



I&W Brine Well Update

Radioactive & Hazardous Materials Committee

October 8, 2013



US 62/180

Service Stations

Trailer Park

Feedstore

E2

E1

Ag Supply

Church

Truck Stop

BNSF Railroad

US 285

CID Canal

Professional & Technical Services Contract

April 2012 - Request for Proposals issued by State Purchasing

July 2012 – AMEC Environment & Infrastructure selected as contractor

October 2012 - Contract finalized

Professional & Technical Services Contract

Scope of Work

Task 1. Site Monitoring and Early Warning

- AMEC assumed responsibility for monitoring program
- Evaluated all systems and programs
- Recommended improvements
- Implemented approved improvements

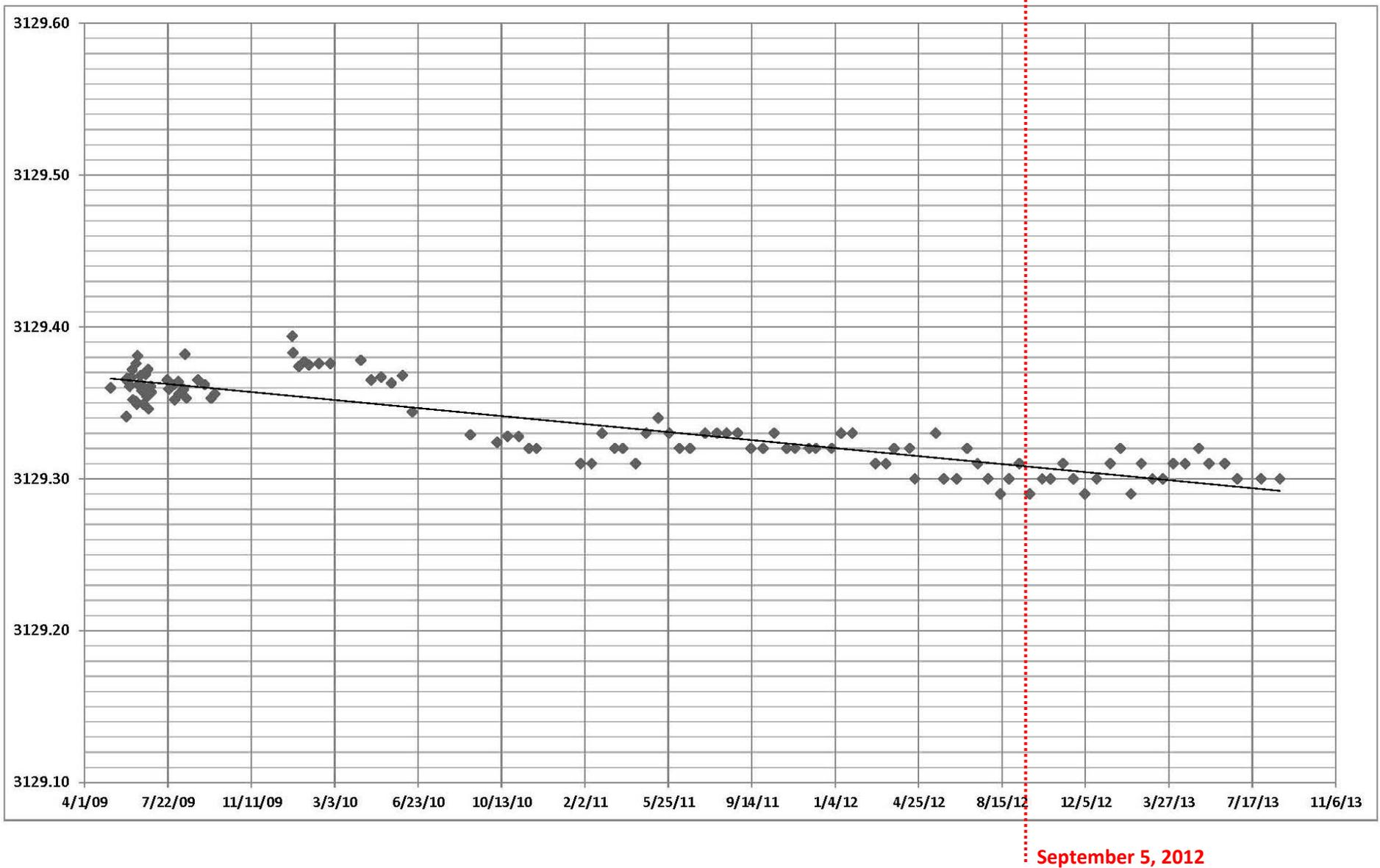
Professional & Technical Services Contract

