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December 27, 2022
File #34283.000

Mr. Glenn Lautenbach – SR-6J
Remedial Project Manager
Waste Management Division
USEPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Re: Work Plan for MW-34/70 Area TCE Degreaser Sludge Confirmation Soil Sampling
USEPA CERCLIS ID WID 006196174
WDNR BRRTS 02-09-000267 and FID 609038320

Dear Glenn:

On behalf of National Presto Industries, Inc. (NPI), Gannett Fleming, Inc. (GF) is submitting this work plan for MW-34/70 area trichloroethylene (TCE) degreaser sludge confirmation soil sampling at the NPI Superfund site in Eau Claire, Wisconsin. As shown on Figures 1 and 2, a soil vapor extraction (SVE) system, which began operation in August 2003, is currently being used to address TCE contamination in the area. Consequently, sections with pertinent background information on the MW-34/70 area SVE system and confirmation soil sampling conducted in September and November 2010 and October 2014 are included for reference. GF's September 2015 *Remedial Alternatives Analysis for the MW-34/70 Area TCE Degreaser Sludge* report stated that:

- A work plan for MW-34/70 area TCE degreaser sludge confirmation soil sampling would be submitted to the agencies for review.
- The supplemental Geoprobe sampling would be conducted in August 2023.

Portions of GF's September 2015 report are reproduced in this work plan for convenience. A certification page for this submittal is also attached.

Pertinent Background Information on the MW-34/70 Area SVE System

Subsurface conditions in the MW-34/70 area of contamination consist of 4 to 10 feet of relatively dry, cinder-type fill mixed with sand, underlain by 55 to 75 feet of native sand and gravel, which in turn is underlain by weathered sandstone bedrock. The depth to groundwater is approximately 70 feet below ground surface (ft bgs).

The volatile organic compound (VOC) of primary concern is TCE because it has been present at concentrations above its Maximum Contaminant Level (MCL) and the NR 140 Enforcement Standard (ES) of 5.0 micrograms per liter (µg/ℓ) in the groundwater downgradient of this area of the property. It is currently below the 5.0 µg/ℓ MCL in all monitoring wells downgradient of the area, but present at concentrations above the 0.5 µg/ℓ NR 140 Preventive Action Limit (PAL) in groundwater in several downgradient monitoring wells.

GF File

A Geoprobe investigation conducted in November and December 2002 (GP-1 through GP-21, although not all locations are included on Figures 1 and 2) identified an area of elevated TCE concentrations in soil. The contamination was found primarily in the top 4 to 8 feet of unsaturated soil near groundwater monitoring well nests MW-34 and MW-70, between an existing storm water holding pond and the former location of Lagoon #1, as shown on Figure 1. Overall results indicate that, along with the cinder-type fill, a relatively dry sludge from a TCE degreaser was deposited in shallow excavations in this area of the property. The activities associated with the generation of these wastes preceded the production of munitions at the facility and the permitted discharge of waste forge compound to Lagoon #1 that began in 1966. GF's March 6, 2003, letter report to the United States Environmental Protection Agency (USEPA) and Wisconsin Department of Natural Resources (WDNR) summarized the Nov./Dec. 2002 Geoprobe investigation findings.

To address impacts to soil and groundwater from this source area, two "deep" SVE vent wells (VW-1D and 2D, screened from 25 to 45 ft bgs), one shallow SVE well (VW-1S, screened from 10 to 15 ft bgs) and an SVE vacuum blower with condensate knock-out tank were installed in July 2003 to provide a vapor barrier to vertical migration of TCE to the groundwater. Only VW-1D and VW-2D were hooked up to the blower and operated in 2003. However, the original two-well SVE system had an immediate positive effect, since decreases in dissolved-phase TCE concentrations were observed in downgradient monitoring wells MW-34A and MW-70A.

In June 2004, shallow vent well VW-1S was connected to the blower to remove TCE from the shallow soil. Three additional shallow vent wells (VW-2S to VW-4S) and a second vacuum blower/condensate tank unit were added in August 2004, as was a deep monitoring point (MP-4, screened from 64 to 69 ft bgs).

To augment the two-level, two-blower SVE system in April 2005, a third vacuum blower/condensate tank unit was added, and MP-4 was converted to a seventh vent well, screened from 64 to 69 ft bgs. The previous "deep" SVE wells (VW-1D and VW-2D, screened from 25 to 45 ft bgs) in essence became mid-depth SVE wells. Rather than renaming the two original "deep" wells, their designations were not changed, and MP-4 was renamed VW-1BR instead, given that it's screened in the top 5 feet of the weathered sandstone bedrock.

As shown on Figure 1, the system being used to remediate the impacted soil and protect the groundwater at this stage included three SVE units (i.e., each unit included a regenerative vacuum blower, motor, and condensate tank). For reference purposes in the following summary, they are numbered based on the order in which they were installed.

- Unit #1 was attached to mid-depth vent wells VW-1D and VW-2D and was used to provide a vapor barrier to the vertical migration of TCE to the groundwater. Screened intervals in the mid-depth vent wells extend from 25 to 45 ft bgs. Each well's radius of influence (ROI) is estimated to be about 150 feet.

- Unit #2 was attached to shallow vent wells VW-1S through VW-4S and was used to expedite the remediation of TCE-contaminated shallow soils. Screened intervals in the shallow vent wells extend from 10 to 15 ft bgs. Each well's ROI is estimated to be about 50 feet.

- Unit #3 was attached to bedrock vent well VW-1BR, screened from 64 to 69 ft bgs, and was used to remove VOCs from the unsaturated portion of the weathered sandstone bedrock underlying the area and to supplement the vapor barrier established by Unit #1. The well's ROI was estimated to be about 150 feet.

All three units were located outside. However, shrouds were installed over all three blowers to protect them from precipitation. In addition, gate valves were installed in the aboveground piping for Units #1 and #2 to control the flow from each vent well.

Between April 2005 and June 2009, the seven-well, three-unit SVE system operated generally from late March or early April until mid-November. Between July and November 2009, the system was "pulsed" by turning it on for three days and off for four days on a weekly basis. In 2010, Units #1 and #2 operated from April 1 to November 18, and Unit #3 operated from April 1 to May 20 only. Unit #3 did not resume full-time, warm weather operation until June 3, 2011. Between April 2011 and September 2014, the seven-well, three-unit SVE system again operated generally from late March or early April until mid-November.

In September 2014:

- Units #1 and #3 were both shut down and removed.
- Using a tee fitting with a ball valve, VW-1D and VW-2D were hooked up to Unit #2, along with VW-1S through VW-4S, as shown on Figure 2.
- Operation of bedrock vent well VW-1BR, served by Unit #3, was discontinued because it was removing negligible TCE mass (e.g., an estimated 0.05 lb in 2014) and was no longer deemed necessary for protection of groundwater, based on its relatively low TCE concentrations. A removable plug was installed in the top of VW-1BR to cap it so warm weather operation of the well can resume, if necessary.

To date, the system operates only during warm weather when the ground is not frozen and the average ambient air temperature is above freezing. When temperatures are below freezing, it is more difficult to keep the system running because any condensate that collects in a knock-out tank freezes. Furthermore, when frost is in the ground, there is virtually no vertical migration from precipitation. As a result, running the systems when the ground is frozen provides little, if any, benefit.

