Old Waste Pond. Installation of additional piezometers at four to five locations lakeward beyond the Old Waste Pond will occur as guided by the information from (a) through (c) and the geophysical surveys. The end result will be identification of the extent to which contaminants have moved lakeward from the site, and identification of primary strategies for control and remediation of this contamination.

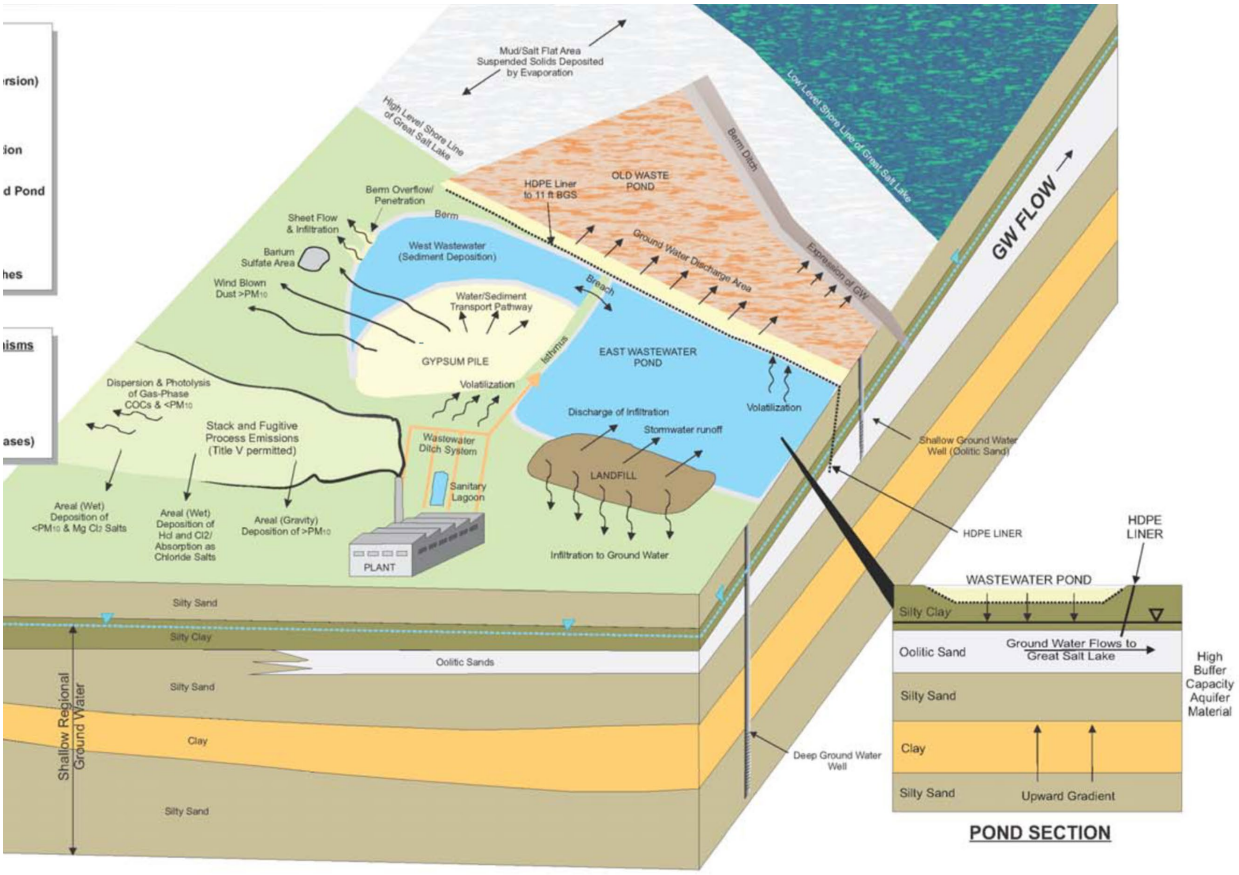

Figure 1. Box diagram of sedimentary layers (strata) beneath the US Magnesium site to a depth of approximately 80 feet. From Final Old Waste Pond Conceptual Site Model (OWB_CSM) Hydrologic Report, 2017.