Scope of Work

Task 1. Site Monitoring and Early Warning

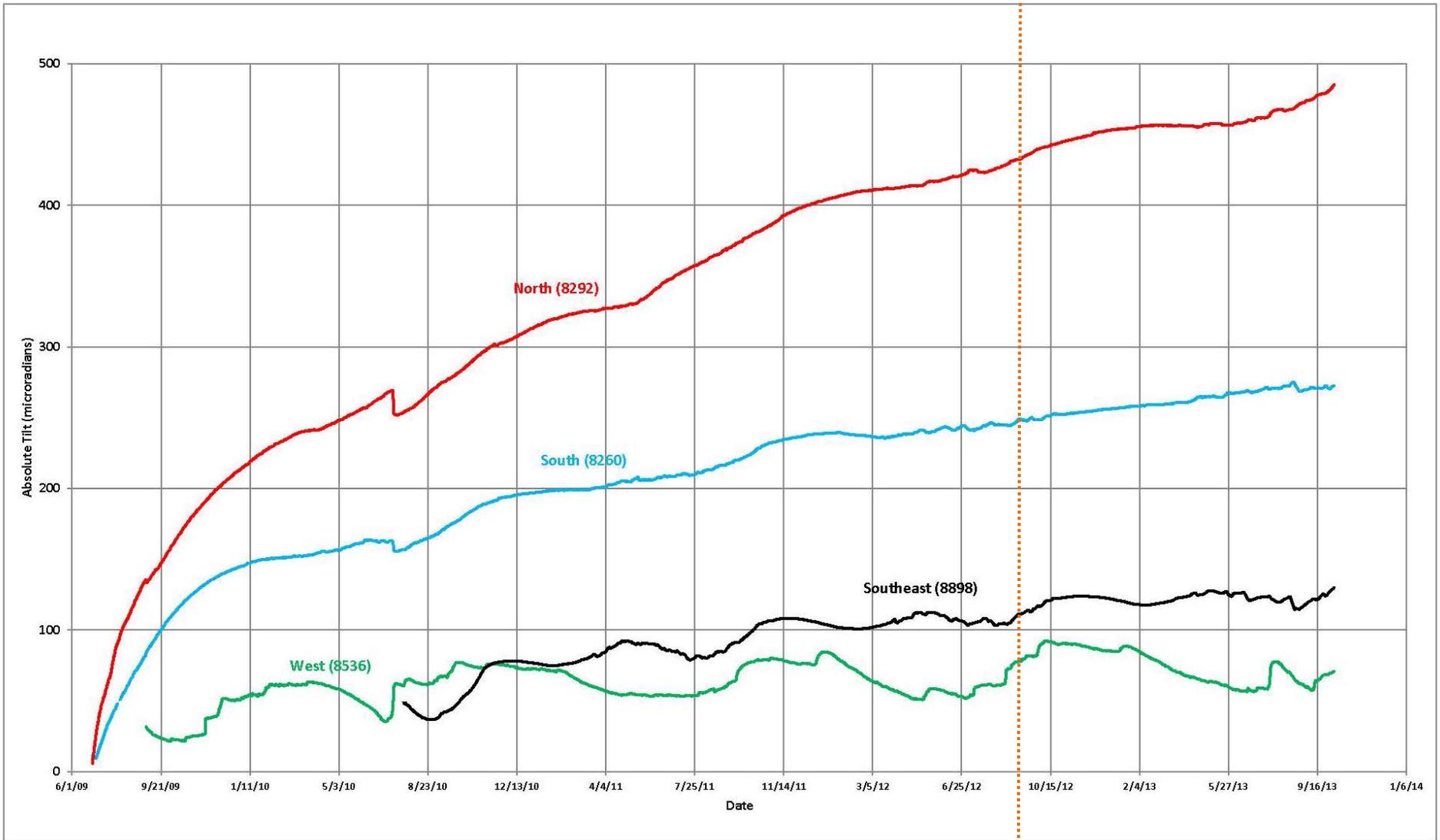
- Off-site data server relocated with redundant backup
- Instrumentation conduits buried
- Soil temperature probes installed
- Canal water level probe installed
- Webcam installation in progress

