Robert E. Lee & Associates, Inc.
Engineering • Surveying • Environmental Services
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February 20, 2020

Mr. Colin Schmenk
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
2984 Shawano Avenue
Green Bay, WI 54313

RE: Vapor Investigation and Additional Groundwater Monitoring Results Letter Addendum, Karcz Ford (Former) S Side UST, 222 W Pulaski Street, Pulaski, WI; BRRTS #03-05-562646

Dear Mr. Schmenk:

On behalf of The Village of Pulaski, Robert E. Lee & Associates, Inc. (REL) has completed a vapor intrusion (VI) investigation and additional groundwater monitoring for a petroleum release identified at Karcz Ford (Former) – S Side UST, 222 W Pulaski Street, Pulaski, Wisconsin (the Site). A location map for the Site is included in the attached Figure B.1.a, and a detailed site map is included in the attached Figure B.1.b.

A Case Closure Request was submitted to Wisconsin Department of Natural Resources (WDNR) during August 2019, and it was reviewed for closure on September 30, 2019. The WDNR responded by letter on October 22, 2019 indicating a vapor investigation and additional groundwater monitoring was required at Temporary Wells TW-10 and TW-15. On November 5, 2019, REL submitted a brief work plan and cost request for PECFA funds to complete a vapor intrusion investigation to collect two sub-slab vapor samples (southern portion of the Site building) near Soil Borings GP-1, GP-2, and GP-12 where concentrations of BTEX and naphthalene exceeded NAPL indicators, and to collect an additional round of groundwater samples from TW-10 and TW-15. The WDNR approved the proposed work plan and PECFA cost request on November 12, 2019. This letter addendum presents the results of the VI investigation and additional groundwater monitoring completed by REL.

VAPOR INTRUSION INVESTIGATION

Field Methodologies

Building Background Conditions Screening

Prior to collecting samples, REL obtained access to the Site building for the vapor intrusion investigation. There are no tenants that occupy the southern half of the Site building; it is used for vehicle and equipment storage by the Village of Pulaski Department of Public Works.

On December 2, 2019, REL conducted a survey of the building space to obtain information on the

building construction and interior layout; and to identify and inventory materials that could potentially contribute to indoor air conditions unrelated to the VI investigation. Items that may affect the quality of indoor air in buildings, such as the tractors and other motorized equipment stored in the Site building, were noted during the survey. In addition, a visual inspection of pre-determined approximate sample locations was performed to locate potential vapor migration conduits such as sewer laterals and floor drains prior to final placement of sub-slab vapor sampling ports.

The layout of the building interior areas was examined and a simple sketch was prepared in the field to assist in the selection of vapor sampling locations. The configuration of the structure's heating ventilation and air conditioning (HVAC) system was also assessed to gather information pertaining to air circulation and exchange conditions in the space. The southern portion of the building was unheated and does not have a cooling system. A visual inspection was conducted for cracks or other penetration of the concrete floor (i.e., floor drains, sumps, etc.) that could be direct conduits for impacted vapors to migrate into the occupied space.

After completion of the building survey, REL selected the preferred sub-slab vapor sample locations at the Site. The sub-slab vapor sampling locations within the building were chosen to evaluate the potential for vapor intrusion due to the NAPL indicators discovered in the soil of Borings GP-1, GP-2, and GP-12; and to evaluate any potential vapor migration from the residual groundwater contaminant plume.

Summary of Vapor Intrusion Investigation Activities

On December 10, 2019, REL mobilized to the Site to perform the initial VI investigation sampling activities. The initial sampling included the collection of two sub-slab vapor samples (SSV-1 and SSV-2). Indoor and outdoor air sampling was not completed with the sub-slab sample collection, as the building space is unoccupied, and is not zoned for residential use. REL returned to the Site on February 4, 2020 to complete a second vapor sampling event, which was a duplication of the initial event.

A summary of all samples, locations, and dates collected are detailed in Tables A.4.1. Sample locations are shown in Figure B.4.a. Further details on the sample locations in relation to the layout of the buildings is shown on the sampling field forms included in Attachment A.

Sub-Slab Vapor Port Installation

On December 10, 2019 two sub-slab soil Vapor Pins™ were installed in the south portion of the Site building for the collection of vapor samples. The Vapor Pins™ were installed just below the surface of the slab by first drilling a 1½-inch diameter hole to approximately 1½-inches below the surface of the concrete. Then a 5/8-inch diameter hole was drilled through the concrete slab using an electric impact drill. A shop vac with a HEPA filter was used during drilling to remove concrete dust produced during the process. A Vapor Pin™ sub-slab vapor sampling port, constructed with a silicon sleeve to provide a mechanical seal between the sample port and the slab, was installed using a dead blow hammer. The probe was capped during installation until sampling was initiated. The Vapor Pins™ were then finished with a stainless steel flushmount cover and remain in place in the building.

