

DeeAar Holdings, LLC

Current Projects Using AgroRemed[®] /VaporRemed[®]

Dinkar Ganti

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February 21, 2021

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- ▶ Current, active projects
- ▶ Past projects
- ▶ Appendix - Reports

Abandoned Gas Station in Mays Landing, NJ

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Site location



Figure: Site: An Abandoned Gas Station

Background

Tank
2 x 8000 gallon UST
1 x 1000 gallon kerosene UST
2 x 3000 gallon leaded gasoline
1 x 2000 gallon leaded gasoline UST

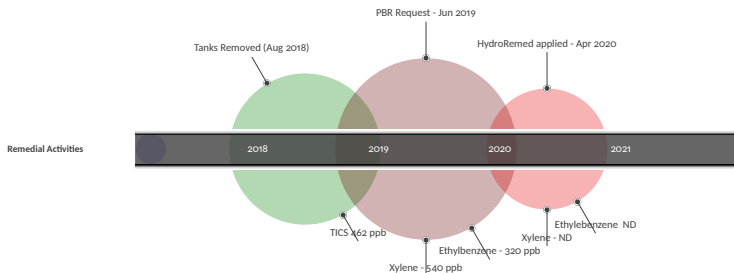
- ▶ The gas station has been abandoned for over ten (10) years.
- ▶ At the time of cleanup, the team could arrive at an estimated gas tanks.
- ▶ Tanks were removed in 2018.
- ▶ Contamination baselines were established in 2019.
- ▶ HydroRemed was added to site in April 2020.
- ▶ The hydrocarbon contamination levels have been non-detect (ND) for two samples.
- ▶ Secondary contamination has been detected and is being addressed.

Current State : The monitoring for levels of secondary contamination is continuing.

Mays Landing - Remediation Timeline contd.

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Contaminated Gas Station in Antrim, NH

Site location



Figure: Sitemap of monitoring wells

Background

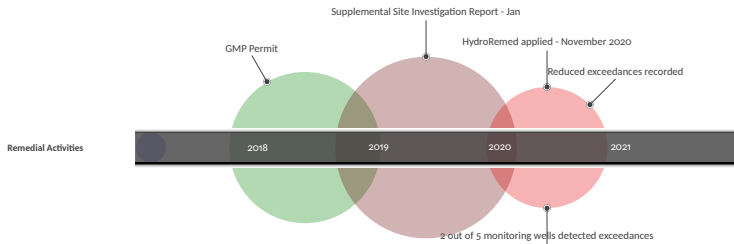
- ▶ The site is a former retail gasoline and fueling facility, reportedly since 1970s;
- ▶ In 1988, several underground storage tanks were removed.
- ▶ Previous remedial efforts at the site were conducted by prior consultants and included the use of an in-situ submerged oxygen curtain (ISOC) in 2002 and bio-augmentation via the addition of live bacterial cultures in 2004 to remediate residual petroleum contaminant levels in groundwater at the site.
- ▶ Our group acquired the property in July 2018;
- ▶ The project is currently 70 % complete. There are exceedances recorded near two monitoring wells;
- ▶ Groundwater from MW-101 contained concentrations of 11 VOCs and 3 PAHs, including concentrations of benzene (32 parts per billion [ppb]) and naphthalene (160 ppb) that exceeded the New Hampshire Ambient Groundwater Quality Standards (AGQS);
- ▶ Groundwater from MW-102 contained concentrations of eight VOCs and 3 PAHs, none of which exceeded the AGQS; and
- ▶ * Details are in the attached report.

Current State : Active. We are reaching out to the DES to discuss our protocol to address the remaining 30% of contamination.

Antrim NH - Remediation Timeline contd.

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Past Projects using AgroRemed/HydroRemed



- ▶ UST decommissioning and complex soil-only risk-based cleanup, Portland OR

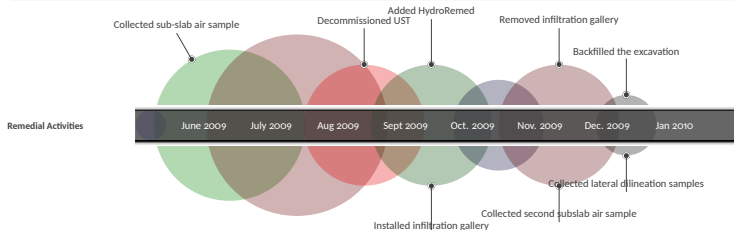
UST Decommissioning and Complex Soil-only Risk-based Cleanup

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... "As suggested by the results of the second sub-slab air sample, the microbes were particularly successful in degrading the plume beneath the basement slab. " - Mark N, Geohydrologist, Xavier Environmental, Inc.

