



CASE STUDY

FORMER EXXON GAS STATION

CENTURY, FL

SITE OVERVIEW

- Former gas and service station in Century, FL
- 9272 sq. ft. contamination plume
- Gasoline and diesel contamination in soil and groundwater

HISTORY

- Contamination discovered during tank closure, leaks from several tanks.
- Multiphase extraction system operated for 3 years with limited results.
- Excavation performed but contamination left under the building allowed fill to be recontaminated.

SITE CONDITIONS

- Groundwater starts at 2- to 5-foot bls based on location
- Groundwater contamination from 5- to 15-ft
- Soil consisted of fine to medium grain silty clay from 0-to 8-feet, followed by organic mucky silts.
- Compacted sandy clay fill in areas of the former excavation.
- Soil and groundwater plume under buildings.
- Soil contamination levels as high as 1319 mg/Kg BTEX. Groundwater levels as high as 1590 ug/mL.

REMEDIATION ACTIVITIES

- Eleven (11) injection wells and six (6) recovery wells were installed. Five (5) sparge wells were also installed to increase efficiency of the system.
- Six injection wells were installed diagonally to influence the contamination under the building.
- Mobile Clenzsoil Injection System was used to treat the recovered groundwater and then reinject the groundwater with BioBlend additive.
- Onsite cultivation of native petroleum degrading bacteria.
- System was operated for three months. Injecting for 3-4 days followed by 6-7 days of air injection.
- The site was inactive therefore all piping to the wells was placed above ground.

RESULTS

- Cleanup resulted in 95% reduction in soil and groundwater contamination.

Ground Water Tables

ANALYTE	MW-3R					
8270C-PAH	4/19/2011	6/15/2011	8/19/2011	11/22/2011	2/2/2012	GCTL
1-METHYLNAPHTHALENE	11	14	16	3.2	ns	28
2-METHYLNAPHTHALENE	16	28	22	3.6	ns	28
NAPHTHALENE	58	41	28	3.3	ns	14
8260B-VOC'S						GCTL
BENZENE	1500	830	330	70	3	1
TOLUENE	22	1500	500	98	4	40
ETHYLBENZENE	24	650	110	32	1	30
XYLENE (TOTAL)	44	4400	790	210	8	20
METHYL TERT BUTYL ETHER	5.5	22	22	3.1	ns	20
FLORIDA-PRO						GCTL
TRPH	1100	61000	32000	28000	ns	5000
ANALYTE	MW-15R					
8270C-PAH	4/14/2011	6/15/2011	8/24/2011	11/22/2011		GCTL
1-METHYLNAPHTHALENE	U	7.6	ns	7	ns	28
2-METHYLNAPHTHALENE	U	13	ns	5.2	ns	28
NAPHTHALENE	U	10	ns	3.2		14
8260B-VOC'S						GCTL
BENZENE	1.2	26	200	11	ns	1
TOLUENE	U	91	300	10	ns	40
ETHYLBENZENE	U	73	82	18	ns	30
XYLENE (TOTAL)	U	510	380	57	ns	20
METHYL TERT BUTYL ETHER	0.56	U	U	1.1	ns	50
FLORIDA-PRO						GCTL
TRPH	U	5100	5900	4400	ns	5000
ANALYTE	RW-1R					
8270C-PAH	4/14/2011	6/15/2011	8/23/2011	11/22/2011		GCTL
1-METHYLNAPHTHALENE	U	U	U	U	ns	28
2-METHYLNAPHTHALENE	U	U	U	U	ns	28
NAPHTHALENE	U	U	1.2	U	ns	14
8260B-VOC'S						GCTL
BENZENE	U	26	0.85	0.59	ns	1
TOLUENE	U	U	1.1	0.6	ns	40
ETHYLBENZENE	U	U	1.0	0.7	ns	30
XYLENE (TOTAL)	U	64	7.9	5.2	ns	20
METHYL TERT BUTYL ETHER	0.91	U	U	0.60	ns	50
FLORIDA-PRO						GCTL
TRPH	U	27000	4700	1100	ns	5000
Legend	Green Letters	Decrease in Concentration		Bold	Above CTL	
	Red Letters	Increase in Concentration		Yellow Highlight	Below CTL	

Soil Analyticals (ppm)				
ANALYTE	SB-1-09			
8270C-PAH	1/13/2009	6/14/2011	9/3/2011	SCTL
	9.5	2.9	0.13	3.1
2-METHYLNAPHTHALENE	17	5.1	0.21	8.5
NAPHTHALENE	16	4.8	0.12	1.2
8260B-VOC'S				SCTL
BENZENE	29	0.011 T	U	0.007
TOLUENE	210	0.10 I	U	0.5
ETHYLBENZENE	120	0.18 I	U	0.6
XYLENE (TOTAL)	960	1.5	U	0.2
METHYL TERT BUTYL ETHER	<4.3	U	U	0.06
FLORIDA-PRO				SCTL
TRPH	1,100	140	110	340
ANALYTE	SB-2-09			
8270C-PAH	1/13/2009	6/14/2011	9/3/2011	SCTL
1-METHYLNAPHTHALENE	<0.057	5.7	0.72	3.1
2-METHYLNAPHTHALENE	2.2	8.5	1.4	8.5
NAPHTHALENE	2.8	7.4	0.62	1.2
8260B-VOC'S (ppm)				SCTL
BENZENE	31	15	1.0	0.007
TOLUENE	110	94	3.7	0.5
ETHYLBENZENE	12	22	3.0	0.6
XYLENE (TOTAL)	530	130	16	0.2
METHYL TERT BUTYL ETHER	<2.7	1.6	0.059 U	0.06
FLORIDA-PRO				SCTL
TRPH	46	500	6.5	340
ANALYTE	SB-5-09			
8270C-PAH	1/13/2009	6/14/2011	9/3/2011	SCTL
1-METHYLNAPHTHALENE	0.58	7.3	0.034	3.1
2-METHYLNAPHTHALENE	0.79	9.0	0.062	8.5
NAPHTHALENE	0.45 I	5.3	0.050	1.2
8260B-VOC'S				SCTL
BENZENE	0.16	0.12I	0.026	0.007
TOLUENE	0.57 I	0.11U	0.0030	0.5
ETHYLBENZENE	0.97	1.3	0.026	0.6
XYLENE (TOTAL)	0.58	0.49I	0.052	0.2
METHYL TERT BUTYL ETHER	<0.19	0.099U		0.06
FLORIDA-PRO				SCTL
TRPH	390	1100	2.8	340