The exhaust gas from each of the three SVE units is/was discharged directly into the atmosphere through a stack less than 25 feet high. The MW-34/70 area SVE system is sampled annually and only for TCE. Each exhaust gas sample is collected in a Summa canister supplied by a certified laboratory and analyzed using Method TO-15. In addition, when operating:

- Vapors from the individual vent wells are field screened quarterly for VOCs and methane with a portable flame-ionization detector (FID) for performance monitoring.
- The system's exhaust gas is field screened quarterly with the FID for compliance monitoring.

Since each of the units began operating, concentrations have followed a general downward trend. Downward trends in VOC exhaust gas concentrations are typical during the continuous operation of a system. Initially, exhaust concentrations are relatively high as mass is removed by advective flow produced by SVE. Subsequently, concentrations decrease over time as diffusive transport continues, but at a slower rate. Likewise, there is some seasonality in emission rates (from the shallow vent wells, in particular) since average ambient air temperatures fluctuate and VOC volatilization rates are temperature dependent.

The estimated cumulative removal of TCE was approximately 4.8 pounds in 2022 (based on one exhaust gas sample collected on August 31, 2022) and 225 pounds since startup of the system in August 2003. Because the cumulative TCE mass removal estimate is based on one exhaust gas sample collected from each operating blower in August, the second hottest month of the year, it is likely biased high. However, the resultant improvements in groundwater quality are documented by the relatively low (e.g., 0.52 J µg/ℓ in MW-70A on 11/29/21) to non-detect TCE concentrations in the MW-34 and MW-70 well nests, as most recently described in GF's *Annual Interim Remedial Action Status Report - 2021* dated April 20, 2022, to the USEPA and WDNR. Figure 3 presents historical TCE concentration data in Units #1-#3 SVE exhaust gas. Figures 4 and 5 include TCE removal plots for Units #1 and #2, along with TCE concentration data. No plot is provided for Unit #3 because its cumulative TCE removal of approximately 1.2 lb is relatively small compared to Unit #1 (56.3 lb) and Unit #2 (167.5 lb).

Confirmation Soil Sampling in September and November 2010

In September 2010, a Geoprobe was used to collect soil samples at 11 confirmation boring locations (CB-1 through CB-11) in the MW-34/70 area to determine residual TCE concentrations. Overall, as shown in Table 1, the results of these samples documented that the SVE system was effective in removing TCE (and other VOCs) from the native soil and areas with minor amounts of degreaser sludge. However, there were five samples (CB-4[0-4], CB-5[0-4], CB-7[0-4], CB-7[4-8], and CB-9[0-4]) where TCE concentrations remained relatively unchanged from the 2002 samples and one sample (CB-1[0-4]) where elevated VOC concentrations were observed. These five samples with elevated TCE concentrations all contained relatively high percentages of degreaser sludge. Evidently, SVE removal is not as effective in those areas where the TCE is more tightly bound to the matrix of the degreaser sludge. Based on these findings, GF estimates that SVE removed approximately 50 percent of the TCE mass in the sludge between August 2003 and August 2010.

To further evaluate the potential impact of the four areas with elevated residual TCE/VOCs on groundwater quality, soil samples were collected from CB-1-L, CB-2-L, CB-4-L, and CB-7-L using a hand auger in November 2010. The samples were submitted for synthetic precipitation leaching procedure (SPLP) and total organic carbon (TOC) analyses. Two samples outside the impacted area (NS1-TOC and NS2-TOC) were also collected and analyzed for TOC to provide background data. Both Figures 1 and 2 show the locations of these samples.

As described in the WDNR's *Guidance on the Use of Leaching Tests for Unsaturated Contaminated Soils to Determine Groundwater Contamination Potential* (RR-523-03, October 7, 2003), leaching tests are one of the methods identified in NR 720.19(4)(b), Wisconsin Administrative Code, as a methodology to evaluate the impact of residual soil impacts for the protection of groundwater. A leaching test is used to determine the potential of residual soil contamination to desorb from the soil and impact the groundwater at a concentration that may exceed a groundwater standard. As described in WDNR's leaching test guidance document, the SPLP test (EPA Method 1312) is the recommended test procedure.

Table 2 includes the SPLP leachate and TOC results. Except for CB-7-L, all SPLP leachate samples had concentrations of the site contaminants of concern below applicable NR 140 ESs/MCLs, if detected. Sample CB-7-L had a TCE leachate concentration of 115 µg/ℓ, above its ES/MCL of 5 µg/ℓ. Leachate concentrations of chloroform (CB1-L) and methylene chloride (CB-1-L, CB-2-L, and CB-4-L) were above their applicable ESs/MCLs; however, none of these soil samples had detectable concentrations of these compounds. Both compounds are common laboratory contaminants; therefore, we believe both compounds are laboratory-derived contaminants. These compounds are not shown in Table 2.

In general, the SPLP leachate sample results agree with the September 2010 soil sample results; the residual TCE found in the soil impacted by the degreaser sludge was not leachable at two of three locations. As shown in Table 2, even though soil samples CB-2 and CB-4 contained degreaser sludge and had relatively high TCE concentrations, neither of the SPLP samples contained detectable concentrations of TCE. Soil sample CB-7 also contained degreaser sludge; however, since the TCE concentration was an order of magnitude greater than the concentrations measured in CB-2 and CB-4, there was a sufficient residual TCE in CB-7 to result in an exceedance of the ES. Overall results, as summarized in Table 1, show that 1 in 14 samples with degreaser sludge (i.e., less than 8 percent) contained leachable TCE. GF's *Annual Remedial Action Status Report - 2010* dated March 23, 2011, to the USEPA and WDNR provides additional details (see Pages 4-7).

October 2014 Follow-Up Sample Observations and Discussion

On October 30, 2014, NPI and GF personnel used a hand auger to collect follow-up samples off-setting confirmation boring locations CB-4-L and CB-7-L, as shown on Figure 2. The field staff also attempted to sample a location off-setting CB-2-L but were unable to advance the hand auger deeper than about 1.0 ft bgs due to a layer of asphalt-like material. Table 3 provides summary descriptions of the material observed in all three offsets. The primary purpose of each offset was to visually assess the physical characteristics of any gross degreaser sludge encountered. The field team did not field screen the samples for vapors or collect any samples for laboratory analysis.

In general, it appears the buried degreaser sludge is relatively heterogeneous (compared to the native sand and gravel) and irregular in thickness. Airflow occurs primarily in the native sand and gravel, bypassing the sludge, and limiting the effectiveness of the current SVE system. The relatively impermeable and/or dense material impedes airflow, and residual TCE is absorbed to organics associated with the degreaser sludge. Diffusive transport continues, but at such a slow rate that pockets of degreaser sludge with elevated TCE remained in September 2010, following eight years of seasonal SVE. Based on the September 2010 analytical and historical SVE exhaust gas sample data, TCE is the predominant VOC, accounting for 75 percent or more of the residual VOC mass in the degreaser sludge.

Work Plan for Confirmation Soil Sampling in August 2023

At locations where TCE impacts were detected in Sep./Nov. 2010, NPI proposes to collect another round of confirmation soil samples in August 2023.

- NPI will use a Geoprobe to collect soil samples at eight confirmation boring locations (off-setting CB-2 thru CB-5, CB-7 thru CB-9, and CB-11).

