

3.2.2 Remediation Pilot Test Field Activities

On March 11, 2004, the house foundation drainage system flush was initiated with a foundation drainage flush using aerated water. On March 12, 2004, the house foundation drainage system was infiltrated with a mixture of aerated water and "Spill Remed" solution.

Baseline PID measurements, soil and house foundation drainage system effluent samples were obtained and samples submitted for laboratory analysis of the contaminants of concern. Since the location where the foundation tile drain daylight could not be found, the tile drain was exposed and dismantled at the southeast corner of the house. A catch basin was created for the foundation drainage system flush effluent. A vac truck was present at the site during the foundation drainage system flushing to remove flush effluent from the catch basin. Vac truck records and records of the amount of oil and water shipped offsite for proper treatment and disposal are included in Appendix E.

At 7:00 a.m., the injection of aerated tap water was initiated at excavation pit well MW-2 at a rate of 5 gallons per minute (gpm). Tap water was aerated in a 55-gallon drum before being injected into excavation pit well MW-2. The aeration was performed using a blower to continuously bubble air through the water column in the 55-gallon drum using a series of PVC pipes and screens. During the aeration, tap water was added to the drum at a rate of 5 gpm, and thus creating an average flow from the aeration drum to the injection point of 5 ppm. At 12:00 noon, the flush with aerated water was stopped and flush effluent was collected by the VAC truck for between one to two hours.

On March 12, 2004, the house foundation drainage system was flushed with a mixture of aerated water and 25 gallons of Spill Remed solution. The Spill Remed solution was added throughout the flushing on March 12th by a rubber hose connected to the pipe that led from the aeration drum to the injection point. The flushing was initiated at 8:30 a.m. and stopped at 2:00 p.m., and flush effluent was collected by the VAC truck for between one to two hours.

Throughout the foundation drainage system flush, back-flushing of the foundation system was conducted by allowing flush effluent to fill up the catch basin, which occurred

over a period of approximately two hours. The water levels at test well TW-1 in the foundation drainage system was monitored relative to the elevation of the basement floor throughout the period of the flush. PID measurements and signs of water were also periodically recorded in test wells TW-2 through TW-4 throughout the flushing. After the foundation drainage system flush, PID measurements, soil and house foundation drainage system effluent samples were obtained and samples submitted for laboratory analysis of the contaminants of concern.

3.2.3 Remediation Pilot Test Observations and Results

During the first two hours of the foundation drainage system flush, free product was observed on the flush effluent water. Before the initiation of the flush, vapor monitoring test wells TW-2 through TW-4 did not have any water in them. However, at 11:00 a.m. on the first day of flushing, a couple of inches of water was observed in TW-3 and TW-4, indicating contaminant migration pathway(s) through the house's cinderblock wall exist.

Results of the remediation pilot performance PID measurement and performance sample results are summarized in Tables 5, 6, and 7. Locations of these performance measurements and samples are depicted in Figure 11. The analytical results of the remediation pilot test performance samples showed a significant decrease in the levels of the contaminants of concern.

One month after the remediation pilot test, Mr. Bennie Lawson stated that they have not smelled a petroleum odor in their house since the implementation of the remediation pilot test. Before the test, he and his family have smelled the odor in the ground floor family room located on the south side of their house.

3.3 Updated Risk Assessment

Since the implementation of the remediation pilot test, the risk posed by the remaining petroleum contamination at the site must be evaluated in order to determine the need for site cleanup and the level to which contamination should be reduced to protect human health and