[Please click on this link for details.](#)



Site location

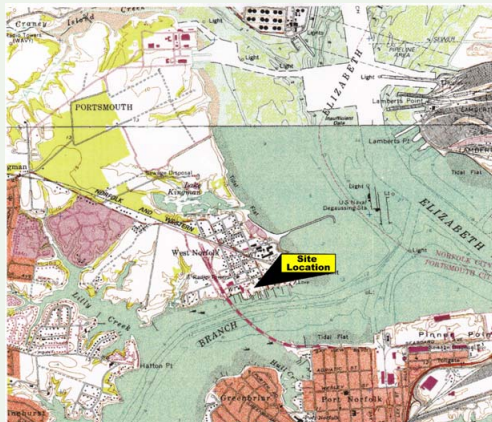
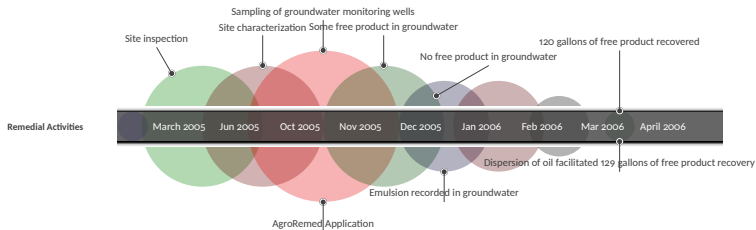


Figure: Site Location

“... .InSitu Bioremediation was requested by the DEQ, as a cost effective method of remediation at this site. A product known as AgroRemed[®] was chosen, because of its ability to address all phases of petroleum contamination using a single application.” Marvin S, Project Geologist. [Link to the report.](#)



A notable aspect of the groundwater data shows that free product on Dec 30th reduced to 0. This reduction can be attributed to the addition of AgroRemed on 18th Oct, 2005. Further, the free product in Jan 2006 was in the form of an emulsion. The author's conclusion based on this data is that the emulsion is evidence of the biodispersion enabled by AgroRemed. In retrospect, that is, after observing field data in numerous projects since 2005, we assert that this emulsion phase is critical for effective bioremediation of oil contamination on the field. Visually, this emulsion has resulted in effective breakdown of sheen in many other projects where the AgroRemed has been applied.

"... .The application of AgroRemed appears to have reduced the levels of dissolved phase contamination in the groundwater and increased dispersion of the free product, resulting in an increase in the amount of free product in MW-4. Recovery of the free product utilizing aggressive fluid vapor recovery (AFVR) appears to be effective; therefore, its^a continued use is recommended. " Project Geologist

^ahere "its" refers to the AFVR and not AgroRemed. There was no need to apply AgroRemed after the application in Oct 2005.

References from [Sarva Bio Remed's online shop](#), with their permission.

- ▶ Cleanup of contaminated soil at ANA Shipyard, 2006
- ▶ Corrective Action Plan VDEQ PC#911427
- ▶ Corrective Action Plan - VDEQ PC#972073
- ▶ Corrective Action Plan VDEQ PC# 055074
- ▶ PADEP closure report documenting removal of one 500-gallon tank and two 1000-gallon tanks

Our group specializes in bioremediation of contaminated properties such as,

- ▶ abandoned gas stations;
- ▶ and properties contaminated with TCE/PCE.

We strive reduce the time-to-market for contaminated properties to realize value to our clients.

- ▶ - Dinkar Ganti, Lead Developer, DeeAar Holdings, LLC.



► **Sarva Bio Remed, LLC.**

Sarva Bio Remed, LLC is a leader in providing and developing innovative environmental solutions for remediation of contaminants including gasoline, number 2 heating oil, asphalt, PCE/TCE.

