Honeywell

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August 30, 2018

William Wu
Environmental Engineer
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, Floor 11
Albany, NY 12233-7014

Subject: Tar Vault Investigation Report
610 Smith Street Site - NYSDEC BCP Site #C224215
Barrett Manufacturing Site - NYSDEC Site # 224197

Dear Mr. Wu,

Pursuant to the Work Plan dated June 2, 2017, attached is a Technical Memorandum describing the results of the investigation of the tar vault at the building at 628 Smith Street, Brooklyn, New York. The purpose of the investigation was to gather information on the configuration of the vault and the extent and chemical characteristics of the material remaining in the vault. Based on the results of the investigation, Honeywell, in coordination with the property owner, will initiate steps to retain a remedial contractor, and develop a workplan and schedule for removal of the tar from the vault. The removal work plan will need to address numerous practical challenges in remediating the vault, including its size, configuration, available access, and the presence of commercial tenants in the building. Honeywell will keep you updated on the anticipated schedule for providing the workplan.

If you have any questions in regards to the information provided herein, please contact me at 302-791-6738.

Regards,

Steve Coladonato
Honeywell

cc: Andrew Gugielmi, Esq., NYSDEC Office of General Counsel (letter only)
Gardiner Cross, NYSDEC Section Chief
Krista Anders, NYS Department of Health
Jeremy Karpatkin, Esq., Arnold & Porter LLP
James O'Loughlin, Parsons
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TECHNICAL MEMORANDUM

Tar Vault Investigation Summary

628 Smith Street Building, NYSDEC BCP Site #C22415

Brooklyn, New York

This memorandum presents the results of an investigation to assess the configuration of, and the physical/chemical characteristics of material remaining in, the vault at 628 Smith Street, Brooklyn, New York (Figure 1). This information was collected to evaluate a remedial approach to manage the contents of the vault.

This site work was conducted in accordance with a Vault Investigation Work Plan dated June 2, 2017, that is a supplement to the original NYSDEC-approved draft Site Characterization Work Plan (SCWP) for the former Barrett Manufacturing and Mica Roofing Sites, Brooklyn, New York. In addition, the investigation of the vault was conducted under the applicable portions of the NYSDEC-approved SCWP, Quality Assurance Project Plan (QAPP), and the Project Safety, Health, and Environmental Plan (PSHEP). The field investigation was conducted between February 12 and 16, 2018.

Previous limited assessments of the vault through one of the hatches were conducted in 2016 and 2017; relevant results from those assessments are incorporated herein.

Scope of Work

A floor plan illustrating the location of the vault, and six hatches installed to access the vault, is attached as Figure 2; an approximate cross section of the vault is attached as Figure 3. The scope of work for the investigation included the following:

- Video inspection at six locations to observe the configuration and physical construction of the tar vault;
- Collection of water samples at two locations;
- Measurements to determine vault configuration and water/tar depths and thicknesses;
- Collection of tar for physical properties analyses at six locations and chemical analyses at three locations; and
- A survey of the 628 Smith Street building corners and the hatches including locations and elevations.

The scope of work and observations made are summarized on Table 1. Due to tenant use of the space, limited access was available to Hatch 1 in February 2018. However, the results from the 2016 and 2017 assessments of the vault that were conducted through that hatch were used to supplement the results of the investigation.

Air Monitoring and Venting

During the tar vault investigation, monitoring of air in the work zone at each hatch was continuously performed using a 5-gas MultiRae Plus meter. Monitoring for VOCs, carbon monoxide, oxygen, hydrogen sulfide, and methane as % LEL was performed at the start of work at each hatch. Calibration spot checks were performed using calibration gas at the beginning of each day to confirm that the instrument was working within acceptable limits. Monitoring results indicated that there were no measured concentrations of VOCs above the Action Level of 1 ppm as specified in the HASP. There were also no elevated levels of

% LEL, carbon monoxide, or hydrogen sulfide observed at any hatch locations through the week, and oxygen levels remained at 20.9%.

When collecting tar samples at each hatch, venting of indoor air to the exterior of the building was performed as an engineering control to limit odors generated during the work and after working with the tar samples to remove residual odors. Venting of air was performed using a 16-inch Allegro Ventilation Blower Model 9515-01 with an air flow capacity of 2,900 cfm. The blower exhaust duct was positioned to vent the air out of the building at the loading dock doorway, while up to 125 feet of 16-inch flexible hose duct was moved to each hatch location as required to perform the work.

Photographs of the monitoring equipment and venting set up are provided in Attachment A.

Video Inspections

360-degree video investigations were conducted at five of the six hatch locations (Hatches 2 through 6) on February 13, 2018. Access to Hatch 1 was limited as described above; however, a video inspection was previously recorded at Hatch 1 on April 19, 2017.

As shown on the photographs in Attachment B, the video inspections documented a grid of steel beams that support the 1st floor wood plank subfloor and plywood flooring. The steel beams were typically supported by concrete columns which extend to the base of the vault, but in the vicinity of Hatch 4, wooden columns were observed. In the vicinity of Hatch 2, what appeared to be a supplemental steel beam was observed. The visible sides of the vault above the water appeared to consist of concrete and brick.

Collection of Water Samples

On February 12, 2018, water samples were collected from the vault at Hatches 3 and 5. The samples were collected from the midpoint of the water column at each hatch, using ¼ -inch diameter polyethylene tubing connected to a peristaltic pump (Table 1). The open end of the tubing was inserted into a 2-inch diameter PVC pipe so that the appropriate vertical distance (depth to midpoint) could be obtained for sampling. Analytical results are summarized in Table 2.

Measurements of Depths, Observation, and Obstructions

Measurements of depths to water and tar, measurements of tar thickness, and observations of trash and debris were noted during the inspection of each hatch. An oil water interface probe was used to measure the depth of water and the depth to tar/debris from a measuring point on the lip of each hatch. In addition, a 5/8-inch steel tile probe was used to probe the bottom of the vault (i.e., depth to the bottom) at the each of the four corners of the individual hatches. Physical stratification of the tar (i.e., difference in consistency) was not detected during the probing. The tile probe was also used to identify debris that may be present at each of the hatch locations. Hatches 2 through 6 were investigated during the February 2018 event, as access to Hatch 1 was limited as described above; however, assessment of tar at Hatch 1 using different methods was previously performed on March 18, 2016.

A significant amount of debris was observed floating on the surface of the water at several of the hatches. Additionally, a large amount of debris was observed to be present in and around the water and tar interface. This debris made it difficult to determine the boundary between the water and tar using the interface probe. Because of this condition, multiple methods where used to assign the depth to tar and the depth to bottom of the vault at each location. A brief discussion of the findings at each of the hatches is presented in Attachment C; the results are summarized in Table 1. In general, approximately 10 ft of water was observed to overlie approximately 1.2 to 1.5 ft of tar within the vault.

Collection of Tar Samples

Between February 13 and February 15, 2018, tar samples were collected at Hatches 2 through Hatch 6 for the purposes of assessing the chemical characteristics and physical properties of the tar as described in Table 1; results are summarized on Tables 3 and 4, respectively. During the February 2018 sampling event, tar samples could not be obtained from Hatch 1 as described above; however, limited sampling of tar at Hatch 1 was previously performed on March 18, 2016 and those results are also included on Tables 3 and 4.

Tar samples were collected using a variety of methods including a sludge judge sampler and 2-inch PVC pipe with a retractable stopper at the end. The tar was of a similar black color at all locations. The consistency of the tar recovered by the samplers was generally uneven, with some congealed blobs among the more fluid tar.

Survey of Hatches

On February 14, 2018, Chazen Surveyors conducted survey activities to locate all four corners of the 628 Smith St. Building. The building corners were surveyed for the northings/eastings and the ground surface elevations where accessible, with Corner 1 (C1) being the northwesterly-most corner, Corner 2 (C2) the northeasterly-most corner, Corner 3 (C3) the southeasterly-most corner, and Corner 4 (C4) the southwesterly-most corner. Each of the four corners of Hatches 2 through 6 were also surveyed and labeled C1 to C4 in the same configuration as the building corners. Due to tenant use of the space, only the center of Hatch 1 was surveyed.

Tables

Table 1 Tar Vault Investigation summary
Table 2 Water Chemical Characteristics
Table 3 Tar Chemical Characteristics
Table 4 Tar Physical Properties

Figures

Figure 1 Location Map
Figure 2 1st Floor Plan for 628 Smith St. Building
Figure 3 Cross Section of Tar Vault and Typical Hatch

Attachments

Attachment A Air Monitoring and Ventilation Set-up
Attachment B Vault Photographs
Attachment C Vault Observation Summary

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Table 1
Tar Vault Investigation Summary
628 Smith Street
Brooklyn, New York

Activity/Results	Hatch 1	Hatch 2	Hatch 3	Hatch 4	Hatch 5	Hatch 6
Summary of 2018 Investigation Scope						
Video Survey (360 degrees)	Yes (4/19/2017)	Yes (2/13/2018)	Yes (2/13/2018)	Yes (2/13/2018)	Yes (2/13/2018)	Yes (2/13/2018)
Water Sample	Yes (1/15/16, 3/18/16)	No	Yes (2/12/2018)	No	Yes (2/12/2018)	No
Water Sample Depth (ft)	N/A	N/A	9.5	N/A	9.0	N/A
NAPL Sample - Physical	Yes (3/18/16)	Yes	Yes	Yes	Yes	Yes
NAPL Sample - Chemical	Yes (3/18/16)	No	Yes (2/15/2018)	Yes (2/14/2018)	Yes (2/13/2018)	No
Survey of Hatch	Yes (center floor only)	Yes	Yes	Yes	Yes	Yes
Depths and Thickness of Water and Tar						
Depth to Water (ft)	4.6	4.48	4.56	4.45	4.48	4.50
Depth to Top of Tar (ft)	N/A	14.53	14.40	14.40	14.50	14.50
Estimated Depth to Bottom of Vault (deepest) (ft)	N/A	15.76	15.66	15.82	15.87	15.90
Depth at Corner 1	N/A	15.68	15.55	15.64	15.77	15.90
Depth at Corner 2	N/A	15.32	15.45	15.76	15.87	15.57
Depth at Corner 3	N/A	15.48	15.66	15.82	15.82	15.60
Depth at Corner 4	N/A	15.76	15.60	15.53	15.68	15.90
Estimated Thickness of Water (ft)	~10.0	10.05	9.84	9.95	10.02	10.00
Estimated Thickness of Tar (ft)	N/A	1.23	1.26	1.42	1.37	1.40
Debris and Other Observations						
Debris Detected at Vault Bottom	Based on recent data collected at Hatch 2 through Hatch 6. It is believed that debris was encountered at 13.5' and not NAPL as originally assumed.	An audible vibration sound when contacting bottom was observed.	There was an obstruction encountered at 8' on the north side of the hatch while sampling and it appear to move around.	Debris did not appear to be present in a significant amount.	Pulled up plastic, and plywood that appeared to be sitting on top of the tar layer.	Pulled up plastic, plywood, and a suitcase that appeared to be sitting on top of the tar layer.
Debris Observed in Water	Yes	Yes (e.g., wood, trash, white residue on surface)	Yes (e.g., trash, pipes, white residue on surface)	Yes (e.g., trash, white residue on surface)	Yes (e.g., wood, trash, plastic, white residue on surface)	Yes (e.g., wood, trash, plastic, white residue on surface)
Other Observations	N/A	Resistance observed with the interface probe at a depth of about 13.95 ft.	Resistance observed with the interface probe at a depth of about 14.4 ft.	Resistance observed with the interface probe at a depth of about 14.4 ft.	Resistance observed with the interface probe at a depth of about 13.5 ft. Bubbles were seen while probing.	Resistance observed with the interface probe at a depth of about 13.0 ft. Bubbles were seen while probing.
Survey Elevations						
Hatch Ground Elevation	10.29	10.23	10.31	10.20	10.28	10.27
NW Corner Elev.	N/A	10.18	10.31	10.21	10.28	10.28
NE Corner Elev.	N/A	10.22	10.30	10.17	10.28	10.26
SE Corner Elev.	N/A	10.25	10.31	10.20	10.28	10.27
SW Corner Elev.	N/A	10.23	10.33	10.21	10.28	10.29