- Soil will be sampled continuously in 4-foot increments to a depth of 12 ft bgs. One portion of each sample will be placed in a laboratory-supplied sample vial containing methanol preservative, placed on ice, and shipped to Pace Labs in Green Bay, Wisconsin (WI Certification #405132750) for a full analysis of VOCs using EPA Method 8260B. A second portion of each sample will be visually assessed to determine the physical characteristics of any gross degreaser sludge encountered like in Oct. 2014.

Based on the laboratory results and field observations, NPI will evaluate current conditions, compare historical TCE soil data, and update the agencies on the progress of MW-34/70 area TCE degreaser sludge remediation, SVE performance, and a proposed path forward for consideration.

Findings and Conclusions

Please let us know if you concur with NPI's work plan for MW-34/70 area TCE degreaser sludge confirmation soil sampling, and feel free to contact me and/or Chelsea Payne if you have any questions or need additional information.

Sincerely,
GANNETT FLEMING, INC.

Cliff Wright, P.E., P.G.
Project Engineer

Chelsea J. Payne, P.G.
Project Manager

CCW/jec/Enc.

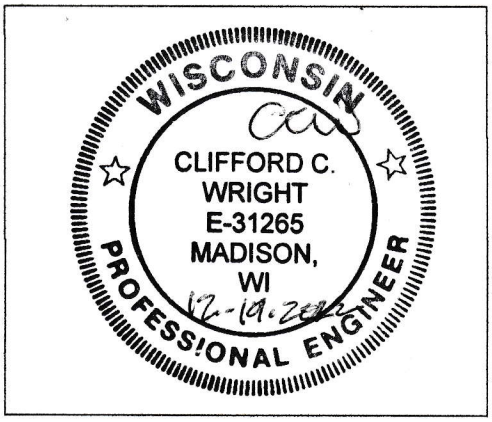
ecc: Candace Sykora (WDNR/Baldwin)
Derrick Paul (NPI)
Chelsea Payne (Gannett Fleming)

ENGINEERING AND HYDROGEOLOGIST CERTIFICATIONS

I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print Name Clifford C. Wright	Title Project Engineer/Geologist
Signature Clifford C. Wright	Date 12-19-2022

P.E. Seal for E-31265:



I hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print Name Clifford C. Wright	Title Project Engineer/Geologist
Signature Clifford C. Wright	Date 12-19-2022

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FIGURES

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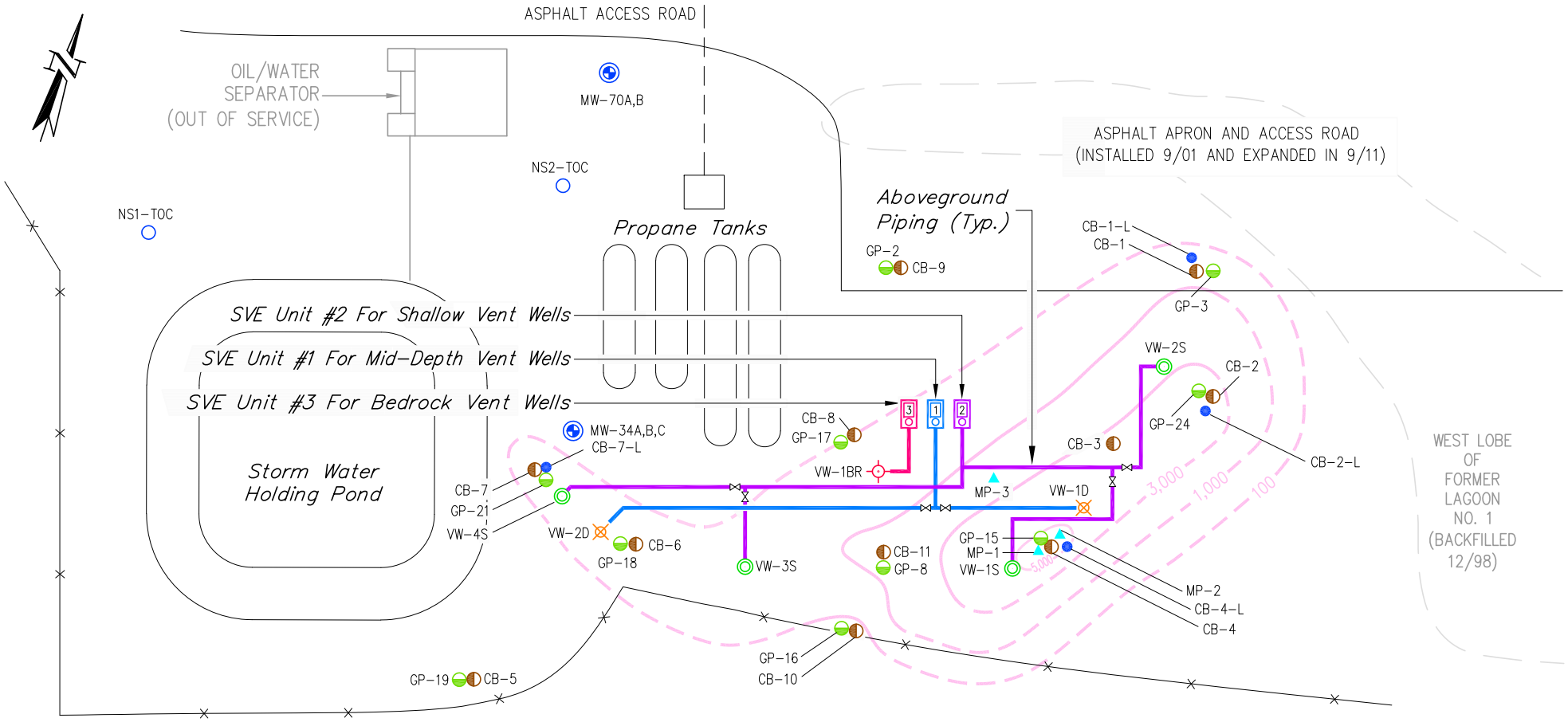

LEGEND

- Soil Boring Location (11-12/02)
- Soil Boring Location (9/10)
- Soil Sample For SPLP/TOC Analysis (11/10)
- Soil Sample For TOC Analysis (11/10)
- Shallow SVE Vent Well (VW Prefix)
- Mid-Depth SVE Vent Well (VW Prefix)
- Bedrock SVE Vent Well (VW Prefix)
- Soil Gas Monitoring Point (MP Prefix)
- NPI Monitoring Well Nest (MW Prefix)
- 2002 TCE Soil Isoconcentration Contour ug/kg 0-4' (Dashed Where Inferred)
- Gate Valve
- Chain-Link Fence

