



CASE STUDY

IN-SITU BioLogix Application

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SITE INFORMATION

Underground storage tank (UST) leaks from a former gas station in Boston, Massachusetts, contaminated shallow ground water under a parking lot for a commercial building. The UST contamination was found during trenching for utilities. As the presence of contamination prevented further property development, fast remediation was important to the stakeholders.

APPLICATION DESIGN

BioLogix was implemented in the ground water. Six units of BioLogix (1,200 Liters) were injected into the contaminated ground water through vertical injection wells located up gradient of the monitoring wells.

After a single inoculation of BioLogix, the contaminant concentrations were reduced across the property, both the volatile and semi-volatile range hydrocarbons.



SITE CHARACTERISTICS



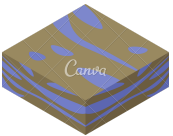
GEOLOGY

The setting of the site is a complex glacial region where tills and channel deposits are often interbedded. The surface material at the site was mostly interbedded silt and sand lenses. The uppermost ground water was perched over a peat layer.



HYDROGEOLOGY

The affected aquifer was an unconfined silty sand zone approximately 8 feet thick.



GROUNDWATER CONTAMINATION

The size of ground water plume that resulted from leaching soil contaminants was estimated to be 5,000 square feet. The contamination was mainly diesel-range petroleum constituents, with the highest concentrations in the C9 to C18 range, but there were also scattered detections of xylene, toluene, and ethylbenzene.

Pre-Treatment Contaminant Concentrations (ug/l)

	Aliphatic C5-C8	Aliphatic C9-C12	Aliphatic C9-C10	Aliphatic C9-C18	Aliphatic C11-C22	Ethyl benzene	Toluene	Xylene
MW-4	5900	3800	9200	850	680	1000	550	5220
MW-8	1440	1340	4/26/10	<200	1670	581	250	1173

BIOREMEDIATION RESULTS

Contaminant Concentrations (ug/l)

	Aromatic C9-C10		Aromatic C11-C22		Ethylbenzene		Toluene	
	Before	After	Before	After	Before	After	Before	After
MW-4	9200	4010	680	NT	1000	627	550	267
MW-8	3040	178	1670	245	581	16.3	250	<5.0

	C5-C8		Aliphatics C9-C12		C9-C18		Xylene	
	Before	After	Before	After	Before	After	Before	After
MW-4	5900	1100	3800	1900	850	NT	5220	2267
MW-8	1440	124	1340	<20	<200	<200	1173	53

"Dedicated to sustainable remedial solutions, Delta's innovative Biologix bioremediation process transforms contaminated soil and water using innovative biology and chemistry returning contaminated sites to their original state. Delta's ScreenLogix tool is a cost-effective solution to improve efficiency in environmental operations.

"Our approach is collaborative and flexible, working dynamically with clients, consultants and contractors in order to develop the optimal solution for each specific challenge."

Robert Lacey, President