Surface Subsidence



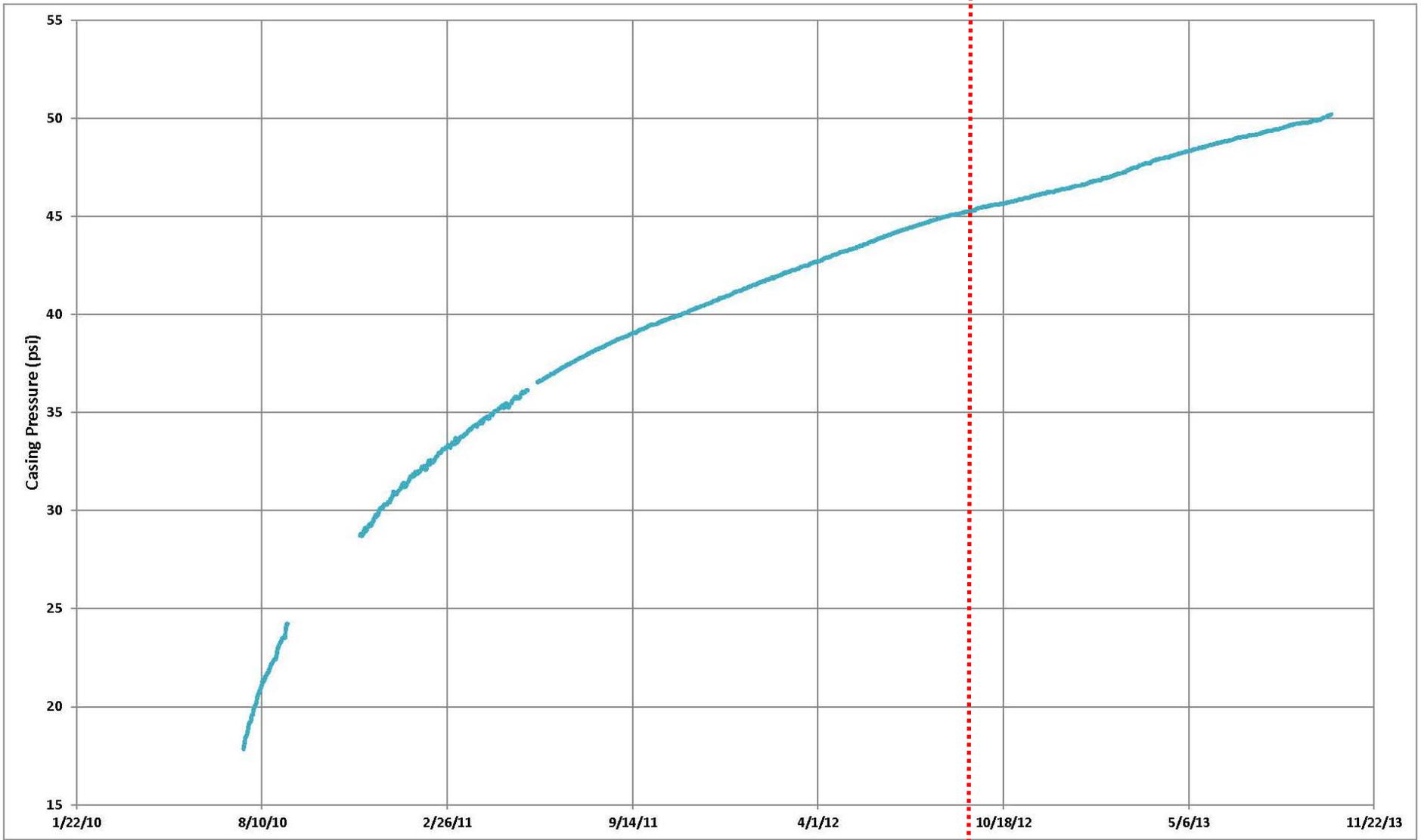
RB 108

Borehole Tiltmeters



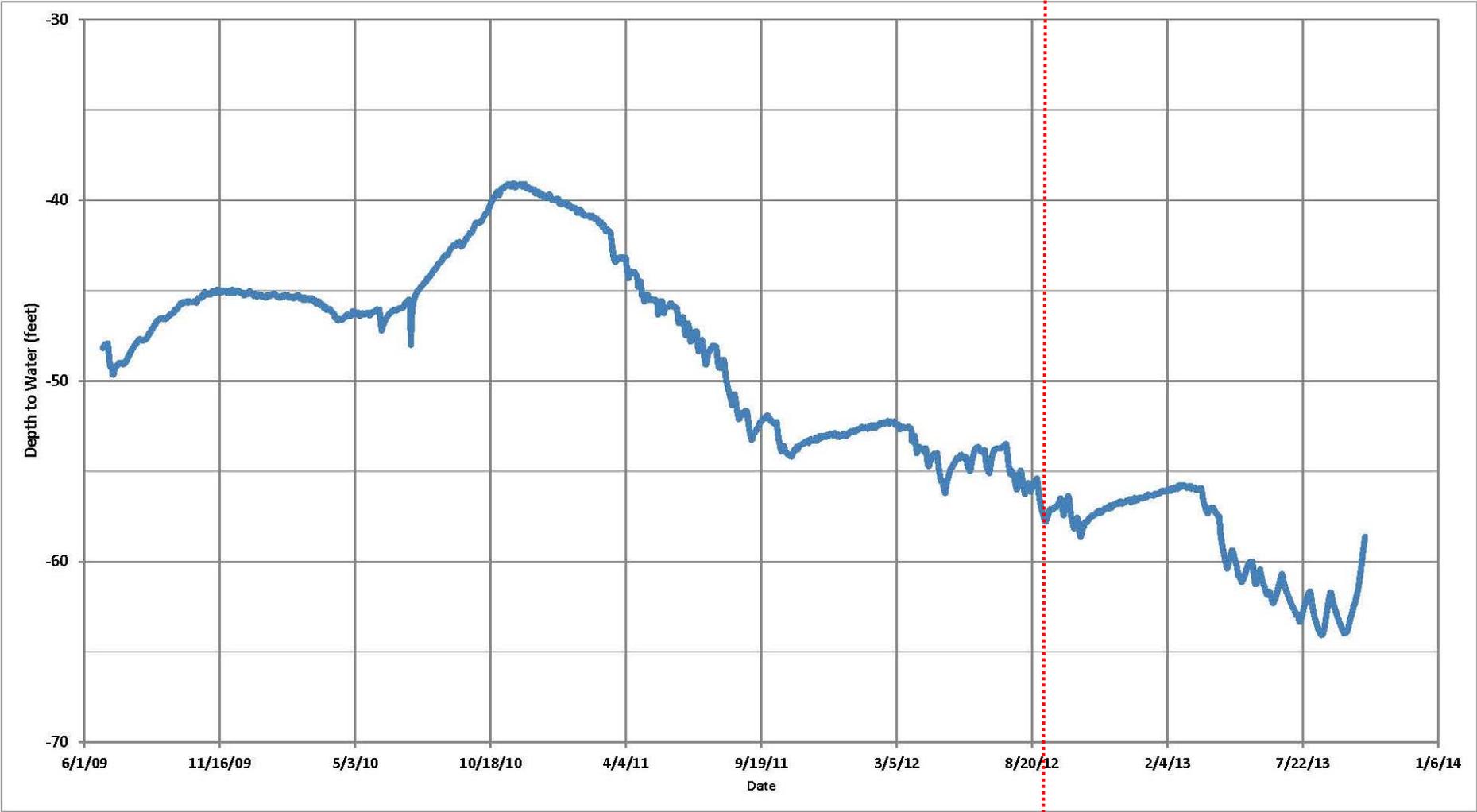
September 5, 2012

Cavern Pressure Monitoring