0 50

Approximate Scale In Feet

MW-34/70 AREA SVE SYSTEM LAYOUT PRIOR TO SEPTEMBER 2014

NATIONAL PRESTO INDUSTRIES, INC.
EAU CLAIRE, WISCONSIN

042615
ccw_R34283-000_2022_3470_F01

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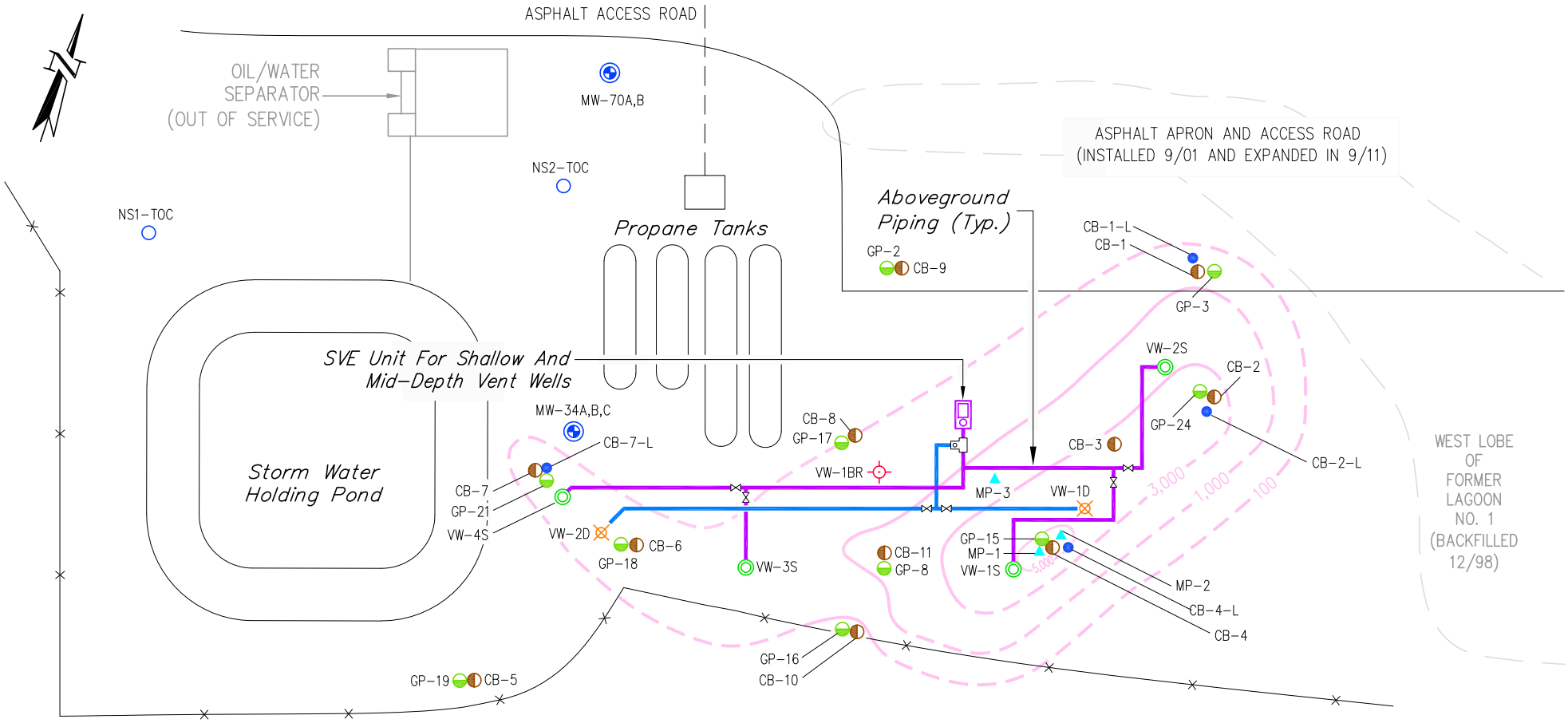
FIGURE 1



LEGEND

- Soil Boring Location (11-12/02)
- Soil Boring Location (9/10)
- Soil Sample For SPLP/TOC Analysis (11/10)
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- Shallow SVE Vent Well (VW Prefix)
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- Bedrock SVE Vent Well (VW Prefix)
- Soil Gas Monitoring Point (MP Prefix)
- NPI Monitoring Well Nest (MW Prefix)
- 2002 TCE Soil Isoconcentration Contour ug/kg 0-4' (Dashed Where Inferred)
- Gate Valve
- Tee With Ball Valve
- Chain-Link Fence

0 50

Approximate Scale In Feet

MW-34/70 AREA SVE SYSTEM LAYOUT AND SOIL/TCE DEGREASER SLUDGE SAMPLE LOCATIONS (OCTOBER 2014)

NATIONAL PRESTO INDUSTRIES, INC.
EAU CLAIRE, WISCONSIN

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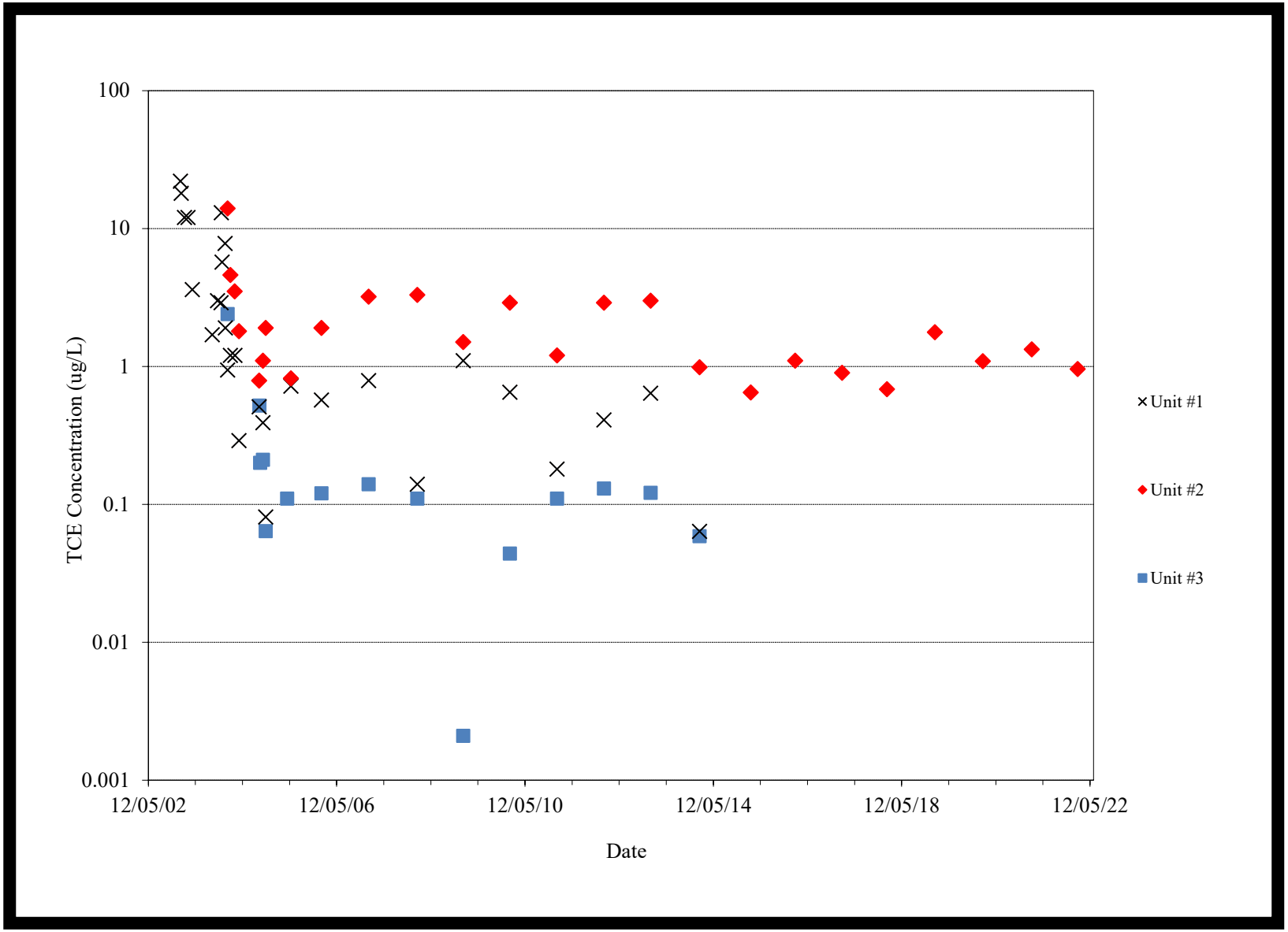
FIGURE 2



TCE CONCENTRATIONS IN UNITS #1-#3 SVE EXHAUST GAS

NATIONAL PRESTO INDUSTRIES, INC.