Sub-Slab Quality Control Methods

Prior to collection of the sub-slab vapor samples, the Vapor Pin™ was tested for leaks and purged to ensure that the vapor samples were representative of subsurface vapor conditions. The leak testing included a leak-check of the sample point and a "shut-in" test of the sample train. Leak testing was performed in general accordance with methods presented in REL's *Standard Operating Procedure 11: Sub-Slab Vapor Sample Collection*, as shown in Attachment B.

Purging of the sample point and the leak testing were performed separately. As part of the leak-check of the sample point, the water dam method was used to identify potential leaks at the interface between the Vapor Pin™ and concrete floor. Water was introduced around the Vapor Pin™ and the water elevation in the 1½-inch drilled area was monitored for 10 minutes. No reduction in water elevation was observed during the leak test for each sampling event, indicating that no leaks were present within the installed sample port.

Following successful completion of the water dam test, the integrity of the sample tubing and fittings (i.e., sample train) was tested by conducting a "shut-in" test. All valves on the sampling train, except the one leading to the vacuum pump were closed. A negative pressure ranging from 20 to 25 inches of mercury (Hg) was induced on the sampling train with a vacuum pump and held for approximately 1 minute while the gauge was visually monitored. No pressure drops were noted during the negative pressure testing, indicating no leaks were present in the sample trains prior to the collection of vapor samples. Quality assurance/quality control (QA/QC) results were recorded on the field sampling forms included in Attachment A.

Sub-Slab Vapor Sampling

A total of four sub-slab vapor samples (two samples from both the SSV-1 and SSV-2 locations) were collected from the Vapor Pins™. The sampling events took place December 10, 2019 and February 4, 2020. A photoionization detector (PID) was utilized to extract approximately three tubing volumes of ambient air from the tubing prior to initiating sample collection. Purged air was also field-screened for organic vapors. Field-screening of the purged air at the sample port did not produce PID readings of greater than 0.3 parts per million (ppm). The concentrations are recorded on the field sampling forms included in Attachment A. Following purging, sub-slab vapors at each point were drawn from the end of HDPE tubing (which was also connected to the Vapor Pin™) into a 6-liter capacity Summa™ canister fitted with laboratory supplied regulators that allow a flow rate of 200 milliliters per minute producing an approximate 30 minute sample time.

The laboratory provided the Summa™ canisters, flow controllers, and vacuum gauges, all labeled with unique numbers and with instructions for proper assembly in the field. The unique number of each canister, flow controller, and vacuum gauge were recorded on the field data sheets for each sample collected. Canisters, flow controllers, and vacuum gauges were used for only one sample. All Summa™ canisters were individually-certified initially by the laboratory for quality assurance purposes. Initial vacuums of the Summa™ canisters, as measured at the laboratory, measured between -27 and -30 inches Hg. At the conclusion of the sampling interval, at least -2 to -5 inches Hg of vacuum was left to confirm that there is no leakage within the canister during the transit back to the laboratory. REL personnel recorded sample identification (ID) name, initial and final vacuum gauge numbers, initial and final sampling times, canister and flow controller serial

numbers, and other pertinent information on the field data sheets and laboratory chain-of-custody forms.

The sub-slab vapor samples were submitted under appropriate chain-of-custody protocol to Pace Analytical Services, LLC for analysis of benzene, ethylbenzene, methyl tert-butyl ether, naphthalene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and xylenes using US EPA Method TO-15.

Applicable Vapor Action Level Criteria

The WDNR guidance document PUB-RR-800 for *Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin,* establishes action levels and risk screening levels for indoor air, sub-slab vapor, and soil gas vapor quality in residential and non-residential settings (which have been adopted from the US EPA).

The sub-slab vapor sample laboratory analytical results have been compared to the established vapor risk screening levels (VRSL) for individual compounds for sub-slab vapor samples. The VRSLs have been established based on residential and non-residential land use. The present land use at the Site and on the properties evaluated for VI are used commercially; therefore, the VRSLs established for small commercial properties will be used as the applicable criteria.