Notes:
1) Depth measurements were from first floor.
2) Elevations are relative to North American Vertical Datum of 1988 (NAVD88

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Table 2A
Water Chemical Characteristics - Detected Concentrations of Constituents

					Location ID	HATCH 1		HATCH 1		HATCH3		HATCH5		FIELDQC		HATCH3		HATCH5	
					Field Sample ID	WC011516-TAR WELL-WATER		WC031816TARWELLWATER		H3-W01-02122018		H5-W01-02122018		TB WC031816 TARWELL NAPL		Trip Blank 1		Trip Blank 2	
					Sampled	01/15/2016		03/18/2016		02/12/2018		02/12/2018		03/18/2016		02/12/2018		02/12/2018	
					SDG	JC12751		JC16572		JC60658		JC60659		JC16572		JC60658		JC60659	
					Matrix	WATER		WATER		WATER		WATER		WATER		WATER		WATER	
					Purpose	REG		REG		REG		REG		TB		TB		TB	
					Type	WC		WC		WC		WC		BLKWATER		BLKWATER		BLKWATER	
Method	**Parameter Code**	**Parameter Name**	**Units**	**Leached**															
846-7.3.3.2	REAC-CN	REACTIVE CYANIDE	mg/L	N		10	U	10	U	10	U	10	U						
846-7.3.4.2	REAC-S	REACTIVE SULFIDE	mg/L	N		100	U	100	U	100	U	100	U						
E335.4	57-12-5	CYANIDE	mg/L	N		0.084													
E351.2	KN	NITROGEN, KJELDAHL, TOTAL	mg/L	N						13.9		10.1							
E353.2	NO3NO2N	NITROGEN, NITRATE-NITRITE	mg/L	N						0.20	U	0.20	U						
E420.4	TOTAL_PHENOL	TOTAL PHENOLS	mg/L	N						0.20	U	0.20	U						
E524.2	75-27-4	BROMODICHLOROMETHANE	ug/l	N				0.50	U	0.50	U	0.50	U						
E524.2	75-25-2	BROMOFORM	ug/l	N				0.50	U	0.50	U	0.50	U						
E524.2	67-66-3	CHLOROFORM	ug/l	N				0.50	U	0.50	U	0.50	U						
E524.2	124-48-1	DIBROMOCHLOROMETHANE	ug/l	N				0.50	U	0.50	U	0.50	U						
E524.2	THM	TOTAL TRIHALOMETHANES	ug/l	N				0.50	U	0.50	U	0.50	U						
E1664A	OILGREASE	OIL & GREASE, TOTAL REC	mg/L	N						2.0	J	2.1	J						
SM20-4500-HB	PH	pH	SU	N						7.42		7.25							
SM2540B	TSO	TOTAL SOLIDS	mg/L	N						11300		10500							
SM2540D	TSS	Total Suspended Solids	mg/L	N						1.3	J	4.0	U						
SM4500	TN	TOTAL NITROGEN, ALL FORMS,CALCULATED	mg/L	N						13.9		10.1							
SM5210B	BOD5	BIOCHEMICAL OXYGEN DEMAND, FIVE DAY	mg/L	N						100	U	100	U						
SW1010	IGNITLIQPM	Ignitability (liquids) Pensky-Martens	deg F	N		200		200		200		200							
SW9040	CORROS	CORROSIVITY	SU	N		7.37	J	7.31	J	7.95		8.02							
SW9020	TOX	TOTAL ORGANIC HALIDES (TOX)	mg/L	N						0.096	J	0.20	U						
E200.7	7440-38-2	ARSENIC	ug/l	N		1.9	U												
E200.7	7440-39-3	BARIUM	ug/l	N		0.65	U												
E200.7	7440-41-7	BERYLLIUM	ug/l	N		0.28	U												
E200.7	7440-43-9	CADMIUM	ug/l	N		0.36	U												
E200.7	7440-47-3	CHROMIUM	ug/l	N		0.64	U												
E200.7	7440-50-8	COPPER	ug/l	N		1.5	U												
E200.7	7439-92-1	LEAD	ug/l	N		2.0	U												
E200.7	7440-02-0	NICKEL	ug/l	N		0.48	U												
E200.7	7782-49-2	SELENIUM	ug/l	N		2.9	U												
E200.7	7440-22-4	SILVER	ug/l	N		1.9	U												
E200.7	7440-62-2	VANADIUM	ug/l	N		0.68	U												
E200.7	7440-66-6	ZINC	ug/l	N		3.1	U												
E300.0	16887-00-6	CHLORIDE	mg/L	N				609		5740		5530							
E300.0	16984-48-8	FLUORIDE	mg/L	N				0.20	U	8.0	U	8.0	U						
SW6010	7429-90-5	ALUMINUM	ug/l	N						42.2	J	119	J						
SW6010	7440-36-0	ANTIMONY	ug/l	N						4.3	U	4.3	U						
SW6010	7440-38-2	ARSENIC	ug/l	N				2.2	U	9.6		8.4							
SW6010	7440-39-3	BARIUM	ug/l	N				0.44	U	302		288							
SW6010	7440-41-7	BERYLLIUM	ug/l	N				0.25	U	0.40	U	0.80	J						
SW6010	7440-43-9	CADMIUM	ug/l	N				0.40	U	0.70	U	0.70	J						
SW6010	7440-70-2	CALCIUM	ug/l	N						144000		142000							
SW6010	7440-47-3	CHROMIUM	ug/l	N				0.81	U	6.4	J	6.8	J						
SW6010	7440-48-4	COBALT	ug/l	N						1.0	J	0.72	U						
SW6010	7440-50-8	COPPER	ug/l	N				2.4	U	3.2	U	3.2	U						
SW6010	7439-89-6	IRON	ug/l	N						105		110							
SW6010	7439-92-1	LEAD	ug/l	N				2.3	U	2.6	U	2.6	U						
SW6010	7439-95-4	MAGNESIUM	ug/l	N						375000		368000							
SW6010	7439-96-5	MANGANESE	ug/l	N						877		855							
SW6010	7440-02-0	NICKEL	ug/l	N				0.76	U	3.2	J	2.8	J						
SW6010	7440-09-7	POTASSIUM	ug/l	N						115000		111000							
SW6010	7782-49-2	SELENIUM	ug/l	N				4.1	U	6.6	U	6.6	U						
SW6010	7440-22-4	SILVER	ug/l	N				0.88	U	3.1	U	3.1	U						
SW6010	7440-23-5	SODIUM	ug/l	N						3360000		3300000							
SW6010	7440-28-0	THALLIUM	ug/l	N						8.2	U	8.2	U						
SW6010	7440-62-2	VANADIUM	ug/l	N				0.66	U	6.5	J	5.9	J						
SW6010	7440-66-6	ZINC	ug/l	N				1.3	U	4.0	U	4.0	U						
SW7196	18540-29-9	HEXAVALENT CHROMIUM	mg/L	N		0.010	U	0.016	J	0.01	U	0.018	J-						
SW7470	7439-97-6	MERCURY	ug/l	N		0.069	U	0.047	U	0.083	U	0.083	U						

					Location ID	HATCH 1		HATCH 1		HATCH3		HATCH5		FIELDQC		HATCH3		HATCH5	
					Field Sample ID	WC011516-TAR WELL-WATER		WC031816TARWELLWATER		H3-W01-02122018		H5-W01-02122018		TB WC031816 TARWELL NAPL		Trip Blank 1		Trip Blank 2	
					Sampled	01/15/2016		03/18/2016		02/12/2018		02/12/2018		03/18/2016		02/12/2018		02/12/2018	
					SDG	JC12751		JC16572		JC60658		JC60659		JC16572		JC60658		JC60659	
					Matrix	WATER		WATER		WATER		WATER		WATER		WATER		WATER	
					Purpose	REG		REG		REG		REG		TB		TB		TB	
					Type	WC		WC		WC		WC		BLKWATER		BLKWATER		BLKWATER	
Method	**Parameter Code**	**Parameter Name**	**Units**	**Leached**															
SW8082	12674-11-2	AROCLOR-1016	ug/l	N		0.67	U	0.40	U	0.33	U	0.33	U						
SW8082	11104-28-2	AROCLOR-1221	ug/l	N		0.67	U	0.40	U	0.33	U	0.33	U						
SW8082	11141-16-5	AROCLOR-1232	ug/l	N		0.67	U	0.40	U	0.33	U	0.33	U						
SW8082	53469-21-9	AROCLOR-1242	ug/l	N		0.67	U	0.40	U	0.33	U	0.33	U						
SW8082	12672-29-6	AROCLOR-1248	ug/l	N		0.67	U	0.40	U	0.33	U	0.33	U						
SW8082	11097-69-1	AROCLOR-1254	ug/l	N		0.67	U	0.40	U	0.33	U	0.33	U						
SW8082	11096-82-5	AROCLOR-1260	ug/l	N		0.67	U	0.40	U	0.33	U	0.33	U						
SW8082	37324-23-5	AROCLOR-1262	ug/l	N		0.67	U	0.40	U	0.33	U	0.33	U						
SW8082	11100-14-4	AROCLOR-1268	ug/l	N		0.67	U	0.40	U	0.33	U	0.33	U						
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	79-34-5	1,1,2,2-TETRACHLOROETHANE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/l	N		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
SW8260	79-00-5	1,1,2-TRICHLOROETHANE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	75-34-3	1,1-DICHLOROETHANE	ug/l	N		1.0	U	1.0	U	0.54	J	0.48	J	1.0	U	1.0	U	1.0	U
SW8260	75-35-4	1,1-DICHLOROETHENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	87-61-6	1,2,3-TRICHLOROBENZENE	ug/l	N						1.0	U	1.0	U			1.0	U	1.0	U
SW8260	120-82-1	1,2,4-TRICHLOROBENZENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ug/l	N		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
SW8260	106-93-4	1,2-DIBROMOETHANE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	95-50-1	1,2-DICHLOROBENZENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	107-06-2	1,2-DICHLOROETHANE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	541-73-1	1,3-DICHLOROBENZENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	106-46-7	1,4-DICHLOROBENZENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	78-93-3	2-BUTANONE	ug/l	N		10	U	10	U	10	U	10	U	10	U	10	U	10	U
SW8260	110-75-8	2-CHLOROETHYL VINYL ETHER	ug/l	N		10	U	10	U					10	U				
SW8260	591-78-6	2-HEXANONE	ug/l	N		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
SW8260	108-10-1	4-METHYL-2-PENTANONE	ug/l	N		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
SW8260	67-64-1	ACETONE	ug/l	N		10	U	10	U	10	U	10	U	15.9		10	U	10	U
SW8260	107-02-8	ACROLEIN	ug/l	N		50	U	50	U					50	U				
SW8260	107-13-1	ACRYLONITRILE	ug/l	N		50	U	50	U					50	U				
SW8260	71-43-2	BENZENE	ug/l	N		0.50	U	0.50	U	9.9		2.6		0.50	U	0.50	U	0.50	U
SW8260	74-97-5	BROMOCHLOROMETHANE	ug/l	N						1.0	U	1.0	U			1.0	U	1.0	U
SW8260	75-27-4	BROMODICHLOROMETHANE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	75-25-2	BROMOFORM	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	74-83-9	BROMOMETHANE	ug/l	N		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
SW8260	75-15-0	CARBON DISULFIDE	ug/l	N		2.0	U	2.0	U	12.1		10.4		2.0	U	2.0	U	2.0	U
SW8260	56-23-5	CARBON TETRACHLORIDE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	108-90-7	CHLOROBENZENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	75-00-3	CHLOROETHANE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	67-66-3	CHLOROFORM	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	74-87-3	CHLOROMETHANE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	156-59-2	CIS-1,2-DICHLOROETHENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	10061-01-5	CIS-1,3-DICHLOROPROPENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	110-82-7	CYCLOHEXANE	ug/l	N		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
SW8260	124-48-1	DIBROMOCHLOROMETHANE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	75-71-8	DICHLORODIFLUOROMETHANE	ug/l	N		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
SW8260	100-41-4	ETHYLBENZENE	ug/l	N		1.0	U	1.0	U	111		90.7		1.0	U	1.0	U	1.0	U
SW8260	98-82-8	ISOPROPYLBENZENE	ug/l	N		1.0	U	1.0	U	30.9		28.6		1.0	U	1.0	U	1.0	U
SW8260	79-20-9	METHYL ACETATE	ug/l	N		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
SW8260	1634-04-4	METHYL TERT-BUTYL ETHER	ug/l	N		1.0	U	1.0	U	0.31	J	0.31	J	1.0	U	1.0	U	1.0	U
SW8260	108-87-2	METHYLCYCLOHEXANE	ug/l	N		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
SW8260	75-09-2	METHYLENE CHLORIDE	ug/l	N		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
SW8260	95-47-6	O-XYLENE	ug/l	N						6.9		3.9				1.0	U	1.0	U
SW8260	100-42-5	STYRENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	127-18-4	TETRACHLOROETHENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	108-88-3	TOLUENE	ug/l	N		1.0	U	1.0	U	3.4		1.6		1.0	U	1.0	U	1.0	U
SW8260	156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	10061-02-6	TRANS-1,3-DICHLOROPROPENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	79-01-6	TRICHLOROETHENE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	75-69-4	TRICHLOROFLUOROMETHANE	ug/l	N		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
SW8260	75-01-4	VINYL CHLORIDE	ug/l	N		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
SW8260	XYLENES1314	XYLENES, M & P	ug/l	N						5.4		3.6				1.0	U	1.0	U
SW8260	1330-20-7	XYLENES, TOTAL	ug/l	N		1.0	U	1.0	U	12.3		7.5		1.0	U	1.0	U	1.0	U

