



CASE STUDY

E0402

FORMER UST SITE – SOIL MIXING – HIGH LEVEL

SITE OVERVIEW

Former UST Site, St. John's, Az
AZ DEQ Site Number: **0-000772**

CONTAMINATION

Gasoline contaminants in clayey soil

HISTORY

- Leaking Underground Storage Tank (UST) had contaminated an area at the refueling location for the City maintenance yard. ChemOx was applied to the clayey zone but was minimally successful, making a soil mixing project economical.

PRE-CLEAN DATA

- Concentrations above the RSRLs in the soil from 20 to 40 ft bls. Sandy clays were stiff from 25 to 40 ft bls.
- Thirteen samples were collected from a 40ft by 35 ft area, samples were collected vertically at five foot intervals at 4 locations. Approximately 800 cy of soil was impacted.

REMEDIATION ACTIVITIES

- One proprietary EN Rx Reagent™ application was used to treat the soil with EN-Rx-SC™ soil conditioner.
- The goal was to break the clays down and treat the soil to below RSTLs criteria.
- Remediation used a technique of soil inversion where the overburden is removed, the contaminated soil is removed, the overburden is replaced in the open excavation, then the contaminated soil is reinserted into the excavation in lifts while EN Rx reagent s are applied which minimized space needed and provides good control of the operation at the same location of initial impact.

POST-CLEAN UP DATA

- Thirteen lift samples confirm the reduction to low concentrations below the RSRLs. One post soil boring (for well installation) was completed with similar results (eight additional samples confirming results).
- Mass reduced can be calculated as 98.7%
- The soil conditioning transformed the clayey soil into a loamy soil suitable for treatment in minutes. Treatment took 2 days.
- Site in pending closed due to ongoing groundwater remediation.

Case Study 0402: Treatment Results

	Date	Benzene	Toluene	Ethyl benzene	Xylenes
Pre Sample High	12/16/2009	3.7	210	200	3100
Average of 13 pre samples		Average VOCs 517.8 mg/Kg			
Pre Sample Low	12/16/2009	2.9	2.3	0.41	2.03
	3/23/10	EN Rx Treatment			
Post Sample High	4/21/2010	<0.055	0.33	0.52	6.6
Average of 13 post samples		Average VOCs 6.56 mg/Kg			
Post Sample Low	4/21/2010	<0.056	<0.11	<0.11	<0.17
RSRLs		0.65	650	400	270

All results in mg/L unless otherwise specified, RSRL = Residential Soil Remediation Level