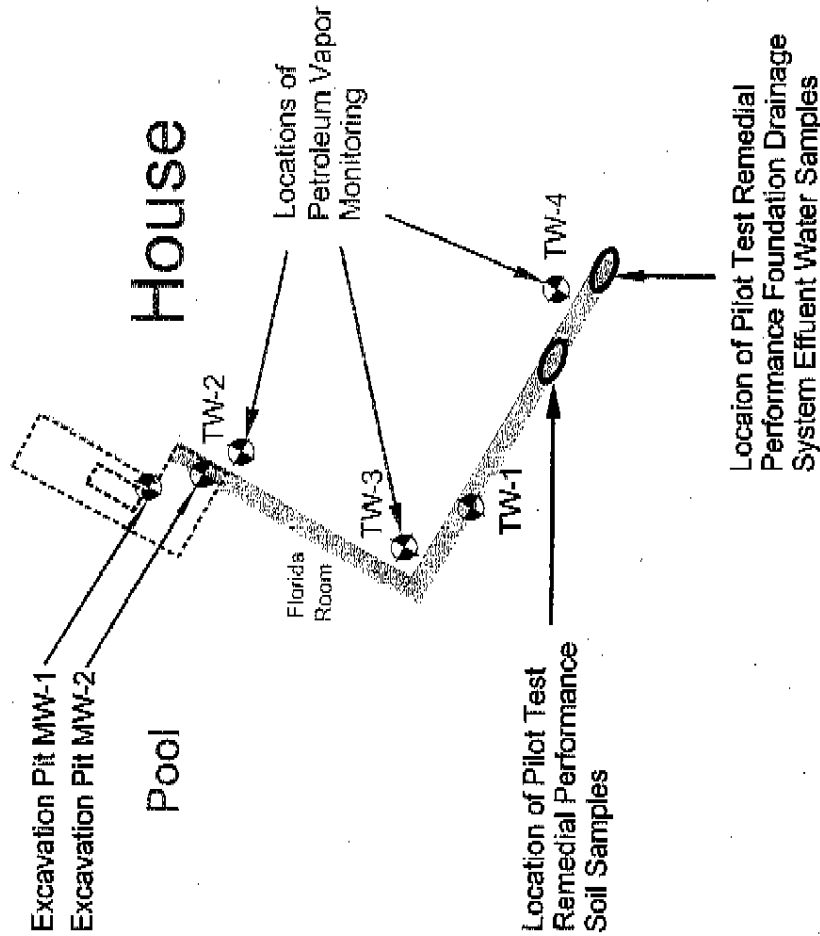
Table 5			
Laboratory Results of Remediation Pilot Test Performance Soil Samples (Soil Samples were collected at and immediately beneath the house foundation tile drain backfill)			
Sample ID	Sample Date		TPH-DRO (ppm)
<i>Pre Remediation Tile Drain Soil Sample</i>	3/11/2004	Before Remediation Pilot Test	16,000
3/11/04 and 3/12/04 - House Foundation Tile Drain System Remediation			
<i>Post Remediation Tile Drain Soil Sample</i>	3/26/2004	After Remediation Pilot Test	289.6
* Before and after remediation soil samples were collected from separate, immediately adjacent boreholes at a similar depth below the ground surface located on the south side of the house. ppm - milligrams per kilograms			

Table 6				
Laboratory Results of Remediation Pilot Test Performance Foundation Drainage Effluent Samples				
Sample ID	Sample Date		TPH-DRO (ppm)	BTEX/MTBE (ppb)
304-BL-DT1	3/11/2004	Before Remediation Pilot Test	8.9	BDL
3/11/04 and 3/12/04 - House Foundation Tile Drain System Remediation				
304-BL-DT1	4/6/2004	After Remediation Pilot Test	4.2	BDL
BDL - Below Detection Limit ppm - milligrams per kilograms				

Figure 7				
Field Measurement of Volatile Organic Vapors In Test Wells				
Sample Date		Organic Vapors Measured by a PID (ppm) Under House Floor		
		Temporary Well TW-2, west side of house interior near former LUST	Temporary Well TW-3, southwest corner of house interior	Temporary Well TW-4, southeast corner of house interior
3/11/2004	Before Remediation Pilot Test	2.5	5.9	3.9
3/11/2004, 1:00 PM	During Remediation Pilot Test	9.8	18.6	17.9
3/12/2004, 10:00 PM	During Remediation Pilot Test	7.9	16.4	22.7
4/26/2004	After Remediation Pilot Test	3.7	6.0	8.1
Residents reported that petroleum vapors had not been present in the house for one month since the remediation pilot test				
PID - photoionization detector ppm - milligrams per kilograms				



Garage



LEGEND

- Monitoring Well
- Former Leaky Heating Oil UST
- Former Leaky UST Excavation
- Outdoor Ground Floor (Walkout Basement) Stairs
- Petroleum Contaminated Foundation Drainage System Targeted for the Pilot Test Remediation



APPROXIMATE DISTANCE IN FEET

Project Title: Lawson Residence
 12418 Nokesville Road
 Nokesville, Virginia 20181

DATE: April 2004
SCALE: As Shown
VIDEO PCB#: 2004-3968

FIGURE 11

Pilot Test Remediation Performance Sample Locations