ANALYTE	CAS	SAMPLE ID		TIME 1	
		LAB ID		L185189-03	
		COLLECTION DATE		L185189-03	
		SAMPLE DEPTH		L185189-03	
		SAMPLE MATRIX		WATER	
		N11 PL			
		Conc	Q	ML	MDL
MICROEXTRACTABLES BY GC/MS					
VOLATILE ORGANICS BY GC/MS					
Acetone	71-43-3	1	ND	0.5	0.16
Butane	108-98-3	1	ND	0.16	0.2
Chloroform	67-66-3	2	ND	0.5	0.17
Diethyl ether	109-89-5	1	ND	1	0.13
Hexane	110-52-5	2	ND	5	0.33
Isobutane	109-64-4	1	2.05	3	0.13
Propane	63-02-0	10	3.5	3	1.5
Carbon disulfide	75-15-0	1	ND	1	0.2
Trichloroethene	79-06-1	2	ND	1	1.9
VOLATILE ORGANICS BY GC/MS-TIC					
Total VOC Compounds		-	-	-	-
BASE/NEUTRAL EXTRACTABLES BY GC/MS- WESTBROOK LAB					
Acetophenone	101-83-4	10	ND	2	0.65
Acetone	67-59-5	7	1.9	3	0.68
Diethylbenzylphosphine	117-85-7	3	2.6	3	1.5
Phenol	108-95-2	1	ND	2	0.63
Phenylacetylene	85-01-6	ND	2	0.33	
Phenylacetylene	103-46-5	ND	2	0.5	
Phenylacetylene	81-73-4	ND	2	0.65	
Phenol	108-95-2	ND	2	0.68	
BASE/NEUTRAL EXTRACTABLES BY GC/MS- WESTBROOK LAB-TIC					
Total VOC Compounds		162	3	0	0
BASE/NEUTRAL EXTRACTABLES BY GC/MS-SM					
Benzo[a]anthracene	96-10-3	0.1	0.1	0.1	0.02
Benzo[a]pyrene	125-28-5	0.1	0.09	0.1	0.02
Benzo[b]fluoranthene	205-99-3	0.1	0.19	0.1	0.02
Benzo[b]fluoranthene	207-08-6	0.1	0.09	0.1	0.02
Benzo[k]fluoranthene	195-79-9	0.1	0.1	0.1	0.02
Indeno[1,2,3-cd]pyrene	183-39-5	0.2	0.09	0.1	0.02

* Comparison is not performed on parameters with non-detectable criteria.

Eight Weekup Data, Westbrook, MA 01581-0151
 508-896-4200 / Fax: 508-896-4241 800-824-4200
 www.alphaab.com

Figure: Concentration Levels, ML : Dec 2018

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Figure: Concentration Levels, ML : Jun 2019

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Eight Wakeup Drive, Westborough, MA 01581-1019
508-898-6220 (Fax) 508-898-6293 800-624-6220 -
www.globalab.com

Dinkar Ganti | Bioremediation of Abandoned Gas Stations



June 24, 2020

Permits Coordinator
OS Remediation and Compliance Bureau
New Hampshire Department of Environmental Services
28 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

**Subject: April 2020 Groundwater Management Permit Data Submit, Dissolved
Contaminant Plume Delineation Report, and 2019 Periodic Summary Report: Mr. Mike's
Arrest, 74 Main Street, Arden, New Hampshire (NHDES #18060414, LUST Project
#0006764)**

Dear Coordinator:

Groundwater sampling was completed at the Mr. Mike's Arrest site on April 6, 2020, following the expansion of the groundwater monitoring well network on March 11 & 18, 2020. This report contains the following three parts:

1. An April 2020 Groundwater Management Permit (GMP) Data Submit, which summarizes sampling results for three pre-existing and one newly-installed onsite monitoring wells (MWs) and three newly-installed offsite MWs, located at adjacent properties to the north and south of the site;
2. A Dissolved Contaminant Plume Delineation Report, which includes a summary of recent monitoring well installations, as requested by NHDES in the April 23, 2019 reply letter to WGA's Supplemental Site Investigation Report, submitted January 26, 2019; and
3. A Periodic Summary Report, which includes a presentation of groundwater quality data for the period 2017-2020, groundwater data trends, groundwater gradients, petroleum contaminant distributions, human exposure information, an updated conceptual site model, and recommendations for further site activities.

Figure: Snapshot of the report submitted in June 2020, AN

This document presents a high-level overview. Details are available for review.



Thank you for your time!