September 5, 2012

Groundwater Levels



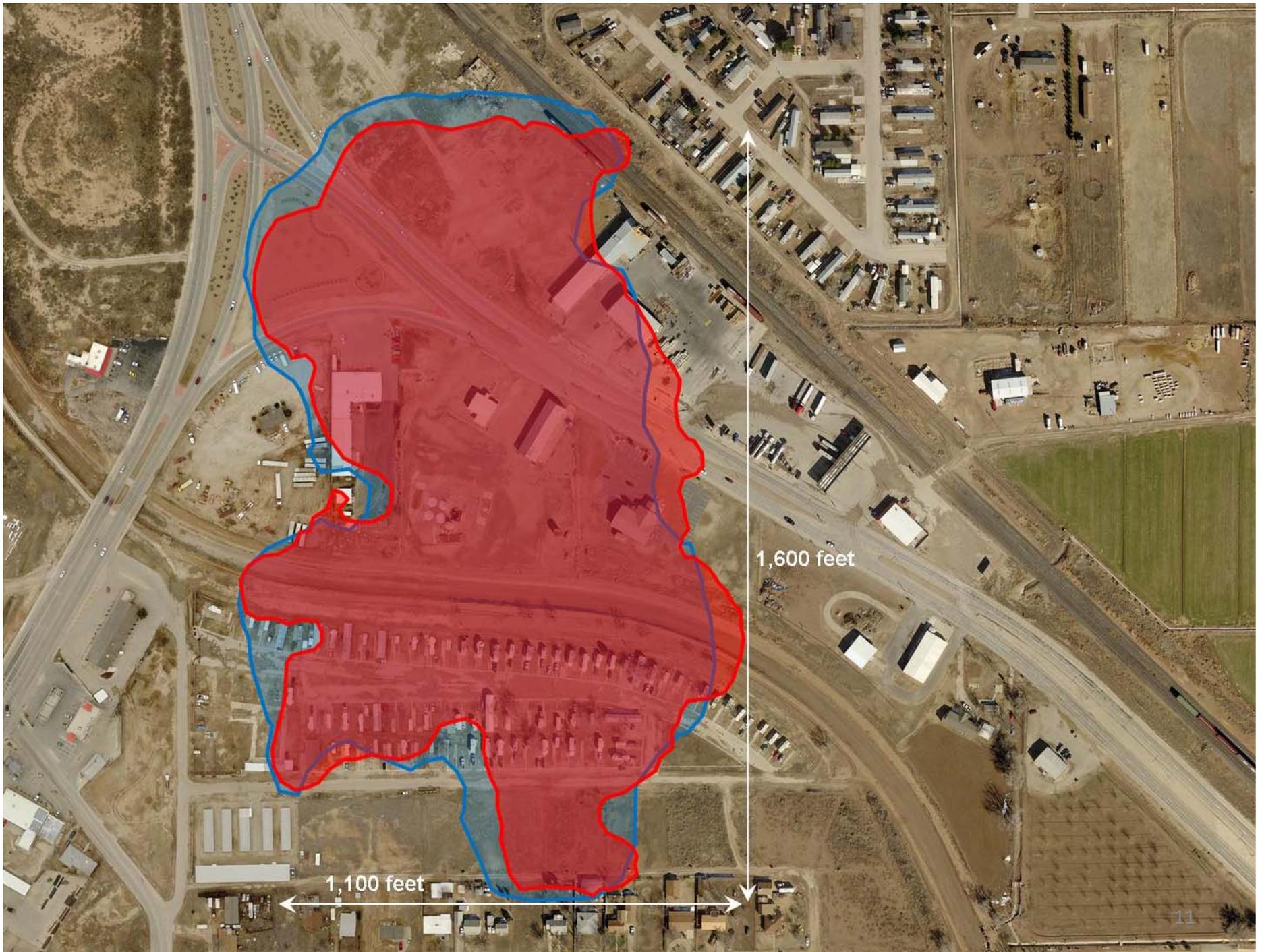
September 5, 2012

Professional & Technical Services Contract

Scope of Work