EAU CLAIRE, WISCONSIN

FIGURE 3

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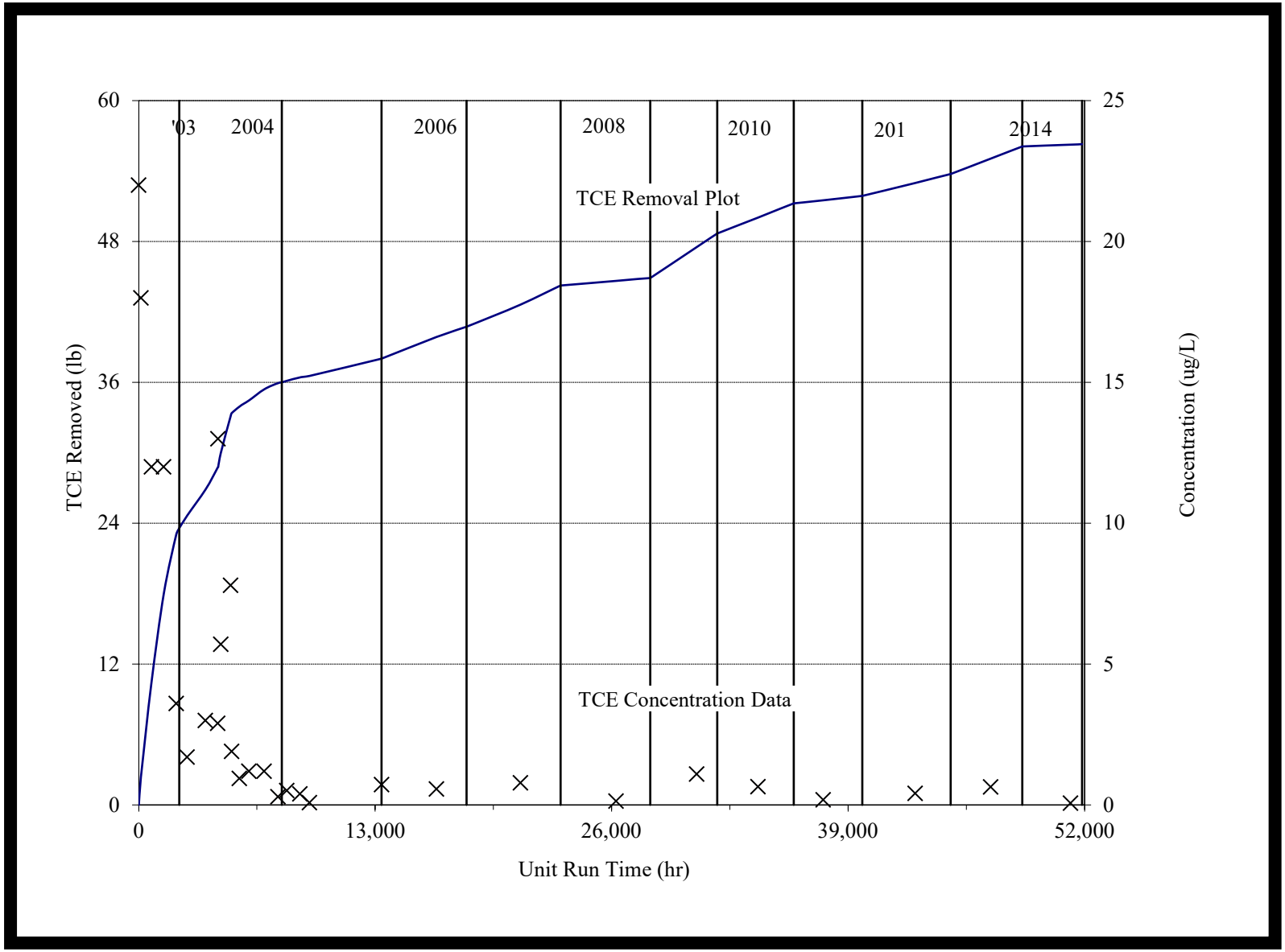