					Location ID	HATCH 1		HATCH 1		HATCH3		HATCH5		FIELDQC		HATCH3		HATCH5	
					Field Sample ID	WC011516-TAR WELL-WATER		WC031816TARWELLWATER		H3-W01-02122018		H5-W01-02122018		TB WC031816 TARWELL NAPL		Trip Blank 1		Trip Blank 2	
					Sampled	01/15/2016		03/18/2016		02/12/2018		02/12/2018		03/18/2016		02/12/2018		02/12/2018	
					SDG	JC12751		JC16572		JC60658		JC60659		JC16572		JC60658		JC60659	
					Matrix	WATER		WATER		WATER		WATER		WATER		WATER		WATER	
					Purpose	REG		REG		REG		REG		TB		TB		TB	
					Type	WC		WC		WC		WC		BLKWATER		BLKWATER		BLKWATER	
Method	Parameter Code	Parameter Name	Units	Leached															
SW8270	92-52-4	1,1'-BIPHENYL	ug/l	N		1.1	U	1.1	U	0.55	J	1.0	U						
SW8270	95-94-3	1,2,4,5-TETRACHLOROBENZENE	ug/l	N						2.0	U	2.0	U						
SW8270	123-91-1	1,4-DIOXANE	ug/l	N						1.0	U	1.0	U						
SW8270	108-60-1	2,2'-OXYBIS(1-CHLOROPROPANE)	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	58-90-2	2,3,4,6-TETRACHLOROPHENOL	ug/l	N						5.0	U	5.0	U						
SW8270	95-95-4	2,4,5-TRICHLOROPHENOL	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	88-06-2	2,4,6-TRICHLOROPHENOL	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	120-83-2	2,4-DICHLOROPHENOL	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	105-67-9	2,4-DIMETHYLPHENOL	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	51-28-5	2,4-DINITROPHENOL	ug/l	N		11	UJ	11	U	5.0	U	5.0	U						
SW8270	121-14-2	2,4-DINITROTOLUENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	606-20-2	2,6-DINITROTOLUENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	91-58-7	2-CHLORONAPHTHALENE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	95-57-8	2-CHLOROPHENOL	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	91-57-6	2-METHYLNAPHTHALENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	95-48-7	2-METHYLPHENOL	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	88-74-4	2-NITROANILINE	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	88-75-5	2-NITROPHENOL	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	34METPH	3&4-METHYLPHENOL	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	91-94-1	3,3'-DICHLOROBENZIDINE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	99-09-2	3-NITROANILINE	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	534-52-1	4,6-DINITRO-2-METHYLPHENOL	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	101-55-3	4-BROMOPHENYL PHENYL ETHER	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	59-50-7	4-CHLORO-3-METHYLPHENOL	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	106-47-8	4-CHLOROANILINE	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	7005-72-3	4-CHLOROPHENYL PHENYL ETHER	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	100-01-6	4-NITROANILINE	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	100-02-7	4-NITROPHENOL	ug/l	N		11	U	11	U	10	U	10	U						
SW8270	83-32-9	ACENAPHTHENE	ug/l	N		1.1	U	1.1	U	66.8		64.2							
SW8270	208-96-8	ACENAPHTHYLENE	ug/l	N		1.1	U	1.1	U	37.4		34.6							
SW8270	98-86-2	ACETOPHENONE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	120-12-7	ANTHRACENE	ug/l	N		1.1	U	1.1	U	6.4		5.2							
SW8270	1912-24-9	ATRAZINE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	100-52-7	BENZALDEHYDE	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	56-55-3	BENZO(A)ANTHRACENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	50-32-8	BENZO(A)PYRENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	205-99-2	BENZO(B)FLUORANTHENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	207-08-9	BENZO(K)FLUORANTHENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	111-91-1	BIS(2-CHLOROETHOXY)METHANE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	111-44-4	BIS(2-CHLOROETHYL)ETHER	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	ug/l	N		2.5		2.1	U	2.0	U	2.0	U						
SW8270	85-68-7	BUTYLBENZYL PHTHALATE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	105-60-2	CAPROLACTAM	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	86-74-8	CARBAZOLE	ug/l	N		1.1	U	1.1	U	45.6		40.4							
SW8270	218-01-9	CHRYSENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	117-84-0	DI-N-OCTYL PHTHALATE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	53-70-3	DIBENZO(A,H)ANTHRACENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	132-64-9	DIBENZOFURAN	ug/l	N		5.6	U	5.3	U	5.7		5.4							
SW8270	84-66-2	DIETHYL PHTHALATE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	131-11-3	DIMETHYL PHTHALATE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	206-44-0	FLUORANTHENE	ug/l	N		1.1	U	1.1	U	3.8		2.8							
SW8270	86-73-7	FLUORENE	ug/l	N		1.1	U	1.1	U	10		3.8							
SW8270	118-74-1	HEXACHLOROBENZENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	87-68-3	HEXACHLOROBUTADIENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	77-47-4	HEXACHLOROCYCLOPENTADIENE	ug/l	N		11	U	11	U	10	U	10	U						
SW8270	67-72-1	HEXACHLOROETHANE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	193-39-5	INDENO(1,2,3-CD)PYRENE	ug/l	N		1.1	U	1.1	U	1.0	U	1.0	U						
SW8270	78-59-1	ISOPHORONE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	86-30-6	N-NITROSODIPHENYLAMINE	ug/l	N		5.6	U	5.3	U	5.0	U	5.0	U						
SW8270	91-20-3	NAPHTHALENE	ug/l	N		1.1	U	1.1	U	31.8		14.9							
SW8270	98-95-3	NITROBENZENE	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	87-86-5	PENTACHLOROPHENOL	ug/l	N		5.6	U	5.3	U	4.0	U	4.0	U						
SW8270	85-01-8	PHENANTHRENE	ug/l	N		1.1	U	1.1	U	41.1		33.0							
SW8270	108-95-2	PHENOL	ug/l	N		2.2	U	2.1	U	2.0	U	2.0	U						
SW8270	129-00-0	PYRENE	ug/l	N		1.1	U	1.1	U	2.8		2.0							

Table 2B
Water Chemical Characteristics - TCLP Results

					Location ID	HATCH 1		HATCH 1		HATCH 3		HATCH 5	
					Field Sample ID	WC011516-TAR WELL-WATER		WC031816-TAR WELL-WATER		H3-W01-02122018		H5-W01-02122018	
					Sampled	01/15/2016		03/18/2016		02/12/2018		02/12/2018	
					SDG	JC12751		JC16572		JC60658		JC60659	
					Matrix	WATER		WATER		WATER		WATER	
					Purpose	REG		REG		REG		REG	
					Type	WC		WC		WC		WC	
Method	**Parameter Code**	**Parameter Name**	**Units**	**Leached**									
SW6010	7440-38-2	ARSENIC	mg/L	Y		0.0099	U	0.011	U	0.014	U	0.014	U
SW6010	7440-39-3	BARIUM	mg/L	Y		0.0040	U	0.0020	U	0.27	J	0.26	J
SW6010	7440-43-9	CADMIUM	mg/L	Y		0.0014	U	0.0020	U	0.0035	U	0.0035	U
SW6010	7440-47-3	CHROMIUM	mg/L	Y		0.0039	U	0.0040	U	0.0050	J	0.0045	J
SW6010	7440-50-8	COPPER	mg/L	Y		0.0093	U						
SW6010	7439-92-1	LEAD	mg/L	Y		0.012	U	0.012	U	0.013	U	0.013	U
SW6010	7440-02-0	NICKEL	mg/L	Y		0.0040	U						
SW6010	7782-49-2	SELENIUM	mg/L	Y		0.016	U	0.021	U	0.033	U	0.033	U
SW6010	7440-22-4	SILVER	mg/L	Y		0.0066	U	0.0045	U	0.016	U	0.016	U
SW6010	7440-66-6	ZINC	mg/L	Y		0.024	U						
SW7470	7439-97-6	MERCURY	mg/L	Y		0.000069	U	0.000047	U	0.000083	U	0.000083	U
SW8081	12789-03-6	CONSTITUENTS OF CHLORDANE (ALPHA, BETA, AND GAMMA)	mg/L	Y		0.0050	U	0.0050	U	0.0033	U	0.0033	U
SW8081	72-20-8	ENDRIN	mg/L	Y		0.00010	U	0.00010	U	0.000067	U	0.000067	U
SW8081	58-89-9	GAMMA-BHC (LINDANE)	mg/L	Y		0.00010	U	0.00010	U	0.000067	U	0.000067	U
SW8081	76-44-8	HEPTACHLOR	mg/L	Y		0.00010	U	0.00010	U	0.000067	U	0.000067	U
SW8081	1024-57-3	HEPTACHLOR EPOXIDE	mg/L	Y		0.00010	U	0.00010	U	0.000067	U	0.000067	U
SW8081	72-43-5	METHOXYCHLOR	mg/L	Y		0.00020	U	0.00020	U	0.00013	U	0.00013	U
SW8081	8001-35-2	TOXAPHENE	mg/L	Y		0.0025	U	0.0025	U	0.0017	U	0.0017	U
SW8151	93-72-1	2,4,5-TP (SILVEX)	mg/L	Y		0.0015	U	0.0015	U	0.0012	U	0.0012	U
SW8151	94-75-7	2,4-D	mg/L	Y		0.0050	U	0.0050	U	0.0042	U	0.0042	U
SW8260	75-35-4	1,1-DICHLOROETHENE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	107-06-2	1,2-DICHLOROETHANE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	106-46-7	1,4-DICHLOROBENZENE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	78-93-3	2-BUTANONE	mg/L	Y		0.10	U	0.10	U	0.10	U	0.10	U
SW8260	71-43-2	BENZENE	mg/L	Y		0.0025	U	0.0025	U	0.0085		0.0025	
SW8260	56-23-5	CARBON TETRACHLORIDE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	108-90-7	CHLOROBENZENE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	67-66-3	CHLOROFORM	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	127-18-4	TETRACHLOROETHENE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	79-01-6	TRICHLOROETHENE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	75-01-4	VINYL CHLORIDE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	mg/L	Y		0.020	U	0.020	U	0.020	U	0.020	U
SW8270	95-95-4	2,4,5-TRICHLOROPHENOL	mg/L	Y		0.050	U	0.050	U	0.050	U	0.050	U
SW8270	88-06-2	2,4,6-TRICHLOROPHENOL	mg/L	Y		0.050	U	0.050	U	0.050	U	0.050	U
SW8270	121-14-2	2,4-DINITROTOLUENE	mg/L	Y		0.020	U	0.020	U	0.020	U	0.020	U
SW8270	95-48-7	2-METHYLPHENOL	mg/L	Y		0.020	U	0.020	U	0.020	U	0.020	U
SW8270	34METPH	3&4-METHYLPHENOL	mg/L	Y		0.020	U	0.020	U	0.020	U	0.020	U
SW8270	118-74-1	HEXACHLOROBENZENE	mg/L	Y		0.020	U	0.020	U	0.020	U	0.020	U
SW8270	87-68-3	HEXACHLOROBUTADIENE	mg/L	Y		0.010	U	0.010	U	0.010	U	0.010	U
SW8270	67-72-1	HEXACHLOROETHANE	mg/L	Y		0.050	U	0.050	U	0.050	U	0.050	U
SW8270	98-95-3	NITROBENZENE	mg/L	Y		0.020	U	0.020	U	0.020	U	0.020	U
SW8270	87-86-5	PENTACHLOROPHENOL	mg/L	Y		0.10	U	0.10	U	0.10	U	0.10	U
SW8270	110-86-1	PYRIDINE	mg/L	Y		0.020	U	0.020	U	0.020	U	0.020	U