When sub-slab vapor sample concentrations exceed a VRSL, all lines of evidence will be evaluated to determine the likely source of the contamination, such as pathways for vapor movement and the effect on receptors. If after assessing the lines of evidence, it is determined that vapor intrusion poses a threat to building occupants, action will be taken to address the source of the hazardous substance discharge in accordance with ss. 292,11(3), Wisconsin Stats. This may require remediating, to the extent practical, the source of the contamination in order to address long-term risk and interrupting the vapor intrusion pathway to address near-term and protect receptors.

Sub-Slab Vapor Sampling Results

During the December 2019 sampling event, low-level concentrations of benzene, ethylbenzene, naphthalene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and xylenes were detected in the sub-slab vapor sample SSV-1 and SSV-2; however, these detections did not exceed the small commercial VRSL nor the residential VRSL.

During the February 4, 2020 sampling event, low-level concentrations of benzene, naphthalene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and xylenes were detected in the sub-slab vapor sample; however, these detections did not exceed the small commercial VRSL nor the residential VRSL. The February 2020 sampling event was scheduled for a day that had a lower temperature of approximately 10 degrees than the day prior. The sub-slab vapor analytical results are summarized on Table A.4.1. The laboratory analytical reports are included in Attachment C.

Groundwater Monitoring Results

On December 23, 2019, REL collected additional groundwater samples from temporary wells TW-10 and TW-15. Prior to sampling, water level measurements were collected from both temporary

monitoring wells using an electronic water level indicator. The wells were purged and sampled using a peristaltic pump in accordance with WDNR Groundwater Sampling Procedures (WDNR Publication No. PUBL 037-96 and PUBL 038-96). Groundwater samples were submitted under chain-of-custody protocol to Synergy Environmental Lab, Inc. (Synergy) for analysis of petroleum volatile organic compounds (PVOCs and naphthalene. The purge water is stored on-site in one 55-gallon steel drum, pending proper disposal.

Groundwater elevation measurements indicate that the shallow water table was approximately 5 to 5.5 feet below grade (fbg) in TW-10 and TW-15. Water Level Elevations are summarized in Table A.6. Groundwater sampling results indicate that concentrations of petroleum compounds remain excess of the Chapter NR 140 Wis. Adm. Code ES in Temporary Well TW-15. In addition, concentrations of petroleum compounds were not detected in Temporary Well TW-10. The groundwater laboratory analytical results are summarized in Tables A.1.a and A.1.b. The estimated extent of petroleum compounds in groundwater, based on the December laboratory analytical data, is shown on Figure B.3.b. The groundwater laboratory analytical report is included in Attachment D.

CONCLUSIONS AND RECOMMENDATIONS

Sub-slab vapor samples were collected from beneath the southern portion of the Site building to evaluate potential for vapor intrusion due to the NAPL indicators discovered in soil in borings GP-1, GP-2, and GP-12; and to evaluate any potential vapor migration from the residual groundwater contaminant plume. The sampling locations are in close proximity to the borings of concern and are within the horizontal extent of groundwater contaminant plume. Two rounds of sub-slab vapor sampling results indicate no detections of petroleum compounds in excess of the VRSLs, thus it appears the vapor intrusion pathway is protected. The results of the additional groundwater sampling in December 2019 are similar to multiple previous sampling events; which demonstrates that the groundwater contaminant plume is stable. No further vapor intrusion investigation and groundwater monitoring is recommended at the Site. REL recommends resubmitting the necessary documentation to WDNR for consideration of case closure.

We trust this information meets your needs. If you have any questions or comments, please feel free to contact this office.

Sincerely,

ROBERT E. LEE & ASSOCIATES, INC.

Alan J. Gustafson
Geologist

Nicole L. LaPlant
Senior Geologist/Project Manager

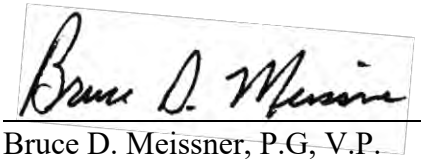
AJG/NLL/NJM

ENC.