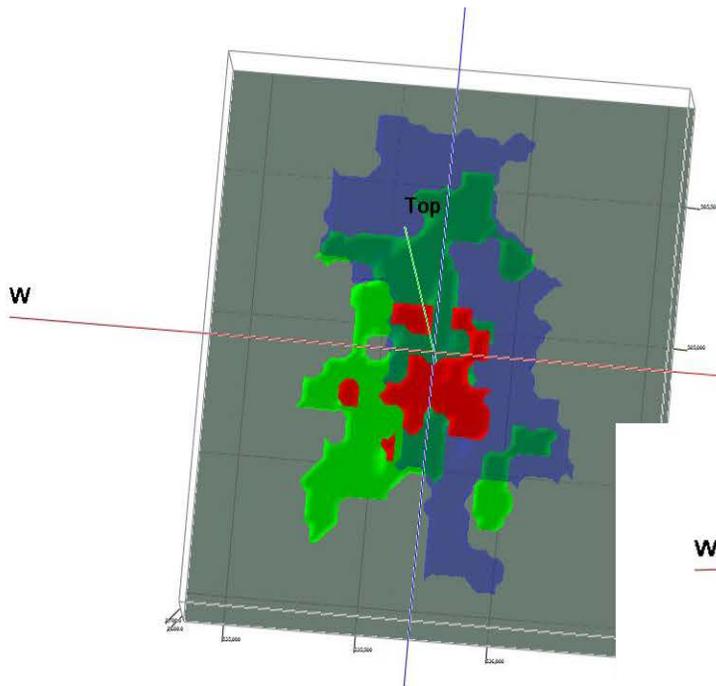
Task 2. Geophysical Characterization

- Refinement of magnetotelluric survey
- Advance and log off-cavern coreholes
- Reinterpret all geophysical data