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					Location ID	HATCH 1		HATCH 1		HATCH 1		HATCH2		HATCH3		HATCH4		HATCH5		HATCH6	
					Field Sample ID	WC031816TARWELLNAPL		WC031816TARWELLNAPL		WC031816TARWELLNAPL		H2-T01-02152018		H3-T01-021518		H4-T01-021418		H5-T01-02132018		H6-T01-02132018	
					Sampled	03/18/2016		03/18/2016		03/18/2016		02/15/2018		02/15/2018		02/14/2018		02/13/2018		02/13/2018	
					SDG	JC16572		JC16572R		JC16572T		JC60928		JC60928		JC60928		JC60789		JC60789	
					Matrix	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
					Purpose	REG		REG		REG		REG		REG		REG		REG		REG	
					Type	Oil		Oil		Oil		WC		WC		WC		WC		WC	
Method	**Parameter Code**	**Parameter Name**	**Units**	**Leached**																	
SW9045	PH	pH	SU	N										7.27		7.78		7.53			
SW9040	CORROS	CORROSIVITY	SU	N		8.02	J							7.27		7.78		7.53			
ASTM D1498	ORP	OXIDATION-REDUCTION POTENTIAL	mV	N										264		234		209			
846-7.3.3.2	REAC-CN	REACTIVE CYANIDE	mg/kg	N		10	U							9.9	U	9.9	U	10	U		
846-7.3.4.2	REAC-S	REACTIVE SULFIDE	mg/kg	N		100	U							99	U	99	U	75.3	J		
SW1010	IGNITLIQPM	Ignitability (liquids) Pensky-Martens	deg F	N		184								200		200		200			
ASTM D240-92	BTU	BTU	BTU/lb	N				13900				12700		12400		12700		12700		11400	
SM2540G	MOIST	MOISTURE, PERCENT	%	N				34.6													
SW9020	TOX	TOTAL ORGANIC HALIDES (TOX)	mg/kg	N						20	U			100	U	120	U	98	U		
SW6010	7429-90-5	ALUMINUM	mg/kg	N										85.5		102		179			
SW6010	7440-36-0	ANTIMONY	mg/kg	N										0.85	J	1.2	J	1.2	J		
SW6010	7440-38-2	ARSENIC	mg/kg	N		8.7								10.5		13.2		6.5			
SW6010	7440-39-3	BARIUM	mg/kg	N		0.079	U							5.8	J	4.2	J	7.3	J		
SW6010	7440-41-7	BERYLLIUM	mg/kg	N		0.022	U							0.050	J	0.050	J	0.051	U		
SW6010	7440-43-9	CADMIUM	mg/kg	N		0.98								0.85		1.2		1.6			
SW6010	7440-70-2	CALCIUM	mg/kg	N										845		1390		1130			
SW6010	7440-47-3	CHROMIUM	mg/kg	N		1.0								0.92	J	0.68	J	14.6			
SW6010	7440-48-4	COBALT	mg/kg	N										1.1	J	4.5	J	1.5	J		
SW6010	7440-50-8	COPPER	mg/kg	N		8.8								8.6		9.6		26.9			
SW6010	7439-89-6	IRON	mg/kg	N										1810		792		8130	J		
SW6010	7439-92-1	LEAD	mg/kg	N		77.6								74.2		108		120	J-		
SW6010	7439-95-4	MAGNESIUM	mg/kg	N										80.1	J	98.1	J	275	J		
SW6010	7439-96-5	MANGANESE	mg/kg	N										11.6		10.4		43.3			
SW6010	7440-02-0	NICKEL	mg/kg	N		18.7								15.5		58.5		23.8			
SW6010	7440-09-7	POTASSIUM	mg/kg	N										30	U	35.4	J	83.7	J		
SW6010	7782-49-2	SELENIUM	mg/kg	N		0.45	U							1.3	J	2.3		0.77	J		
SW6010	7440-22-4	SILVER	mg/kg	N		0.097	U							0.29	U	0.29	U	0.30	U		
SW6010	7440-23-5	SODIUM	mg/kg	N										351	J	640	J	1360	J+		
SW6010	7704-34-9	SULFUR	mg/kg	N								847		1620		2020		3530		2390	
SW6010	7440-28-0	THALLIUM	mg/kg	N										3.0		3.2		2.0			
SW6010	7440-62-2	VANADIUM	mg/kg	N		0.081	U							1.4	J	5.0		2.9	J		
SW6010	7440-66-6	ZINC	mg/kg	N		78.4								57.6		108		67.5			
SW7196	18540-29-9	HEXAVALENT CHROMIUM	mg/kg	N		0.40	U														
SW7471	7439-97-6	MERCURY	mg/kg	N		0.70								2.6		1.9		0.54			
SW8081	12789-03-6	CONSTITUENTS OF CHLORDANE (ALPHA, BETA, AND GAMMA)	ug/kg	N		380	U														
SW8081	72-20-8	ENDRIN	ug/kg	N		7.7	U														
SW8081	58-89-9	GAMMA-BHC (LINDANE)	ug/kg	N		7.7	U														
SW8081	76-44-8	HEPTACHLOR	ug/kg	N		7.7	U														
SW8081	1024-57-3	HEPTACHLOR EPOXIDE	ug/kg	N		7.7	U														
SW8081	72-43-5	METHOXYCHLOR	ug/kg	N		15	U														
SW8081	8001-35-2	TOXAPHENE	ug/kg	N		190	U														
SW8082	12674-11-2	AROCLOR-1016	ug/kg	N		380	U							450	U	450	U	500	U		
SW8082	11104-28-2	AROCLOR-1221	ug/kg	N		380	U							450	U	450	U	500	U		
SW8082	11141-16-5	AROCLOR-1232	ug/kg	N		380	U							450	U	450	U	500	U		
SW8082	53469-21-9	AROCLOR-1242	ug/kg	N		380	U							450	U	450	U	500	U		
SW8082	12672-29-6	AROCLOR-1248	ug/kg	N		380	U							450	U	450	U	500	U		
SW8082	11097-69-1	AROCLOR-1254	ug/kg	N		380	U							450	U	450	U	500	U		
SW8082	11096-82-5	AROCLOR-1260	ug/kg	N		380	U							450	U	450	U	500	U		
SW8082	37324-23-5	AROCLOR-1262	ug/kg	N		380	U							450	U	450	U	500	U		
SW8082	11100-14-4	AROCLOR-1268	ug/kg	N		380	U							450	U	450	U	500	U		
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	79-34-5	1,1,2,2-TETRACHLOROETHANE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	79-00-5	1,1,2-TRICHLOROETHANE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	75-34-3	1,1-DICHLOROETHANE	ug/kg	N		4500	U							4800	U	2400	U	51	U		