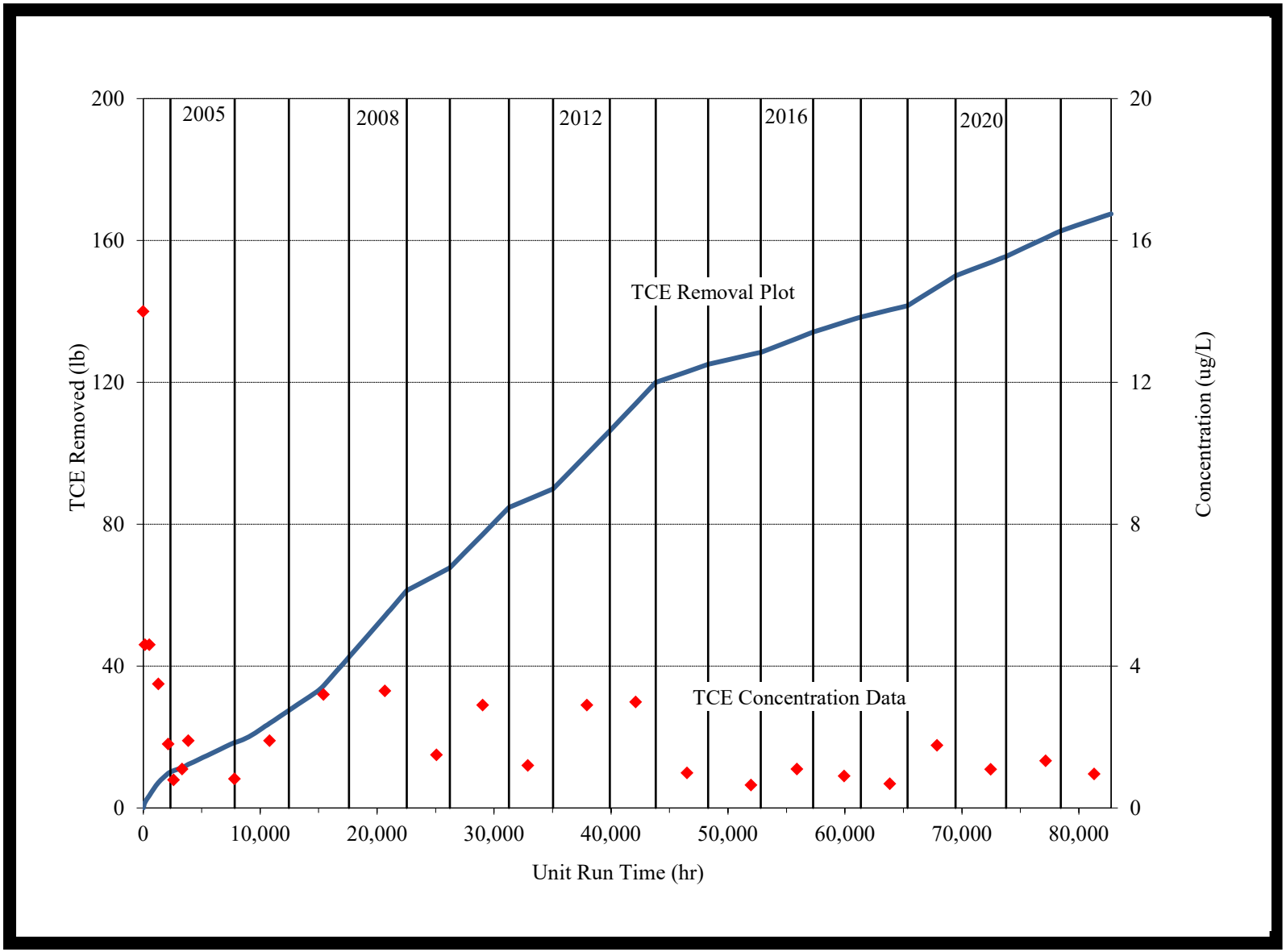
SVE UNIT #1 RUN TIME AND TCE RESULTS

NATIONAL PRESTO INDUSTRIES, INC.

EAU CLAIRE, WISCONSIN

Gannett Fleming

FIGURE 4



SVE UNIT #2 RUN TIME AND TCE RESULTS

NATIONAL PRESTO INDUSTRIES, INC.

EAU CLAIRE, WISCONSIN

FIGURE 5

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TABLES

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NATIONAL PRESTO INDUSTRIES, INC.
EAU CLAIRE, WISCONSIN

TABLE 1

MW-34/70 AREA TCE DEGREASER SLUDGE SOIL CONFIRMATION VOLATILE ORGANIC COMPOUND (VOC) ANALYTICAL RESULTS (SEPTEMBER 2010)