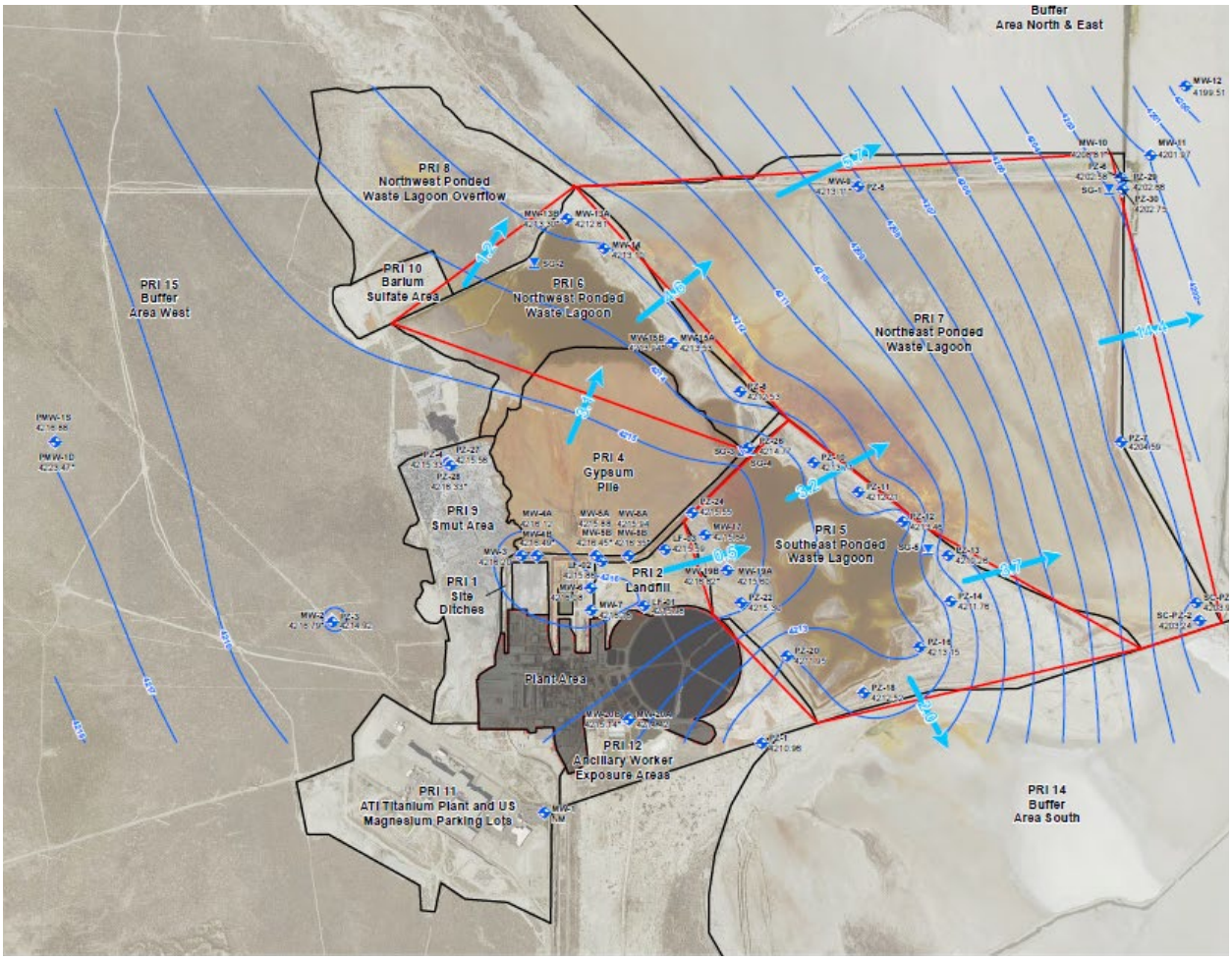

Figure 2. Groundwater hydraulic head contours (blue lines) determined from hydraulic head measurements in wells. Wells are indicated by blue circular symbols. Blue arrows denote general ground water westward toward Great Salt Lake. From Final Old Waste Pond Conceptual Site Model (OWB_CSM) Hydrologic Report, 2017.