					Location ID	HATCH 1		HATCH 1		HATCH 1		HATCH2		HATCH3		HATCH4		HATCH5		HATCH6	
					Field Sample ID	WC031816TARWELLNAPL		WC031816TARWELLNAPL		WC031816TARWELLNAPL		H2-T01-02152018		H3-T01-021518		H4-T01-021418		H5-T01-02132018		H6-T01-02132018	
					Sampled	03/18/2016		03/18/2016		03/18/2016		02/15/2018		02/15/2018		02/14/2018		02/13/2018		02/13/2018	
					SDG	JC16572		JC16572R		JC16572T		JC60928		JC60928		JC60928		JC60789		JC60789	
					Matrix	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
					Purpose	REG		REG		REG		REG		REG		REG		REG		REG	
					Type	Oil		Oil		Oil		WC		WC		WC		WC		WC	
Method	**Parameter Code**	**Parameter Name**	**Units**	**Leached**																	
SW8260	75-35-4	1,1-DICHLOROETHENE	ug/kg	N		4500	U							4800	U	2400	U	51	U		
SW8260	87-61-6	1,2,3-TRICHLOROBENZENE	ug/kg	N										24000	U	12000	U	260	U		
SW8260	120-82-1	1,2,4-TRICHLOROBENZENE	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	106-93-4	1,2-DIBROMOETHANE	ug/kg	N		4500	U							4800	U	2400	U	51	U		
SW8260	95-50-1	1,2-DICHLOROBENZENE	ug/kg	N		4500	U							4800	U	2400	U	51	U		
SW8260	107-06-2	1,2-DICHLOROETHANE	ug/kg	N		4500	U							4800	U	2400	U	51	U		
SW8260	78-87-5	1,2-DICHLOROPROPANE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	541-73-1	1,3-DICHLOROBENZENE	ug/kg	N		4500	U							4800	U	2400	U	51	U		
SW8260	106-46-7	1,4-DICHLOROBENZENE	ug/kg	N		4500	U							4800	U	2400	U	51	U		
SW8260	78-93-3	2-BUTANONE	ug/kg	N		45000	U							48000	U	24000	U	510	U		
SW8260	110-75-8	2-CHLOROETHYL VINYL ETHER	ug/kg	N		110000	U							120000	U	61000	U				
SW8260	591-78-6	2-HEXANONE	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	108-10-1	4-METHYL-2-PENTANONE	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	67-64-1	ACETONE	ug/kg	N		45000	U							48000	U	24000	U	510	U		
SW8260	107-02-8	ACROLEIN	ug/kg	N		230000	U							48000	U	24000	U				
SW8260	107-13-1	ACRYLONITRILE	ug/kg	N		230000	U							48000	U	24000	U				
SW8260	71-43-2	BENZENE	ug/kg	N		257000								145000		81700		81500			
SW8260	74-97-5	BROMOCHLOROMETHANE	ug/kg	N										24000	U	12000	U	260	U		
SW8260	75-27-4	BROMODICHLOROMETHANE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	75-25-2	BROMOFORM	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	74-83-9	BROMOMETHANE	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	75-15-0	CARBON DISULFIDE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	56-23-5	CARBON TETRACHLORIDE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	108-90-7	CHLOROBENZENE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	75-00-3	CHLOROETHANE	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	67-66-3	CHLOROFORM	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	74-87-3	CHLOROMETHANE	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	156-59-2	CIS-1,2-DICHLOROETHENE	ug/kg	N		4500	U							4800	U	2400	U	51	U		
SW8260	10061-01-5	CIS-1,3-DICHLOROPROPENE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	110-82-7	CYCLOHEXANE	ug/kg	N		9100	U							9500	U	4900	U	28.4	J		
SW8260	124-48-1	DIBROMOCHLOROMETHANE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	75-71-8	DICHLORODIFLUOROMETHANE	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	100-41-4	ETHYLBENZENE	ug/kg	N		45800								30700		16600		9830			
SW8260	98-82-8	ISOPROPYLBENZENE	ug/kg	N		1470	J							9500	U	4900	U	365			
SW8260	79-20-9	METHYL ACETATE	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	1634-04-4	METHYL TERT-BUTYL ETHER	ug/kg	N		4500	U							4800	U	2400	U	51	U		
SW8260	108-87-2	METHYLCYCLOHEXANE	ug/kg	N		9100	U							9500	U	4900	U	114			
SW8260	75-09-2	METHYLENE CHLORIDE	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	95-47-6	O-XYLENE	ug/kg	N										46500		23000		24000			
SW8260	100-42-5	STYRENE	ug/kg	N		141000								99700		49600		46000			
SW8260	TIC	TENTATIVELY IDENTIFIED COMPOUND	ug/kg	N										81000	NJ	36000	NJ				
SW8260	127-18-4	TETRACHLOROETHENE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	108-88-3	TOLUENE	ug/kg	N		291000								193000		97400		90100			
SW8260	156-60-5	TRANS-1,2-DICHLOROETHENE	ug/kg	N		4500	U							4800	U	2400	U	51	U		
SW8260	10061-02-6	TRANS-1,3-DICHLOROPROPENE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	79-01-6	TRICHLOROETHENE	ug/kg	N		4500	U							4800	U	2400	U	51	U		
SW8260	75-69-4	TRICHLOROFLUOROMETHANE	ug/kg	N		23000	U							24000	U	12000	U	260	U		
SW8260	75-01-4	VINYL CHLORIDE	ug/kg	N		9100	U							9500	U	4900	U	100	U		
SW8260	XYLENES1314	XYLENES, M & P	ug/kg	N										121000		60400		56200			
SW8260	1330-20-7	XYLENES, TOTAL	ug/kg	N		227000								168000		83400		80200			
SW8270	92-52-4	1,1'-BIPHENYL	ug/kg	N		2760000								1380000		1780000		810000			
SW8270	95-94-3	1,2,4,5-TETRACHLOROBENZENE	ug/kg	N										31000	U	83000	U	25000	U		
SW8270	95-50-1	1,2-DICHLOROBENZENE	ug/kg	N										13000	U	33000	U				
SW8270	122-66-7	1,2-DIPHENYLHYDRAZINE/AZOBENZENE	ug/kg	N										13000	U	33000	U				
SW8270	541-73-1	1,3-DICHLOROBENZENE	ug/kg	N										13000	U	33000	U				
SW8270	106-46-7	1,4-DICHLOROBENZENE	ug/kg	N										13000	U	33000	U				
SW8270	123-91-1	1,4-DIOXANE	ug/kg	N										6300	U	17000	U	5000	U		
SW8270	108-60-1	2,2'-OXYBIS(1-CHLOROPROPANE)	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	58-90-2	2,3,4,6-TETRACHLOROPHENOL	ug/kg	N										31000	U	83000	U	25000	U		

					Location ID	HATCH 1		HATCH 1		HATCH 1		HATCH2		HATCH3		HATCH4		HATCH5		HATCH6	
					Field Sample ID	WC031816TARWELLNAPL		WC031816TARWELLNAPL		WC031816TARWELLNAPL		H2-T01-02152018		H3-T01-021518		H4-T01-021418		H5-T01-02132018		H6-T01-02132018	
					Sampled	03/18/2016		03/18/2016		03/18/2016		02/15/2018		02/15/2018		02/14/2018		02/13/2018		02/13/2018	
					SDG	JC16572		JC16572R		JC16572T		JC60928		JC60928		JC60928		JC60789		JC60789	
					Matrix	SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID		SOLID	
					Purpose	REG		REG		REG		REG		REG		REG		REG		REG	
					Type	Oil		Oil		Oil		WC		WC		WC		WC		WC	
Method	**Parameter Code**	**Parameter Name**	**Units**	**Leached**																	
SW8270	95-95-4	2,4,5-TRICHLOROPHENOL	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	88-06-2	2,4,6-TRICHLOROPHENOL	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	120-83-2	2,4-DICHLOROPHENOL	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	105-67-9	2,4-DIMETHYLPHENOL	ug/kg	N		606000								556000		629000		273000			
SW8270	51-28-5	2,4-DINITROPHENOL	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	121-14-2	2,4-DINITROTOLUENE	ug/kg	N		20000	U							6300	U	17000	U	5000	U		
SW8270	606-20-2	2,6-DINITROTOLUENE	ug/kg	N		20000	U							6300	U	17000	U	5000	U		
SW8270	91-58-7	2-CHLORONAPHTHALENE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	95-57-8	2-CHLOROPHENOL	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	91-57-6	2-METHYLNAPHTHALENE	ug/kg	N		18600000								7970000		10400000		5020000			
SW8270	95-48-7	2-METHYLPHENOL	ug/kg	N		583000								387000		421000		276000			
SW8270	88-74-4	2-NITROANILINE	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	88-75-5	2-NITROPHENOL	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	34METPH	3&4-METHYLPHENOL	ug/kg	N		1350000								1120000		1180000		583000			
SW8270	91-94-1	3,3'-DICHLOROBENZIDINE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	99-09-2	3-NITROANILINE	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	534-52-1	4,6-DINITRO-2-METHYLPHENOL	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	101-55-3	4-BROMOPHENYL PHENYL ETHER	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	59-50-7	4-CHLORO-3-METHYLPHENOL	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	106-47-8	4-CHLOROANILINE	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	7005-72-3	4-CHLOROPHENYL PHENYL ETHER	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	100-01-6	4-NITROANILINE	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	100-02-7	4-NITROPHENOL	ug/kg	N		200000	U							63000	U	170000	U	50000	U		
SW8270	83-32-9	ACENAPHTHENE	ug/kg	N		1860000								1050000		1350000		535000			
SW8270	208-96-8	ACENAPHTHYLENE	ug/kg	N		13500000								4970000		6390000		3950000			
SW8270	98-86-2	ACETOPHENONE	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	120-12-7	ANTHRACENE	ug/kg	N		7390000								3610000		4680000		2700000			
SW8270	1912-24-9	ATRAZINE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	100-52-7	BENZALDEHYDE	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	92-87-5	BENZIDINE	ug/kg	N										63000	U	170000	U				
SW8270	56-55-3	BENZO(A)ANTHRACENE	ug/kg	N		6740000								2870000		3840000		1940000			
SW8270	50-32-8	BENZO(A)PYRENE	ug/kg	N		6090000								2550000		3320000		1600000			
SW8270	205-99-2	BENZO(B)FLUORANTHENE	ug/kg	N		6620000								2650000		3370000		1660000			
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	ug/kg	N		2700000								1340000		1770000		870000			
SW8270	207-08-9	BENZO(K)FLUORANTHENE	ug/kg	N		2580000								940000		935000		552000			
SW8270	100-51-6	BENZYL ALCOHOL	ug/kg	N										13000	U	33000	U				
SW8270	111-91-1	BIS(2-CHLOROETHOXY)METHANE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	111-44-4	BIS(2-CHLOROETHYL)ETHER	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	85-68-7	BUTYLBENZYL PHTHALATE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	105-60-2	CAPROLACTAM	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	86-74-8	CARBAZOLE	ug/kg	N		3420000								1240000		1570000		962000			
SW8270	218-01-9	CHRYSENE	ug/kg	N		5710000								2840000		3510000		1710000			
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	117-84-0	DI-N-OCTYL PHTHALATE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	53-70-3	DIBENZO(A,H)ANTHRACENE	ug/kg	N		1060000								457000		508000		367000			
SW8270	132-64-9	DIBENZOFURAN	ug/kg	N		5630000								2610000		3220000		1540000			
SW8270	84-66-2	DIETHYL PHTHALATE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	131-11-3	DIMETHYL PHTHALATE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	206-44-0	FLUORANTHENE	ug/kg	N		17000000								6330000		8000000		4120000			
SW8270	86-73-7	FLUORENE	ug/kg	N		10300000								4720000		6130000		3120000			
SW8270	118-74-1	HEXACHLOROBENZENE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	87-68-3	HEXACHLOROBUTADIENE	ug/kg	N		20000	U							6300	U	17000	U	5000	U		
SW8270	77-47-4	HEXACHLOROCYCLOPENTADIENE	ug/kg	N		200000	U							63000	U	170000	U	50000	U		
SW8270	67-72-1	HEXACHLOROETHANE	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	193-39-5	INDENO(1,2,3-CD)PYRENE	ug/kg	N		3240000								1430000		1860000		746000			
SW8270	78-59-1	ISOPHORONE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	62-75-9	N-NITROSODIMETHYLAMINE	ug/kg	N										13000	U	33000	U				
SW8270	86-30-6	N-NITROSODIPHENYLAMINE	ug/kg	N		100000	U							31000	U	83000	U	25000	U		
SW8270	91-20-3	NAPHTHALENE	ug/kg	N		45900000								28400000		38900000		20900000			
SW8270	98-95-3	NITROBENZENE	ug/kg	N		40000	U							13000	U	33000	U	10000	U		
SW8270	87-86-5	PENTACHLOROPHENOL	ug/kg	N		100000	U							25000	U	67000	U	20000	U		
SW8270	85-01-8	PHENANTHRENE	ug/kg	N		18200000								12000000		15500000		8220000			
SW8270	108-95-2	PHENOL	ug/kg	N		1430000								920000		1010000		497000			
SW8270	129-00-0	PYRENE	ug/kg	N		14500000								6320000		8100000		4780000			
SW8270	TIC	TENTATIVELY IDENTIFIED COMPOUND	ug/kg	N										89000	NJ	220000	NJ				