Sample ID	CB-1	CB-1	CB-1	CB-2	CB-3	CB-3	CB-3	CB-4	CB-5	CB-5	CB-5	CB-6	CB-6	CB-6	CB-7	CB-7	CB-7	CB-8	CB-8	CB-8	CB-9	CB-10	CB-10	CB-10	CB-11	CB-11	CB-11	NR 720 RCLs	
Sample Interval (ft bgs)	(0-4)	(4-8)	(8-12)	(0-4)	(0-4)	(4-8)	(8-12)	(0-4)	(0-4)	(4-8)	(8-12)	(0-4)	(4-8)	(8-12)	(0-4)	(4-8)	(8-12)	(0-4)	(4-8)	(8-12)	(0-4)	(0-4)	(4-8)	(8-12)	(0-4)	(4-8)	(8-12)	Soil to Groundwater Pathway	Industrial Direct Contact
Detected VOC Analytes																													
1,1,1,2-Tetrachloroethane	<0.036	<0.0371	<0.0371	<0.0410	<0.0400	<0.0367	<0.0414	<0.0382	<0.0360	<0.0382	<0.0367	<0.0367	<0.0367	<0.0367	<0.0371	*0.214*	<0.0378	<0.0378	<0.0371	<0.0371	<0.0371	<0.0367	<0.0360	<0.0367	<0.0374	<0.0374	<0.0371	*0.0534*	**12.3**
1,1,1-Trichloroethane	*0.581*	<0.0402	<0.0402	0.136	<0.0433	<0.0398	<0.0448	<0.0413	*0.284*	<0.0443	<0.0398	<0.0398	<0.0398	<0.0398	<0.0402	0.074	<0.0410	<0.0410	<0.0402	<0.0402	<0.0402	<0.0398	<0.0390	<0.0398	<0.0406	<0.0406	<0.0402	*0.1402*	**640**
1,1,2,2-Tetrachloroethane	*0.309*	*<0.0371*	*<0.0371*	*<0.0410*	*<0.0400*	*<0.0367*	*<0.0414*	*<0.0382*	*<0.0360*	*<0.0382*	*<0.0367*	*<0.0367*	*<0.0367*	*<0.0367*	*<0.0371*	*<0.0382*	*<0.0378*	*<0.0378*	*<0.0371*	*<0.0371*	*<0.0371*	*<0.0367*	*<0.0360*	*<0.0367*	*<0.0374*	*<0.0374*	*<0.0371*	*0.0002*	**3.6**
1,1-Dichloroethane	0.125	<0.0381	<0.0381	0.0610	<0.0411	<0.0377	<0.0426	<0.0392	0.275	<0.0392	<0.0377	<0.0377	<0.0377	<0.0377	<0.0381	<0.0392	<0.0388	<0.0388	<0.0381	<0.0381	<0.0381	<0.0377	<0.0370	<0.0377	<0.0385	<0.0385	<0.0381	*0.4834*	**22.2**
1,2,3-Trichloropropane	<0.0490	<0.0505	<0.0505	*<0.0559*	*<0.0544*	<0.0500	*<0.0564*	*<0.0519*	<0.0490	*<0.0519*	<0.0500	<0.0500	<0.0500	<0.0500	<0.0505	*<0.0519*	<0.0514	**0.291**	<0.0505	<0.0505	<0.0505	<0.0500	<0.0490	<0.0500	<0.0510	<0.0510	<0.0505	*0.0519*	**0.109**
1,2,4-Trichlorobenzene	<0.0420	<0.0433	<0.0433	0.0544	<0.0466	<0.0428	<0.0483	<0.0445	<0.0420	<0.0445	<0.0428	<0.0428	<0.0428	<0.0428	<0.0433	<0.0445	<0.0441	<0.0441	<0.0433	<0.0433	<0.0433	<0.0428	<0.0420	<0.0428	<0.0437	<0.0437	<0.0433	*0.408*	**113**
1,2,4-Trimethylbenzene	0.158	<0.0371	<0.0371	0.0800	<0.0466	<0.0367	<0.0414	<0.0382	0.688	<0.0382	<0.0367	<0.0367	<0.0367	<0.0367	<0.0371	0.0533	<0.0378	0.112	<0.0371	<0.0371	<0.0371	<0.0367	<0.0360	<0.0367	<0.0374	<0.0374	<0.0371	NS	**219**
1,3,5-Trimethylbenzene	<0.0360	<0.0371	<0.0371	<0.0410	<0.0400	<0.0367	<0.0414	<0.0382	0.220	<0.0382	<0.0367	<0.0367	<0.0367	<0.0367	<0.0371	<0.0382	<0.0378	0.0656	<0.0371	<0.0371	<0.0371	<0.0367	<0.0360	<0.0367	<0.0374	<0.0374	<0.0371	NS	**182**
TMBs combined	<0.194	<0.0742	<0.0742	<0.1210	<0.0866	<0.0734	<0.0828	<0.0764	0.908	<0.0764	<0.0734	<0.0734	<0.0734	<0.0734	<0.0742	<0.0915	<0.0756	0.1776	<0.0742	<0.0742	<0.0742	<0.0734	<0.0720	<0.0734	<0.0748	<0.0748	<0.0742	*1.3787*	NS
1,4-Dichlorobenzene	<0.0350	<0.0360	<0.0360	0.0989	<0.0388	<0.0357	<0.0402	<0.0371	<0.0350	<0.0371	<0.0357	<0.0357	<0.0357	<0.0357	<0.0360	<0.0371	<0.0368	<0.0368	<0.0360	<0.0360	0.100	<0.0357	<0.0350	<0.0357	<0.0364	<0.0364	<0.0360	*0.144*	**16.4**
Bromobenzene	0.0352	<0.0360	<0.0360	<0.0399	<0.0388	<0.0357	0.0402	<0.0371	<0.0350	<0.0371	<0.0357	<0.0357	<0.0357	<0.0357	<0.0360	<0.0371	<0.0368	<0.0368	<0.0360	<0.0360	<0.0360	<0.0357	<0.0350	<0.0357	<0.0364	<0.0364	<0.0360	NS	**679**
cis-1,2-Dichloroethylene	*<0.0410*	*<0.0422*	*<0.0422*	*<0.0467*	*<0.0455*	*<0.0418*	*<0.0472*	*<0.0435*	*0.0629*	*<0.0435*	*<0.0418*	*<0.0418*	*<0.0418*	*<0.0418*	*<0.0422*	*0.539*	*<0.0430*	*0.176*	*<0.0422*	*<0.0422*	*<0.0422*	*<0.0418*	<0.0410	*<0.0418*	*<0.0426*	*<0.0426*	*<0.0422*	*0.0412*	**2340**
Ethylbenzene	<0.0370	<0.0381	<0.0381	<0.0422	<0.0411	<0.0377	<0.0426	<0.0392	0.109	<0.0392	<0.0377	<0.0377	<0.0377	<0.0377	<0.0381	<0.0392	<0.0388	<0.0388	<0.0381	<0.0381	<0.0381	<0.0377	<0.0370	<0.0377	<0.0385	<0.0385	<0.0381	*1.57*	**35.4**
Xylenes	<0.1190	<0.1226	<0.1226	<0.1357	<0.1321	<0.1214	<0.1369	<0.1261	0.574	<0.1261	<0.1214	<0.1214	<0.1214	<0.1214	<0.1226	<0.222	<0.1249	<0.1249	<0.1226	<0.1226	<0.1226	<0.1214	<0.119	<0.1214	<0.1234	<0.1234	<0.1226	*3.96*	**260**
Naphthalene	0.274	0.0824	<0.0443	0.0762	<0.0477	<0.0439	<0.0494	<0.0456	*0.816*	0.198	<0.0439	<0.0439	<0.0439	<0.0439	<0.0443	0.0944	<0.0452	0.149	<0.0443	<0.0443	<0.0443	<0.0439	<0.0430	<0.0439	0.0447	<0.0447	<0.0443	*0.6582*	**24.1**
Tetrachloroethene (PCE)	*0.0579*	*<0.0464*	*<0.0464*	*<0.0513*	*<0.0500*	*<0.0459*	*<0.0518*	*<0.0477*	*0.0996*	*<0.0477*	*<0.0459*	*<0.0459*	*<0.0459*	*<0.0459*	*<0.0464*	*0.326*	*<0.0472*	*<0.0472*	*<0.0464*	*<0.0464*	*<0.0464*	*<0.0459*	*<0.0450*	*<0.0459*	*<0.0468*	*<0.0468*	*<0.0464*	*0.0045*	**145**
Toluene	0.129	<0.0422	<0.0422	0.0552	<0.0455	<0.0418	<0.0472	<0.0435	0.300	<0.0435	<0.0418	<0.0418	<0.0418	<0.0418	<0.0422	0.0802	<0.0430	<0.0430	<0.0422	<0.0422	<0.0422	<0.0418	<0.0410	<0.0418	<0.0426	<0.0426	<0.0422	*1.1072*	**818**
Trichloroethene (TCE)	*<0.0370*	*<0.0381*	*<0.0381*	*1.440*	*0.0484*	*3.160*	*0.0851*	*6.790*	*0.153*	*<0.0392*	*<0.0377*	*<0.0377*	*<0.0377*	*<0.0377*	*0.287*	**51.400**	*0.348*	*0.0948*	*0.228*	*<0.0381*	*4.400*	*<0.0377*	*<0.0370*	*<0.0377*	*0.0838*	*<0.0385*	*<0.0381*	*0.0036*	**8.41**
Degreaser sludge in sample?	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	--	--
2002 TCE Results (rounded)	0.470	0.370	<0.050	4.070	--	--	--	5.285	0.092	0.058	<0.025	0.281	27.100	<0.025	0.121	57.500	0.051	0.665	8.140	<0.025	0.460	0.094	0.040	<0.025	1.200	0.900	<0.050	--	--
% TCE reduction 2002/2010	(100)	(100)	--	(65)	--	--	--	--	--	(100)	--	(100)	(100)	--	--	(11)	--	(86)	(97)	--	--	(100)	(100)	--	(93)	(100)	--	--	--

NOTES:
Soil results are in milligrams per kilograms (mg/kg) on a dry weight basis, equivalent to parts per million (ppm).
Concentrations at or above an NR 720 industrial direct contact residual contaminant level (RCL) are bold.
Concentrations at or above an NR 720 soil to groundwater pathway RCL are italicized.
Only compounds detected in one or more samples are shown.
Sample Interval (ft bgs) = Depth of sample interval in feet below ground surface (ft bgs).
-- = No detects in either sample, no TCE data from 2002 for comparison, or not applicable for % TCE reduction or NR 720 standards.
NS = No standard/RCL.
TMBs = Trimethylbenzenes.

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TABLE 2

MW-34/70 AREA TCE DEGREASER SLUDGE SOIL CONFIRMATION AND SPLP VOLATILE ORGANIC COMPOUND (VOC) ANALYTICAL RESULTS FOR CB-1, CB-2, CB-4, AND CB-7 (SEPTEMBER/NOVEMBER 2010)