The total budget for this effort will be $213,300, as detailed in the budget (Table 1) below. This budget includes costs of laboratory analyses for dioxins, hexachlorobenzene and three metals in 27 samples ($30,000), costs of piezometer installation at three depths and select core retrieval at eight to ten locations ($30,000), six-month salary and tuition for three graduate student researchers in geochemistry, hydrology, and geophysics ($26,770 each) as guided by Drs. Johnson and Thorne with one month of salary and benefits each ($26,473 and $17,582, respectively). Other ancillary costs related to materials, supplies, travel, and shipping total to $11,500. The indirect cost is $17,486, which is 10% applied to all costs except tuition for the three graduate student researchers ($18,000).

Type of Grant:	Research
Title:	US Mag Transport Assessment
PI:	William (Bill) Johnson
Project Start Date:	10/15/2025
Project End Date:	10/14/2026
Sponsor:	Utah Division of Forestry, Fire, and State Lands
Due Date:	10/7/2025

WARNING: These are Macro buttons and the action cannot be undone

2-Year Budget

3-Year Budget

4-Year Budget

Standard Benefit Rates		Indirect Cost Rate		CAP
Faculty	37%	Year 1	10.0%	None
Grad Student	9%	Year 2	10.0%	
Undergrad	9%	Year 3	10.0%	
Post-Doc	45%	Year 4	10.0%	**Check with department since PD benefits w/retirement would be 59%**
Staff	72%	Year 5	10.0%	

OUTYEARS

Budget per year — **Year 1**

Name	Project Role	PD Yrs Exp	Role Category	Benefit Rate	Appt. Cal.	FTE	Salary	Salary or CAP	Budget Period Length	Effort Mos	Effort %	Requested support	Benefits	Total salary + benefits
Key Personnel														
William (Bill) Johnson	PI Hydrogeochemist		Faculty	37%	12	1.00	231,880	231,880	12	1.00	8.33%	19,323	7,150	26,473
Michael Thorne	Geophysicist		Faculty	37%	12	1.00	154,000	154,000	12	1.00	8.33%	12,833	4,748	17,582
			Faculty	37%	12	1.00		0	12	0.00		0	0	0
Total Key Personnel												32,157	11,898	**44,055**
Other Personnel														
TBD: Grad Student Hydrology 6 months			Grad Student	9%	6	1.00	76,220	76,220	12	3.00	50%	19,055	1,715	20,770
TBD: Grad Student Geochemistry 6 months			Grad Student	9%	6	1.00	76,220	76,220	12	3.00	50%	19,055	1,715	20,770
TBD: Grad Student Geophysics 6 months			Grad Student	9%	6	1.00	76,220	76,220	12	3.00	50%	19,055	1,715	20,770
			Staff	72%	12	1.00	0	0	12	0.00	0%	0	0	0
Total Other Personnel												57,165	5,145	62,310
Total Salary, Wages and Fringe Benefits												89,322	17,043	106,364
Equipment Description ($5,000 or more)														
Geopump														2,000
Water level measurer														1,500
Total Equipment														**3,500**
Travel														
1. Domestic Travel Costs (incl. Canada, Mexico, and U.S. Possessions														3,000
2. Foreign Travel Costs														
Total Travel														**3,000**
Other Direct Costs														
1. Materials and Supplies (list by type)														
Tubing														1,000
boots and other coverings														1,000
Field and lab gloves and other incidentals														2,000
Total Materials and Supplies														**4,000**
9. Other Costs -														
10. Other Costs - Analytical Services 27 samples														30,000
11. Other Costs - Shipping														1,000
12. Other Costs - Well drilling and coring 8 to 10 locations, nested between 10 and 80 ft depth														30,000
13. Other Costs														
18b. Other Costs - Grad Student Tuition (F&A Exempt) three students one semester each														18,000
Total Other Direct Costs														83,000
Total Direct Costs														**195,864**
Modified Total Direct Cost Base														**174,364**
Indirect Costs														**17,436**
Total Costs														**213,300**