Table 3B
Tar Chemical Characteristics -TCLP Results

					Location ID	WC		HATCH3		HATCH4		HATCH5	
					Field Sample ID	WC031816TARWELLNAPL		H3-T01-021518		H4-T01-021418		H5-T01-02132018	
					Sampled	03/18/2016		02/15/2018		02/14/2018		02/13/2018	
					SDG	JC16572		JC60928		JC60928		JC60789	
					Matrix	SOLID		SOLID		SOLID		SOLID	
					Purpose	REG		REG		REG		REG	
					Type	Oil		WC		WC		WC	
Method	**Parameter Code**	**Parameter Name**	**Units**	**Leached**									
SW6010	7440-38-2	ARSENIC	mg/L	Y		0.011	U	0.020	J	0.023	J	0.027	U
SW6010	7440-39-3	BARIUM	mg/L	Y		0.0020	U	0.025	J	0.042	J	0.037	J
SW6010	7440-43-9	CADMIUM	mg/L	Y		0.0020	U	0.0035	U	0.0035	U	0.0070	U
SW6010	7440-47-3	CHROMIUM	mg/L	Y		0.0040	U	0.0043	U	0.0043	U	0.0085	U
SW6010	7439-92-1	LEAD	mg/L	Y		0.012	U	0.015	J	0.026	J	0.042	J
SW6010	7782-49-2	SELENIUM	mg/L	Y		0.021	U	0.033	U	0.033	U	0.066	U
SW6010	7440-22-4	SILVER	mg/L	Y		0.0045	U	0.016	U	0.016	U	0.031	U
SW7470	7439-97-6	MERCURY	mg/L	Y		0.000047	U	0.000083	U	0.000083	U	0.00040	U
SW8081	12789-03-6	CONSTITUENTS OF CHLORDANE (ALPHA, BETA, AND GAMMA)	mg/L	Y		0.0050	U	0.0033	U	0.0033	U	0.0033	U
SW8081	72-20-8	ENDRIN	mg/L	Y		0.00010	U	0.000067	U	0.000067	U	0.000067	U
SW8081	58-89-9	GAMMA-BHC (LINDANE)	mg/L	Y		0.00010	U	0.000067	U	0.000067	U	0.000067	U
SW8081	76-44-8	HEPTACHLOR	mg/L	Y		0.00025		0.000067	U	0.000067	U	0.00062	
SW8081	1024-57-3	HEPTACHLOR EPOXIDE	mg/L	Y		0.00010	U	0.000067	U	0.000067	U	0.000067	U
SW8081	72-43-5	METHOXYCHLOR	mg/L	Y		0.00020	U	0.00013	U	0.00013	U	0.00013	U
SW8081	8001-35-2	TOXAPHENE	mg/L	Y		0.0025	U	0.0017	U	0.0017	U	0.0017	U
SW8151	93-72-1	2,4,5-TP (SILVEX)	mg/L	Y		0.0015	U	0.0012	U	0.0012	U	0.0012	U
SW8151	94-75-7	2,4-D	mg/L	Y		0.0050	U	0.0042	U	0.0042	U	0.0042	U
SW8260	75-35-4	1,1-DICHLOROETHENE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	107-06-2	1,2-DICHLOROETHANE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	106-46-7	1,4-DICHLOROBENZENE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	78-93-3	2-BUTANONE	mg/L	Y		0.10	U	0.10	U	0.10	U	0.10	U
SW8260	71-43-2	BENZENE	mg/L	Y		17.0	J	10.9		8.90		10.5	
SW8260	56-23-5	CARBON TETRACHLORIDE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	108-90-7	CHLOROBENZENE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	67-66-3	CHLOROFORM	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	127-18-4	TETRACHLOROETHENE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	79-01-6	TRICHLOROETHENE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8260	75-01-4	VINYL CHLORIDE	mg/L	Y		0.0050	U	0.0050	U	0.0050	U	0.0050	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	mg/L	Y		0.020	U	0.020	U	0.020	U	0.040	U
SW8270	95-95-4	2,4,5-TRICHLOROPHENOL	mg/L	Y		0.050	U	0.050	U	0.050	U	0.10	U
SW8270	88-06-2	2,4,6-TRICHLOROPHENOL	mg/L	Y		0.050	U	0.050	U	0.050	U	0.10	U
SW8270	121-14-2	2,4-DINITROTOLUENE	mg/L	Y		0.020	U	0.020	U	0.020	U	0.040	U
SW8270	95-48-7	2-METHYLPHENOL	mg/L	Y		11.0		8.86		4.07		14.2	
SW8270	34METPH	3&4-METHYLPHENOL	mg/L	Y		28.0		21.4		9.32		34.3	
SW8270	118-74-1	HEXACHLOROBENZENE	mg/L	Y		0.020	U	0.020	U	0.020	U	0.040	U
SW8270	87-68-3	HEXACHLOROBUTADIENE	mg/L	Y		0.010	U	0.010	U	0.010	U	0.020	U
SW8270	67-72-1	HEXACHLOROETHANE	mg/L	Y		0.050	U	0.050	U	0.050	U	0.10	U
SW8270	98-95-3	NITROBENZENE	mg/L	Y		0.020	U	0.020	U	0.020	U	0.040	U
SW8270	87-86-5	PENTACHLOROPHENOL	mg/L	Y		0.10	U	0.10	U	0.10	U	0.20	U
SW8270	110-86-1	PYRIDINE	mg/L	Y		0.811		0.685		0.312		1.16	

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Table 4A
Tar Physical Properties

Hatch	Sample ID	Matrix	Temperature, ˚F	Specific Gravity	Density, g/cc	Viscosity	
						Centistokes	Centipoise
Hatch 1	031816 Tar Well NAPL	NAPL	70	1.189	1.187	5,120	6,080
Hatch 1	031816 Tar Well NAPL	NAPL	100	1.186	1.177	867	1,020
Hatch 1	031816 Tar Well NAPL	NAPL	130	1.182	1.166	237	276
Hatch 2	H2-T01-02152018	NAPL	50	1.220	1.2196	15,000	18,294
Hatch 2	H2-T01-02152019	NAPL	70	1.216	1.2136	3,187	3,868
Hatch 2	H2-T01-02152020	NAPL	100	1.210	1.2012	664	798
Hatch 2	H2-T01-02152021	NAPL	130	1.208	1.1910	163	194
Hatch 3	H3-T01-02152018	NAPL	50	1.212	1.2118	30,500	36,960
Hatch 3	H3-T01-02152018	NAPL	70	1.208	1.2055	8,934	10,770
Hatch 3	H3-T01-02152018	NAPL	100	1.205	1.1969	1,577	1,887
Hatch 3	H3-T01-02152018	NAPL	130	1.204	1.1874	435	516
Hatch 4	H4-T01-02142018	NAPL	50	1.240	1.2392	60,500	74,972
Hatch 4	H4-T01-02142018	NAPL	70	1.237	1.2342	12,992	16,036
Hatch 4	H4-T01-02142018	NAPL	100	1.234	1.2259	2,374	2,910
Hatch 4	H4-T01-02142018	NAPL	130	1.234	1.2172	593	721
Hatch 5	H5-T01-02132018	NAPL	50	1.252	1.2515	80,000	100,120
Hatch 5	H5-T01-02132018	NAPL	70	1.247	1.2449	15,021	18,699
Hatch 5	H5-T01-02132018	NAPL	100	1.245	1.2359	1,866	2,306
Hatch 5	H5-T01-02132018	NAPL	130	1.244	1.2264	436	534
Hatch 6	H6-T01-02132018	NAPL	50	1.227	1.2263	30,000	36,789
Hatch 6	H6-T01-02132018	NAPL	70	1.225	1.2229	6,559	8,021
Hatch 6	H6-T01-02132018	NAPL	100	1.224	1.2158	1,388	1,687
Hatch 6	H6-T01-02132018	NAPL	130	1.225	1.2074	321	388

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Table 4B
Tar Physical Properties

Hatch	Sample ID	Matrix	Moisture Content (%)	150˚C Mass Loss (%)	180˚C Mass Loss (%)
Hatch 1	031816 Tar Well NAPL	DNAPL	17.8	29.1	31.6
Hatch 2	H2-T01-02152018	DNAPL	14.2	24.8	26.6
Hatch 3	H3-T01-02152018	DNAPL	3.9	19.7	21.2
Hatch 4	H4-T01-02152018	DNAPL	4.4	19.8	21.8
Hatch 5	H5-T01-02152018	DNAPL	11.7	27.6	29.9
Hatch 6	H6-T01-02152018	DNAPL	21.1	36.4	38.1

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Figure 1. Location of vault at 628 Smith Street building.

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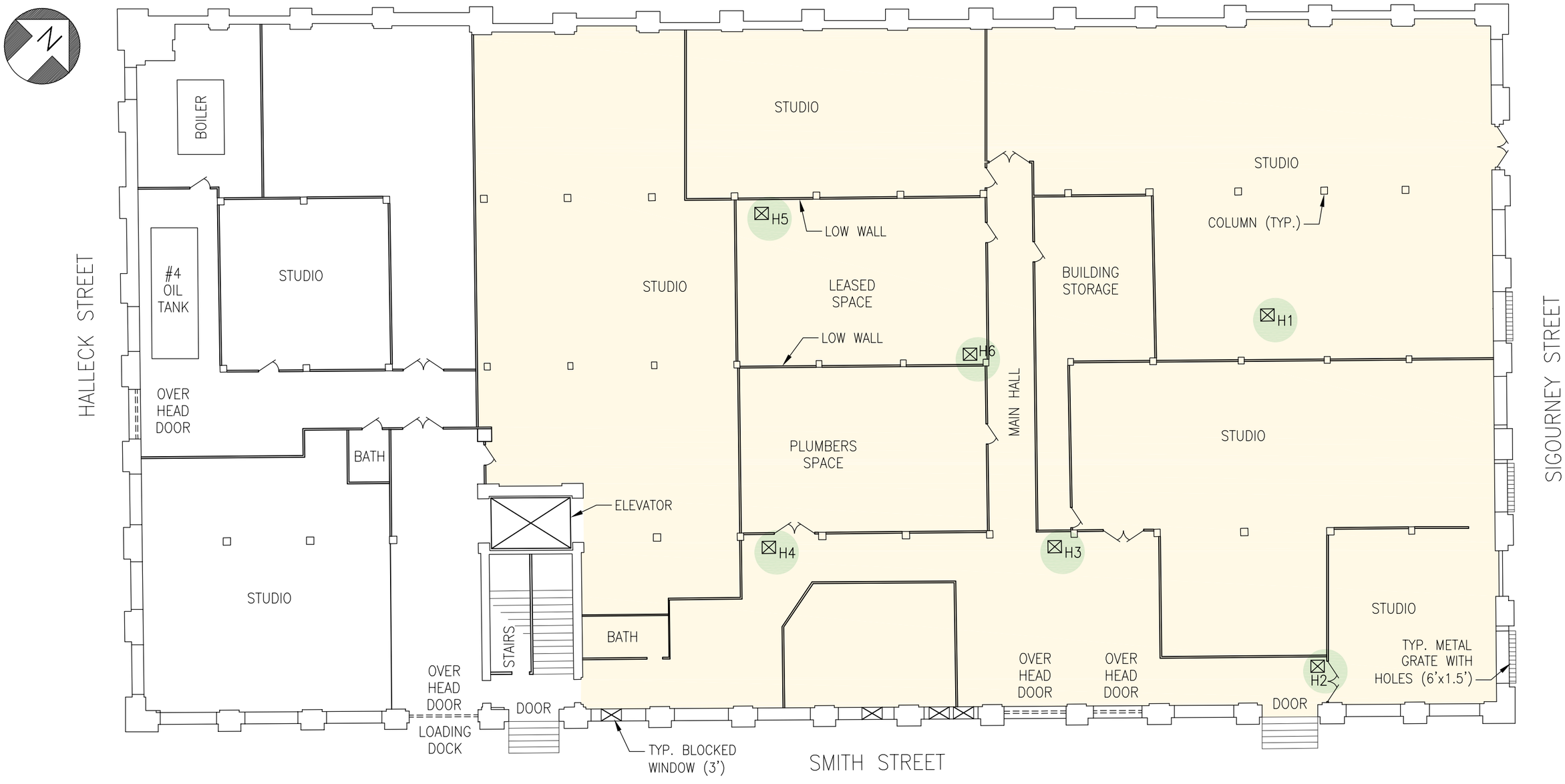


LEGEND:

- H2 — EXISTING HATCH
- TYPICAL BLOCKED WINDOW (3')
- TYPICAL METAL GRATE WITH HOLES (6'x1.5')
- APPROXIMATE EXTENT OF VAULT BELOW FIRST FLOOR

NOTE:

BUILDING LAYOUT AND INTERIOR COLUMNS WERE TAKEN FROM A 1946 ARCHITECTURAL "FIRST FLOOR PLAN" BY JUDSON E. SCHNALL & MAXFIELD BLAUFEAX ARCHITECTS. MEASUREMENTS OF INTERIOR WALLS AND OTHER FEATURES MADE USING ENGINEERS TAPE ON APRIL 19, 2017.