1,100 feet

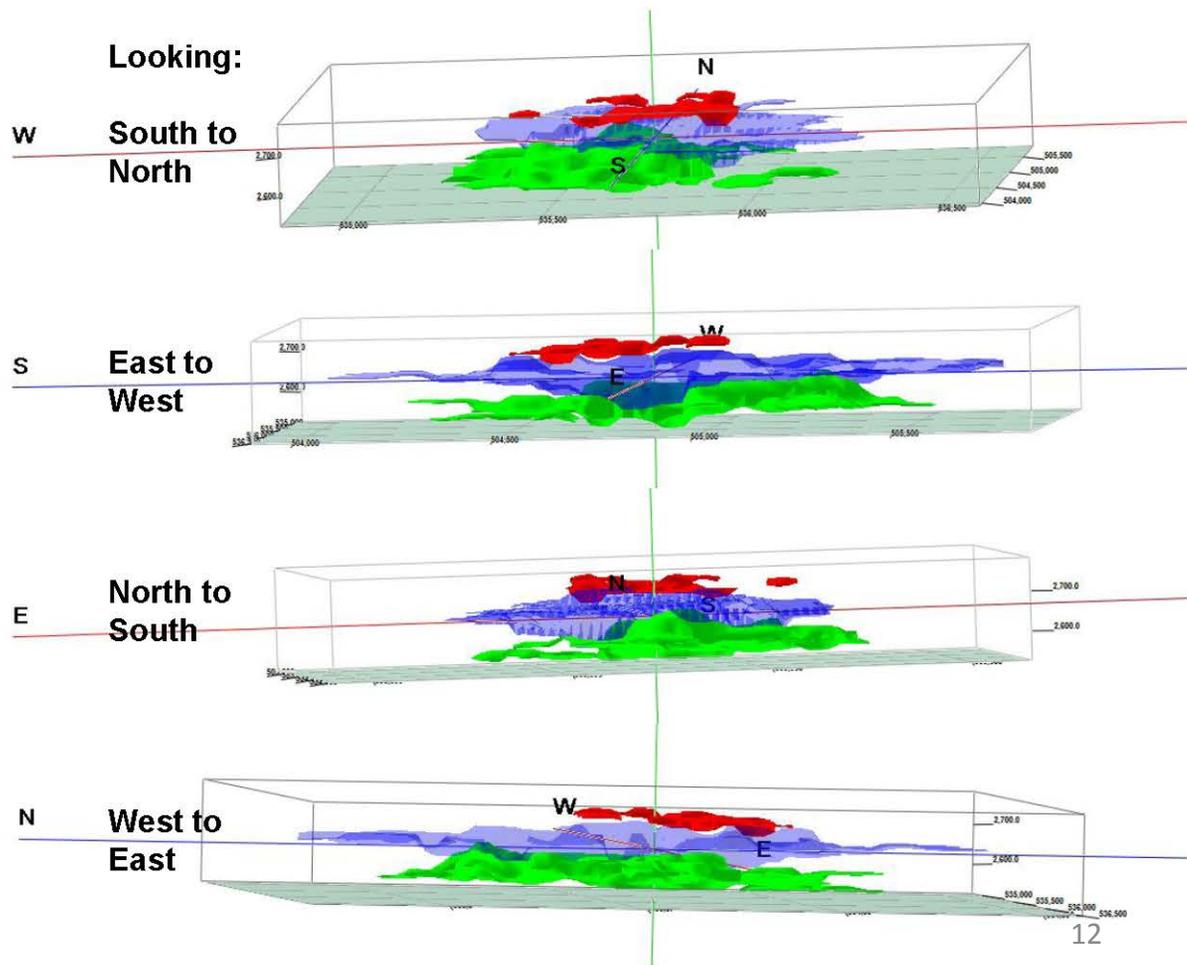
1,600 feet

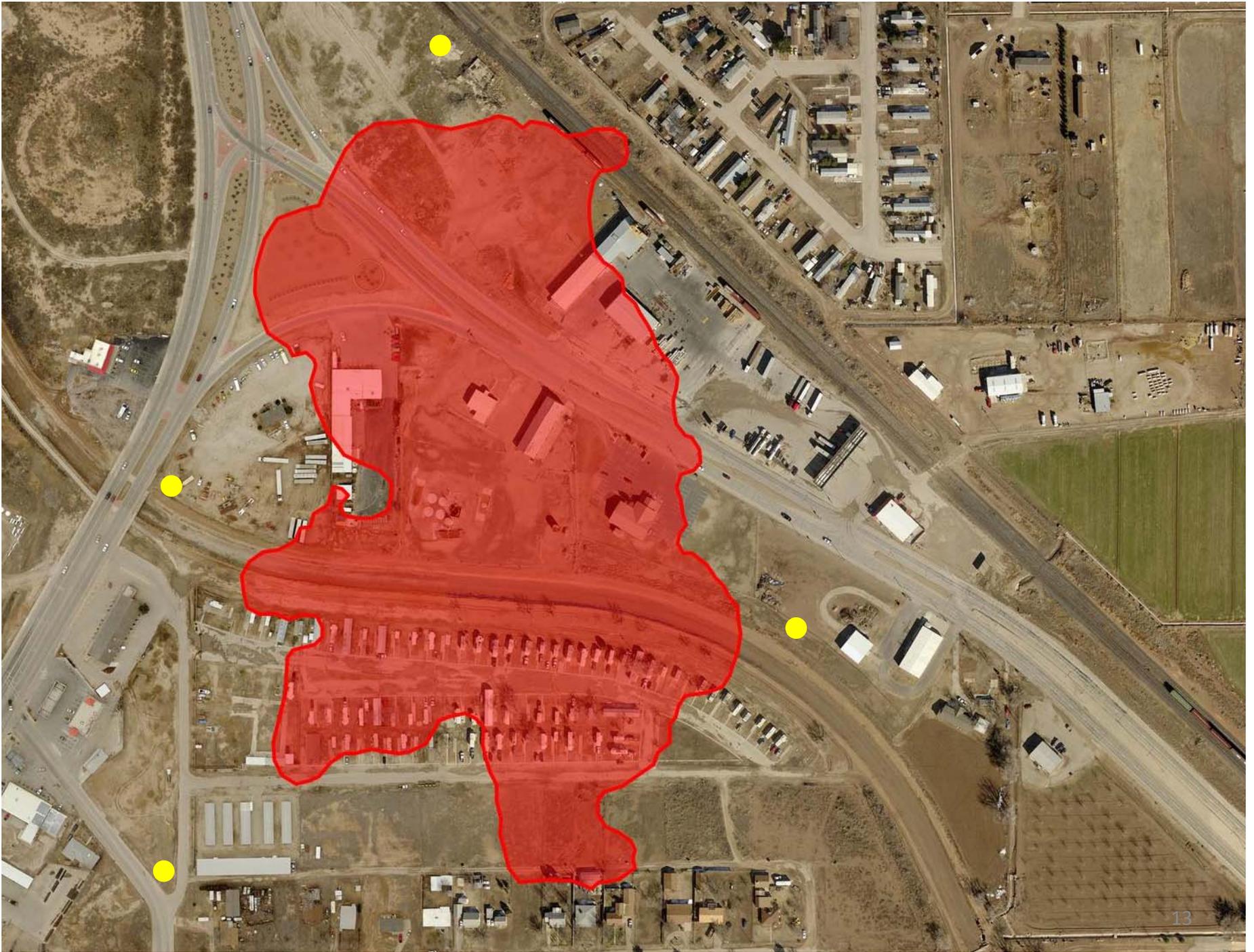


The M-T 'strong water' zone is a complex geometric shape influenced by local geology as well as the E brine well activity

M-T 'Strong Water' at brine cavern zone depth range

Red – upper zone
 Blue – middle zone
 Green – lower zone







Microseismicity

- Enhanced early warning
- Indicate where failing areas of the cavern are such that remedial actions can be prioritized and cost-effectively directed
- Measure the effectiveness of remediation