Sample ID	CB-1	CB-1-L	Data Qualifiers and/or Footnotes for CB-1-L	CB-1	CB-1	CB-2	CB-2-L	CB-4	CB-4-L	CB-7	CB-7	CB-7-L	Data Qualifiers and/or Footnotes for CB-7-L	CB-7	NR 720 RCL Soil to Groundwater Pathway	NR 720 RCL Industrial Direct Contact	NR 140 Enforcement Standard
Sample Interval (ft bgs)	**(0-4)**	**(0-4)**		**(4-8)**	**(8-12)**	**(0-4)**	**(0-4)**	**(0-4)**	**(0-4)**	**(0-4)**	**(4-8)**	**(4-8)**		**(8-12)**			
Units for VOCs	**(mg/kg)**	**(µg/ℓ)**		**(mg/kg)**	**(mg/kg)**	**(mg/kg)**	**(µg/ℓ)**	**(mg/kg)**	**(µg/ℓ)**	**(mg/kg)**	**(mg/kg)**	**(µg/ℓ)**		**(mg/kg)**	**(mg/kg)**	**(mg/kg)**	**(µg/ℓ)**
1,1,1,2-Tetrachloroethane	<0.036	<4.0		<0.0371	<0.0371	<0.0410	<4.0	<0.0382	<4.0	<0.0371	*0.214*	<4.0		<0.0378	*0.0534*	**12.3**	**70**
1,1,1-Trichloroethane	*0.581*	123		<0.0402	<0.0402	0.136	41.5	<0.0413	<4.0	<0.0402	0.074	<4.0		<0.0410	*0.1402*	**640**	**200**
1,1,2,2-Tetrachloroethane	*0.309*	**<6.0**		*<0.0371*	*<0.0371*	*<0.0410*	**<6.0**	*<0.0382*	**<6.0**	*<0.0371*	*<0.0382*	**<6.0**		*<0.0378*	*0.0002*	**3.6**	**0.2**
1,1-Dichloroethane	0.125	12.6	J	<0.0381	<0.0381	0.0610	21.2	<0.0392	<4.0	<0.0381	<0.0392	<4.0	(1), (2)	<0.0388	*0.4834*	**22.2**	**850**
1,2,3-Trichloropropane	<0.0490	<12.0		<0.0505	<0.0505	*<0.0559*	<12.0	*<0.0519*	<12.0	<0.0505	*<0.0519*	<12.0		<0.0514	*0.0519*	**0.109**	**60**
1,2,4-Trichlorobenzene	<0.0420	<10.0		<0.0433	<0.0433	0.0544	<10.0	<0.0445	<10.0	<0.0433	<0.0445	<10.0		<0.0441	*0.408*	**113**	**70**
1,2,4-Trimethylbenzene (TMB)	0.158	<4.0		<0.0371	<0.0371	0.0800	<4.0	<0.0382	<4.0	<0.0371	0.0533	<4.0		<0.0378	NS	**219**	NS
1,3,5-TMB	<0.0360	<4.0		<0.0371	<0.0371	<0.0410	<4.0	<0.0382	<4.0	<0.0371	<0.0382	<4.0		<0.0378	NS	**182**	NS
TMBs combined	<0.194	<8.0		<0.0742	<0.0742	<0.1210	<8.0	<0.0764	<8.0	<0.0742	<0.0915	<8.0		<0.0756	*1.3787*	NS	**480**
1,4-Dichlorobenzene	<0.0350	<16.0		<0.0360	<0.0360	0.0989	<16.0	<0.0371	<16.0	<0.0360	<0.0371	<16.0		<0.0368	*0.144*	**16.4**	**75**
Bromobenzene	0.0352	<4.0		<0.0360	<0.0360	<0.0399	<4.0	<0.0371	<4.0	<0.0360	<0.0371	<4.0		<0.0368	NS	**679**	NS
cis-1,2-Dichloroethylene	*<0.0410*	<4.0		*<0.0422*	*<0.0422*	*<0.0467*	<4.0	*<0.0435*	<4.0	*<0.0422*	*0.539*	7.52	J, (2)	*<0.0430*	*0.0412*	**2340**	**70**
Ethylbenzene	<0.0370	<2.0		<0.0381	<0.0381	<0.0422	<2.0	<0.0392	<2.0	<0.0381	<0.0392	<2.0		<0.0388	*1.57*	**35.4**	**700**
Xylenes	<0.1190	<12.0		<0.1226	<0.1226	<0.1357	<12.0	<0.1261	<12.0	<0.1226	<0.222	<12.0		<0.1249	*3.96*	**260**	**2000**
Naphthalene	0.274	<20.0		0.0824	<0.0443	0.0762	<20.0	<0.0456	<20.0	<0.0443	0.0944	<20.0		<0.0452	*0.6582*	**24.1**	**100**
Tetrachloroethene (PCE)	*0.0579*	**<6.0**		*<0.0464*	*<0.0464*	*<0.0513*	**<6.0**	*<0.0477*	**<6.0**	*<0.0464*	*0.326*	**<6.0**		*<0.0472*	*0.0045*	**145**	**5**
Toluene	0.129	<8.0		<0.0422	<0.0422	0.0552	<8.0	<0.0435	<8.0	<0.0422	0.0802	<8.0		<0.0430	*1.1072*	**818**	**800**
Trichloroethene (TCE)	*<0.0370*	<4.0		*<0.0381*	*<0.0381*	*1.440*	<4.0	*6.790*	<4.0	*0.287*	**51.400**	**115**	(2)	*0.348*	*0.0036*	**8.41**	**5**
Total organic carbon (TOC)	na	30,000		na	na	na	70,000	na	32,000	na	na	690,000		na	NS	NS	NS
Degreaser sludge in sample?	No	No	--	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	--	No	--	--	--
2002 TCE Results (rounded)	0.470	--	--	0.370	<0.050	4.070	--	5.285	--	0.121	57.500	--	--	0.051	--	--	--
% TCE reduction 2002/2010	(100)	--	--	(100)	--	(65)	--	--	--	--	(11)	--	--	--	--	--	--

NOTES:
Soil concentrations (including all TOC data) are in milligrams per kilograms (mg/kg) on a dry weight basis, equivalent to parts per million (ppm); only compounds detected in one or more samples are shown.
Concentrations at or above an NR 720 industrial direct contact residual contaminant level (RCL) are bold.
Concentrations at or above an NR 720 soil to groundwater pathway RCL are italicized.
Synthetic Precipitation Leaching Procedure (SPLP) VOC concentrations for CB1-L, CB-2L, CB-4L, & CB-7L are in micrograms per liter (µg/ℓ); concentrations at or above an NR 140 ES are bold.
In accordance with the analytical methodology, TOC results are the average of two samples; TOC concentrations in the two background samples NS1-TOC & NS2-TOC were 1,200 & 1,300 mg/kg, respectively.
Sample Interval (ft bgs) = Depth of sample interval in feet below ground surface (ft bgs).
CB-1-L = SPLP sample associated with CB-1 sample location shown.
-- = No detects in either sample, no TCE data from 2002 for comparison, or not applicable for SPLP samples, % TCE reduction, or NR 140/720 standards.
J = Concentration is above the limit of detection, but below the limit of quantitation, and is an estimate.
na = Not analyzed.
NS = No standard/RCL.
FOOTNOTES:
(1) Second sample matrix spike recovery was high.
(2) Result of duplicate analysis in this quality assurance batch exceeds the limits for precision.

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TABLE 3

DESCRIPTION OF MATERIAL OBSERVED IN HAND AUGER OFFSETS (OCTOBER 30, 2014)

Hand Auger Offset Location	Interval (ft bgs)	General Description of Material Encountered
CB-2-L	0-0.5	Top soil/loam
	0.5-1.0	Asphalt-like material with gravel and cobble; hand auger refusal
CB-4-L	0-0.5	Top soil/loam
	0.5-1.0	Brown to tan sand with some gravel
	1.0-1.5	Gravel and cobble with some brown to tan sand
	1.5-3.0	Brown to tan sand and gravel
	3.0-4.0	Black to dark brown degreaser sludge with sand, wood chips, and plastic
CB-7-L	0-0.5	Top soil/loam
	0.5-6.0	Brown to tan sand with some gravel
	6.0-8.0	Black to dark brown degreaser sludge with sand

NOTE:
Interval (ft bgs) = Depth of observed interval in feet below ground surface (ft bgs).