NO.	DESCRIPTION	DATE	DRAWN	CHK'D	APPV'D
B	REVISED	02/20/18	RR	PFM	–
A	ISSUED FOR COMMENT	05/03/17	RR	PFM	–

PARSONS
ENVIRONMENT & INFRASTRUCTURE
100 HIGH ST, 4TH FL
BOSTON, MA 02110
(617) 946-9400

DRAWING TITLE
Honeywell
1ST FLOOR PLAN FOR
628 SMITH STREET BUILDING

DRAWN BY	CHECKED BY
RR	PFM
DATE	APPROVED BY
05-03-17	PFM

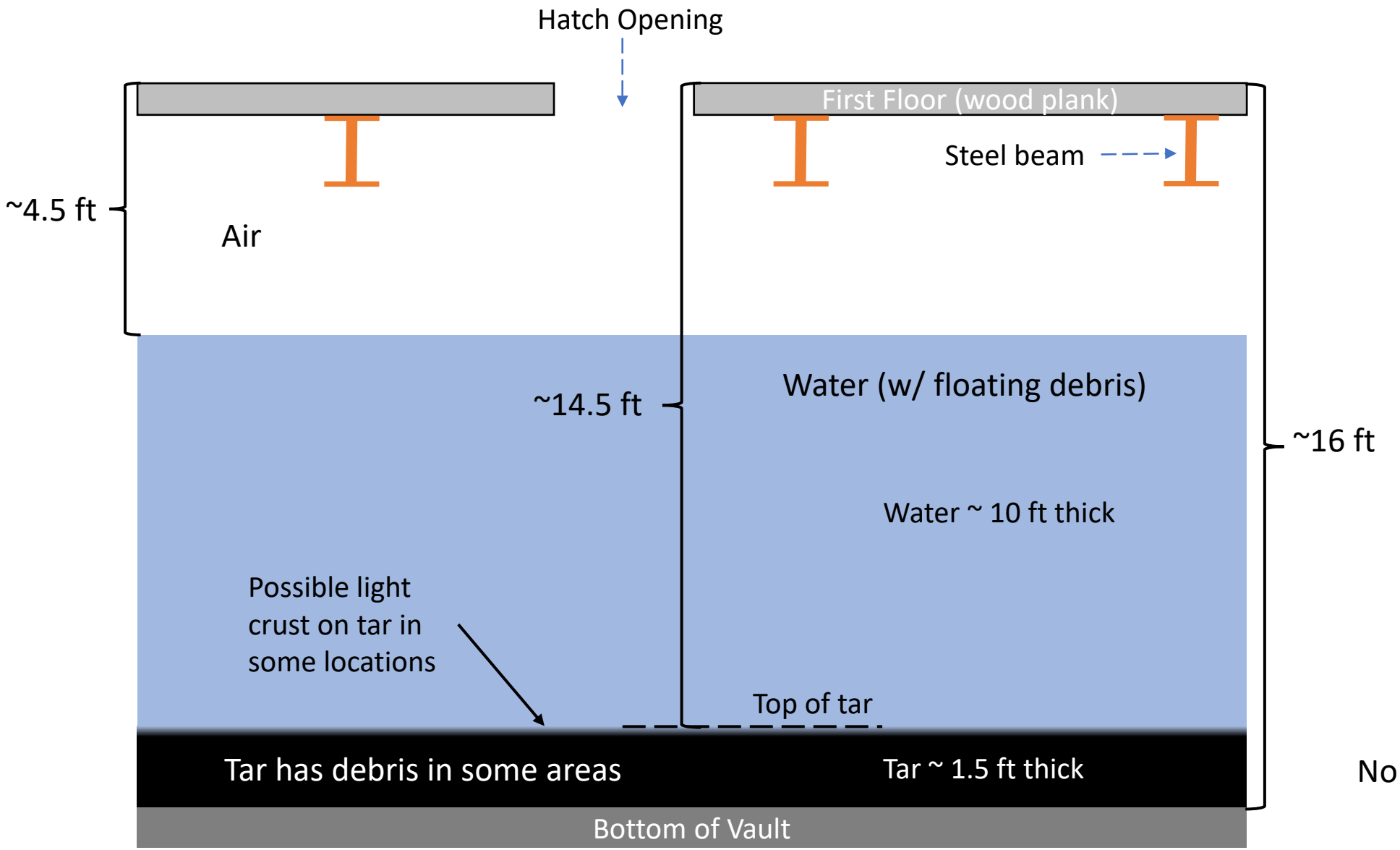
DRAWING NO.
FIGURE 2

SCALE
1" = 15'

JOB
450881-01102

FILE NAME: P:\PIT\PROJECTS\HONEYWELL\SMITH STREET – BROOKLYN NY\CAD\AUTOCAD\TAR WELL IRM\FIGURE 2.DWG
PLOT DATE: 7/24/2018 7:52 AM PLOTTED BY: RABUFFETTI, RICH

Figure 3. Cross Section of Tar Vault and Typical Hatch.



PARSONS

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ATTACHMENT A

AIR MONITORING AND VENTILATION

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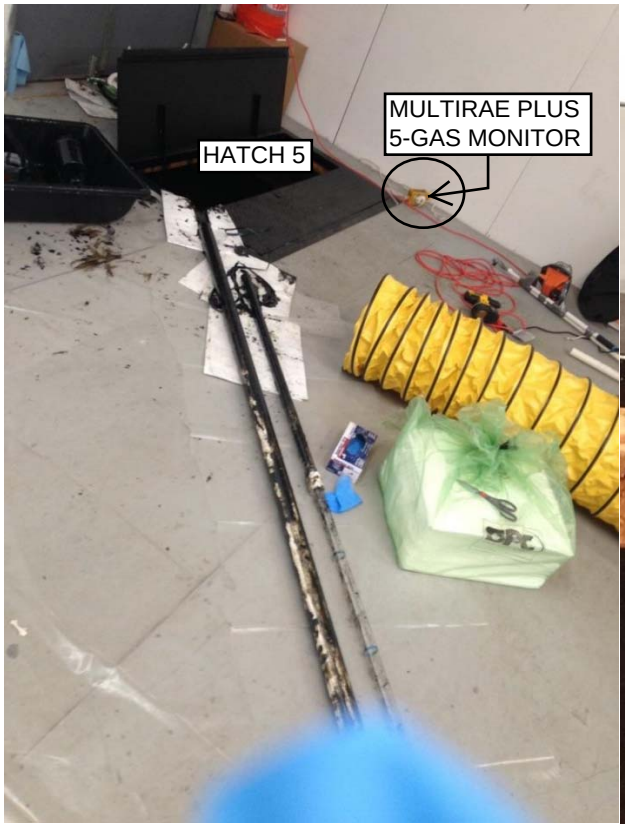
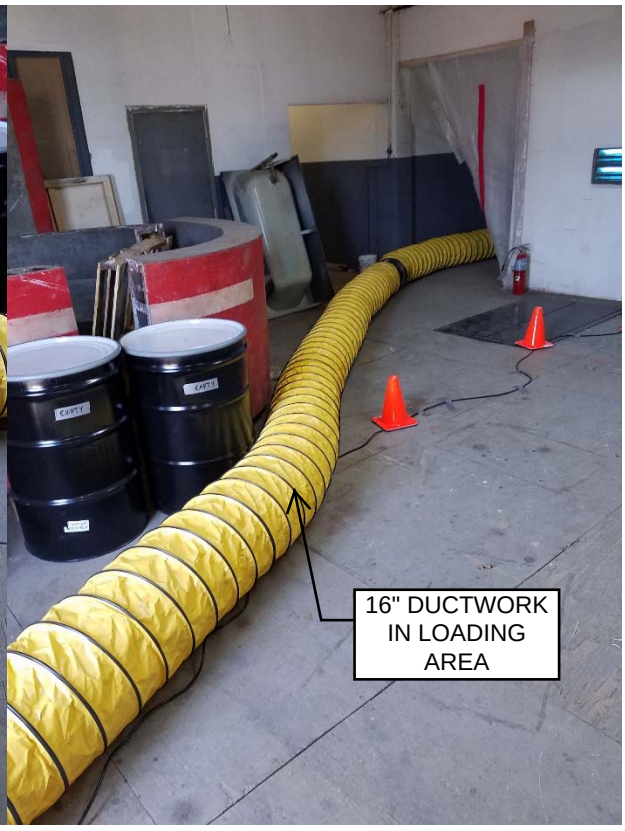
Attachment A. Typical Air Monitoring and
Engineering Control Ventilation Setup
During NAPL Sampling





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ATTACHMENT B

PHOTOS

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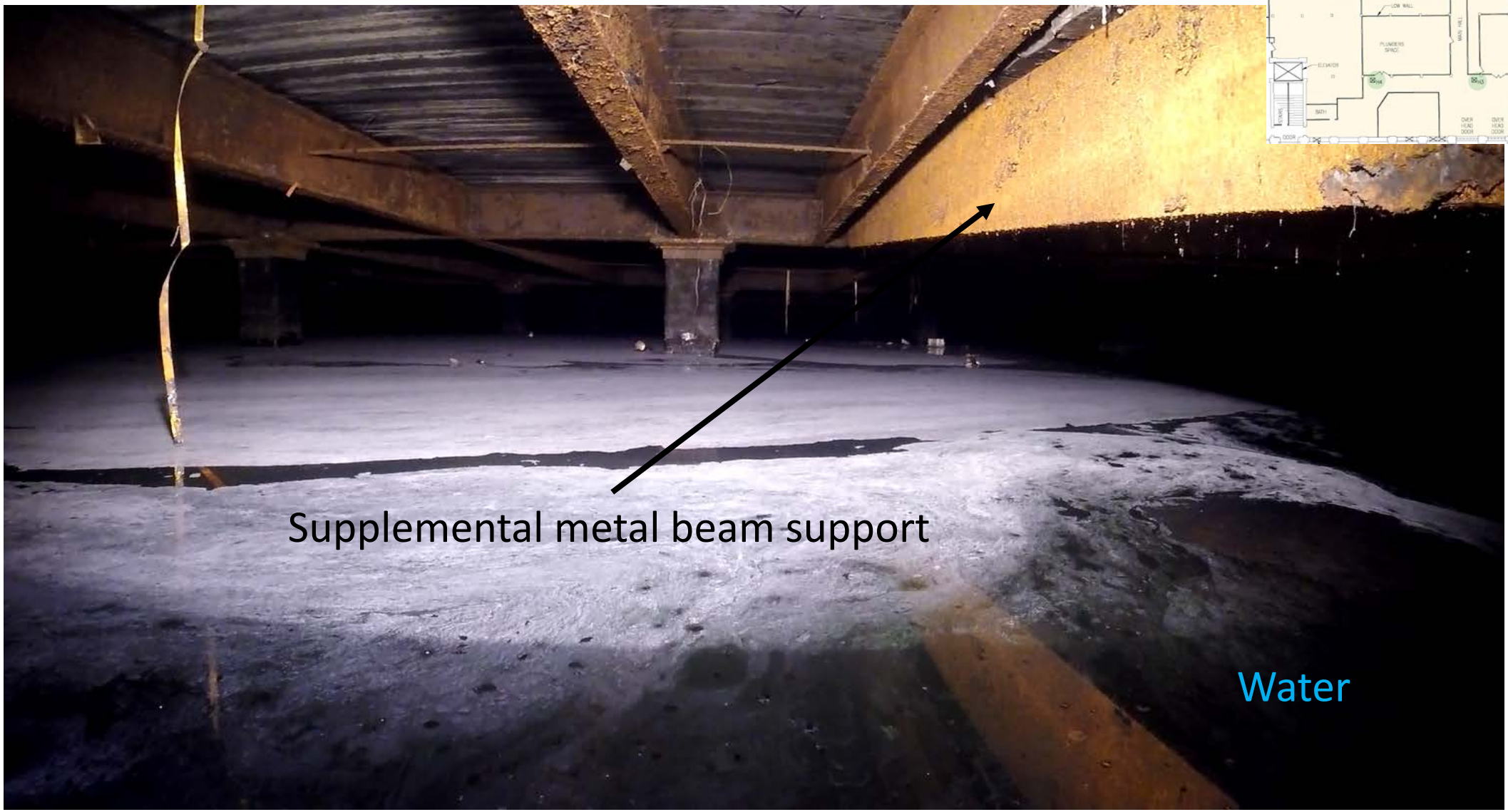
B1. Newly installed hatch (typical).