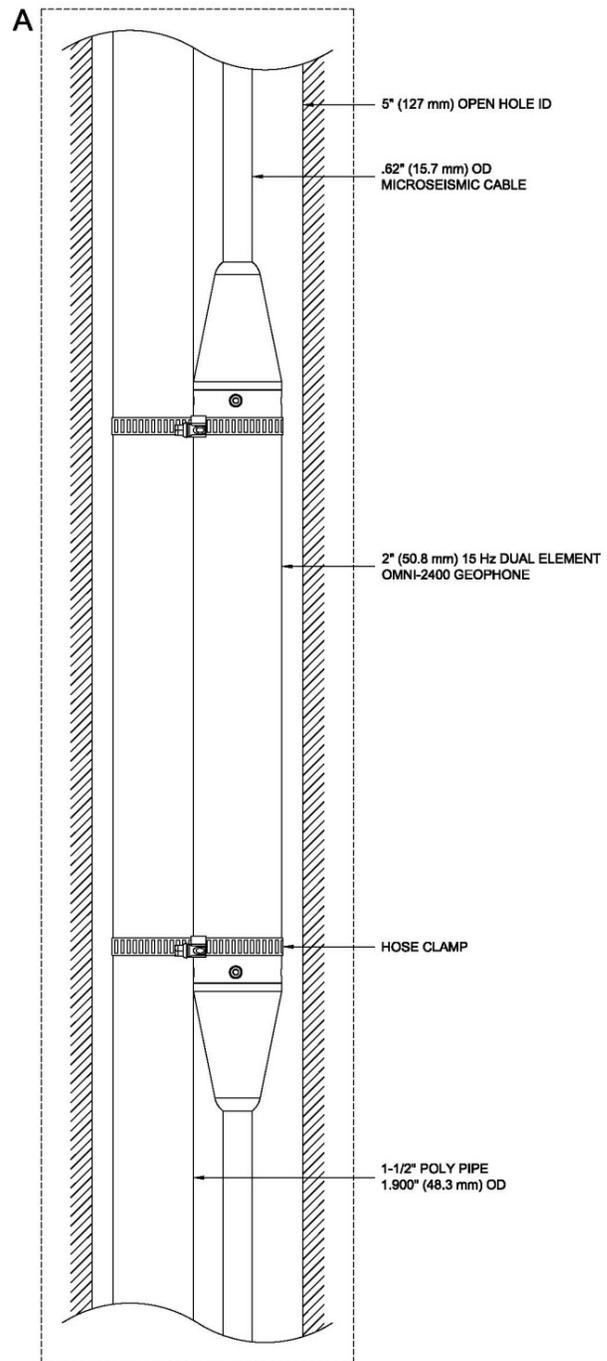
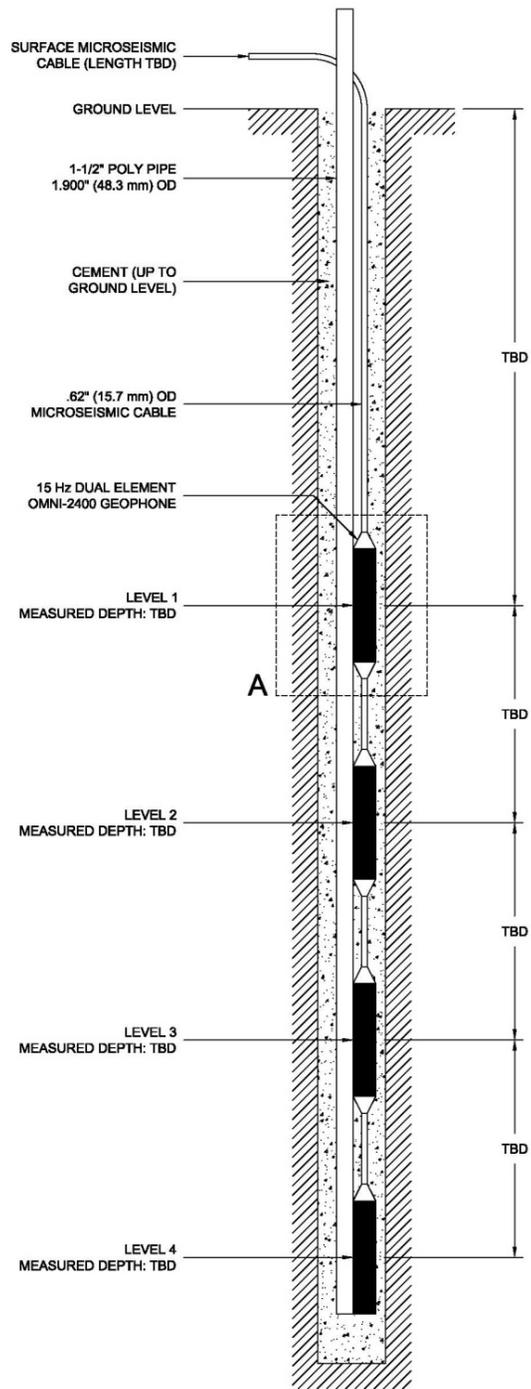




Photo courtesy ESG Solutions



Professional & Technical Services Contract

Scope of Work

Task 3. Feasibility Study

- Study will include possible corrective actions and evaluation of the strengths and weaknesses along with cost estimates for implementation. The study will include the concerns of stakeholders and is due no later than June 30, 2014.
- Minimum options to be considered:
 - Insitu backfilling
 - Structural support
 - Controlled collapse
 - Monitoring only