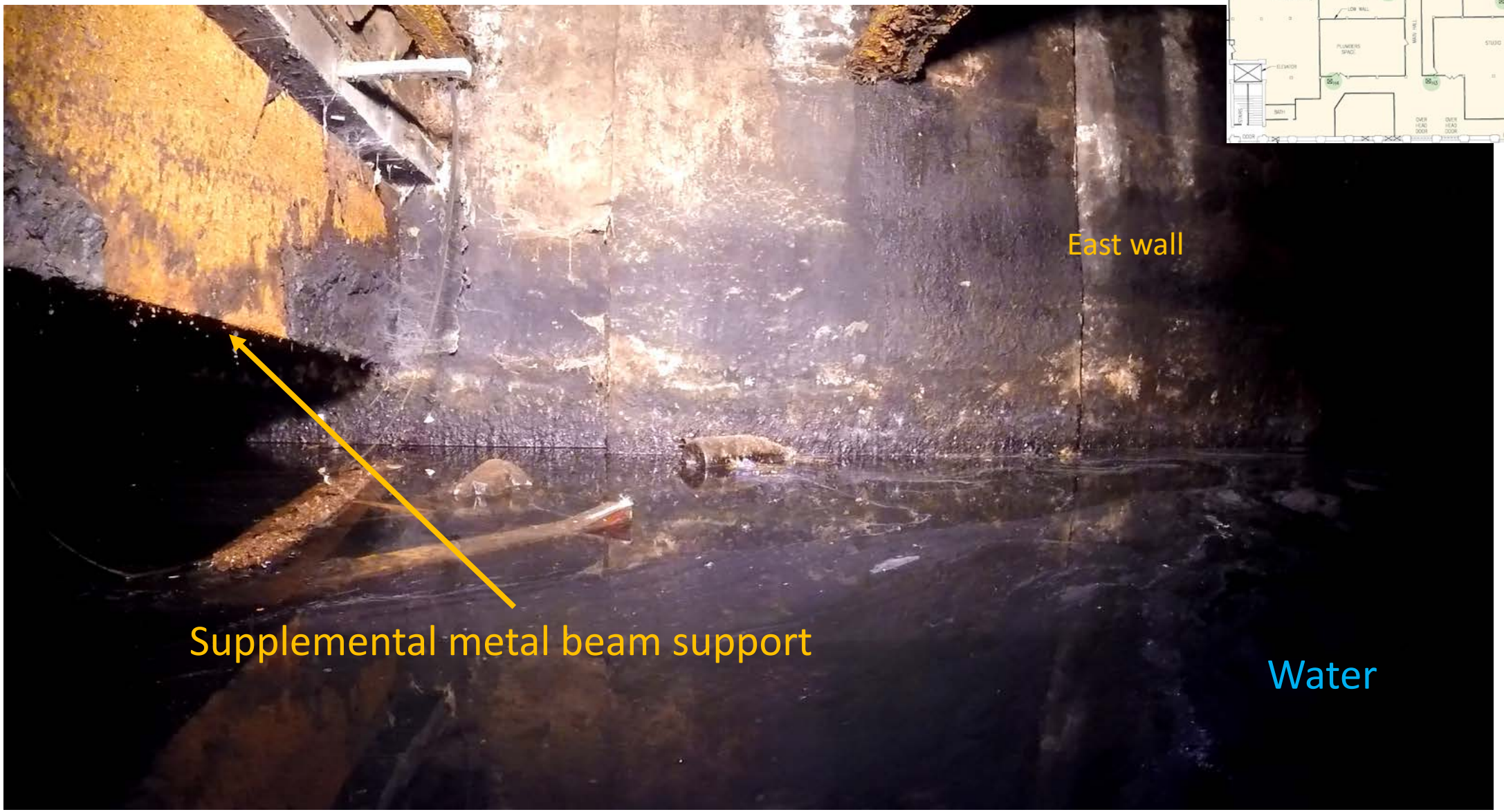
B2. Tar on metal tile probe (typical).

B3. Video Survey – Hatch 1 facing north (toward Sigourney St.).

B4. Video Survey – Hatch 2 facing west (toward Court St.).



B5. Video Survey – Hatch 2 facing east (toward Smith St.).

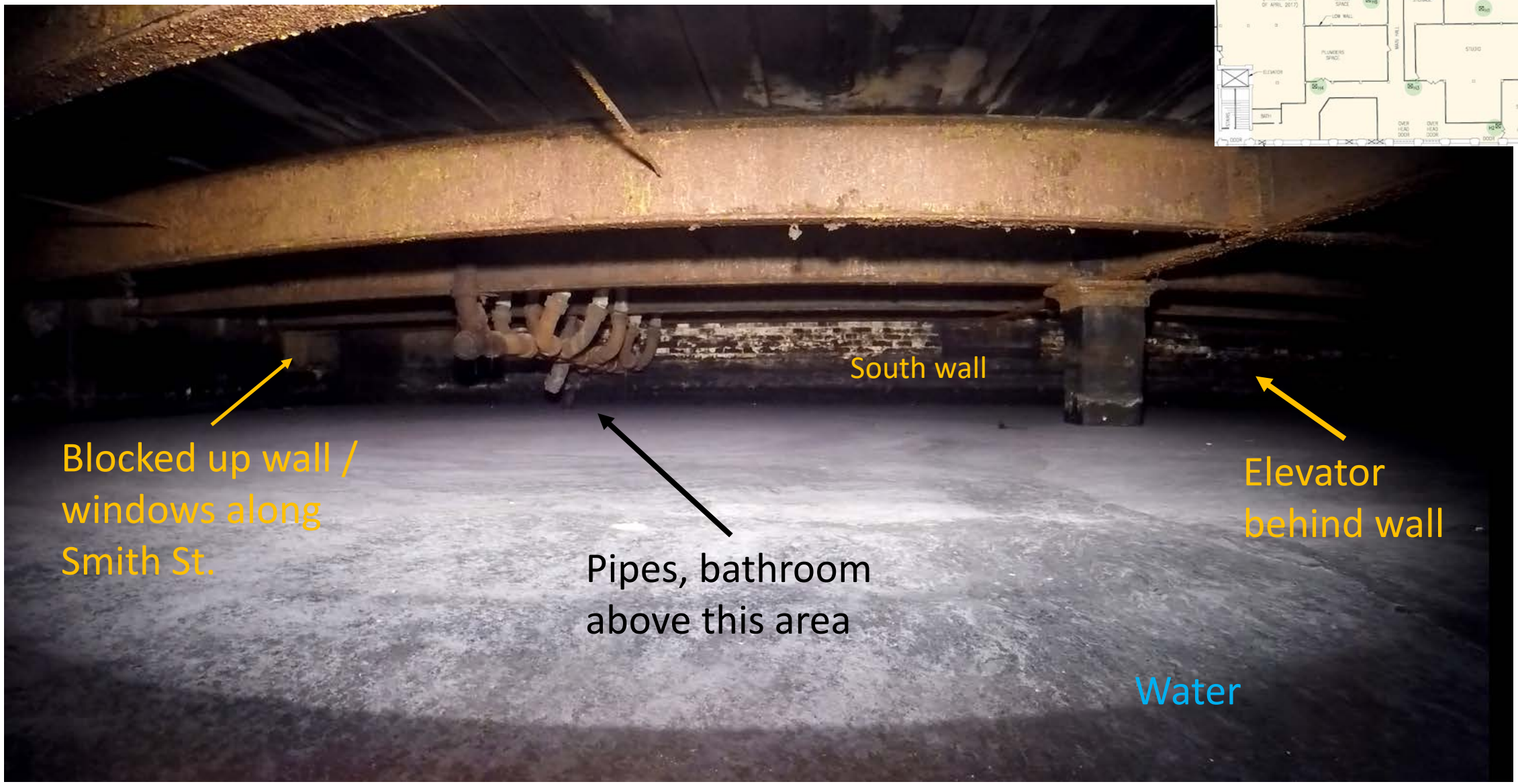


B6. Video Survey – Hatch 3 facing east (toward Smith St.).

B7. Video Survey – Hatch 3 facing east-southeast (toward Smith St.).

B8. Video Survey – Hatch 4 facing northeast (toward Smith).

B9. Video Survey – Hatch 4 facing south (toward Halleck).



B10. Video Survey – Hatch 5 facing west (toward Court St.).

B11. Video Survey – Hatch 6 facing south (toward Halleck).

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ATTACHMENT C

VAULT OBSERVATION SUMMARY

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Hatch 2

Hatch 2 is located near the building entrance and is the closest hatch to Smith St. and the east wall of the vault. Access in Hatch 2 was limited due to an extra support adjacent to the north side of the hatch opening as shown in Attachment A. Debris such as wood and trash could be seen floating on the surface of the water in addition to a white residue that was present on the water surface at each hatch location. Upon scanning the wall along Smith St. to the east, there was no evidence of any piping protrusions which could function as the source or exit point for the water in the vault.

Hatch 3

Hatch 3 is in the main loading dock area closest to the center of the building. When removing the tile probe, At corner C1, which is the north-western most corner of Hatch 3, debris was felt with the tile probe at 13.53 ft, before it was moved to the side. An obstruction was felt at the depth of about 8 ft while sampling along the north side of the hatch between C1 and C2. Upon scanning the wall along Smith St. to the east, the blocked-up windows were observed and it was confirmed that there would be no need to unblock the windows since doing so would not provide a better vantage point than what had been provided by the hatches.

Hatch 4

Hatch 4 is located near the maintenance desk near the main entrance to the building. Resistance was observed with the tile probe at approximately 14.75 ft to 15.05 ft measured at multiple corners of the hatch, and the bottom depth was assigned to be 15.82 ft based on the deepest depth recorded. Wooden columns appear to support a portion of the floor in the northeasterly direction from Hatch 4, as shown in the photo in Attachment A. Also shown in a photo in Attachment A is the view to the south from Hatch 4, which includes a view of the plumbing pipes and a blocked wall. The elevator pit is assumed to be behind this wall.

Hatch 5

Hatch 5 is in the southwest corner of Unit L. Resistance was observed with the tile probe at approximately 13.5 ft to 13.9 ft, measured at multiple corners of the hatch. Bubbles were observed coming to the surface of the water when using the tile probe. What appeared to be a tar stain on the vault wall potentially reflecting the maximum volume of tar in the vault can be seen in the west facing photo in Attachment A. There was potentially a fair amount of debris at the water/tar interface, as evident by the initial resistance felt by the interface probe at the 13.5 ft depth and again during probing with the tile probe, when a piece of plywood was pierced and brought to the surface.

Hatch 6

Hatch 6 is in the northeast corner of Unit L. Resistance was observed with the tile probe at approximately 12.0 ft to 14.5 ft before a notable breakthrough was encountered. Bubbles were observed coming to the surface of the water when using the tile probe. A fair amount of debris was observed floating on the water in Hatch 6 as observed in the photo in Attachment A. Wood, plastic, and a suitcase where pulled up with the tile probe during the investigation of Hatch 6.

ATTACHMENT C
OBSERVATIONS AT HATCHES

Hatch 1

Hatch 1 is in the tenant space in the northwest corner of the first floor. Hatch 1 was not available for probing during the 2018 sampling event. However, on March 18, 2016, the depth to water was measured to be 4.6 ft from the measuring point and resistance was felt with the interface probe at a depth of 13.5 ft. A 15-ft section of PVC was inserted into the tar to a depth of 15.2 ft, but the bottom was not encountered. Trash and other debris were evident during this investigation. Based on information gathered at the other five hatches in February 2018, it appears that debris was encountered at 13.5 ft and not NAPL. For this reason, the thickness of NAPL and the depth to the bottom of the vault has been estimated based on information gathered from the other five hatches.