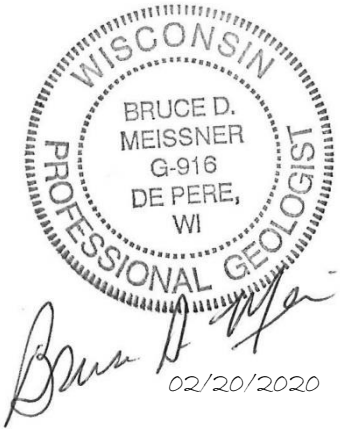
CC/ENC.: Mr. Reed Woodward, Village of Pulaski President

CERTIFICATIONS

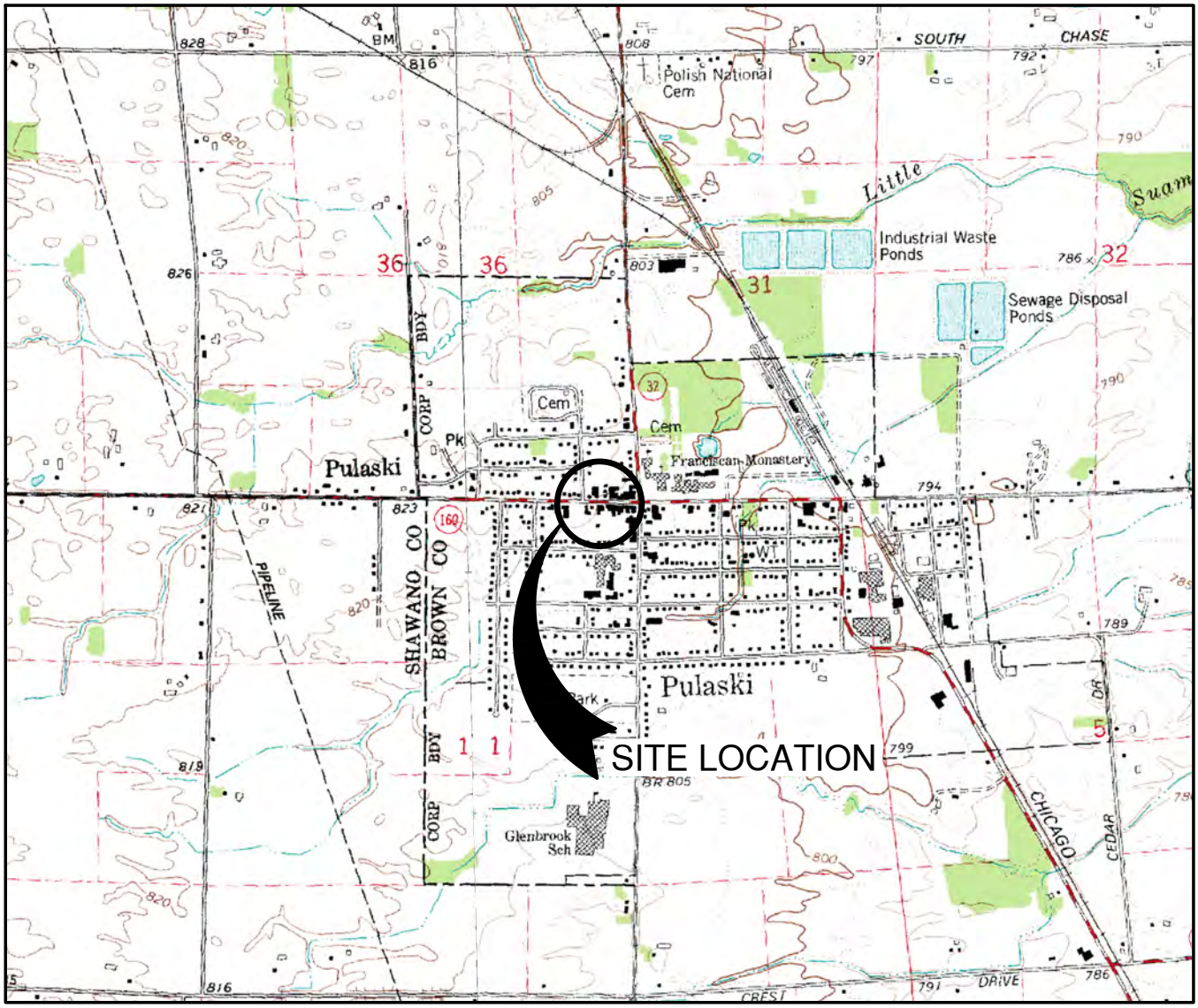
I, Bruce D. Meissner, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, and am registered in accordance with the requirements of ch. GHSS 2, Wis., Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to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



Bruce D. Meissner, P.G, V.P.
Environmental Compliance Manager



February 21, 2020
Date



MAP USED - PULASKI QUAD - 1974
MAP USED - ZACHOW QUAD - 1974

LOCATION MAP

KARCZ FORD (FORMER) S. SIDE UST
222 W. PULASKI STREET
PULASKI, WISCONSIN

NORTH

1" = 2000'

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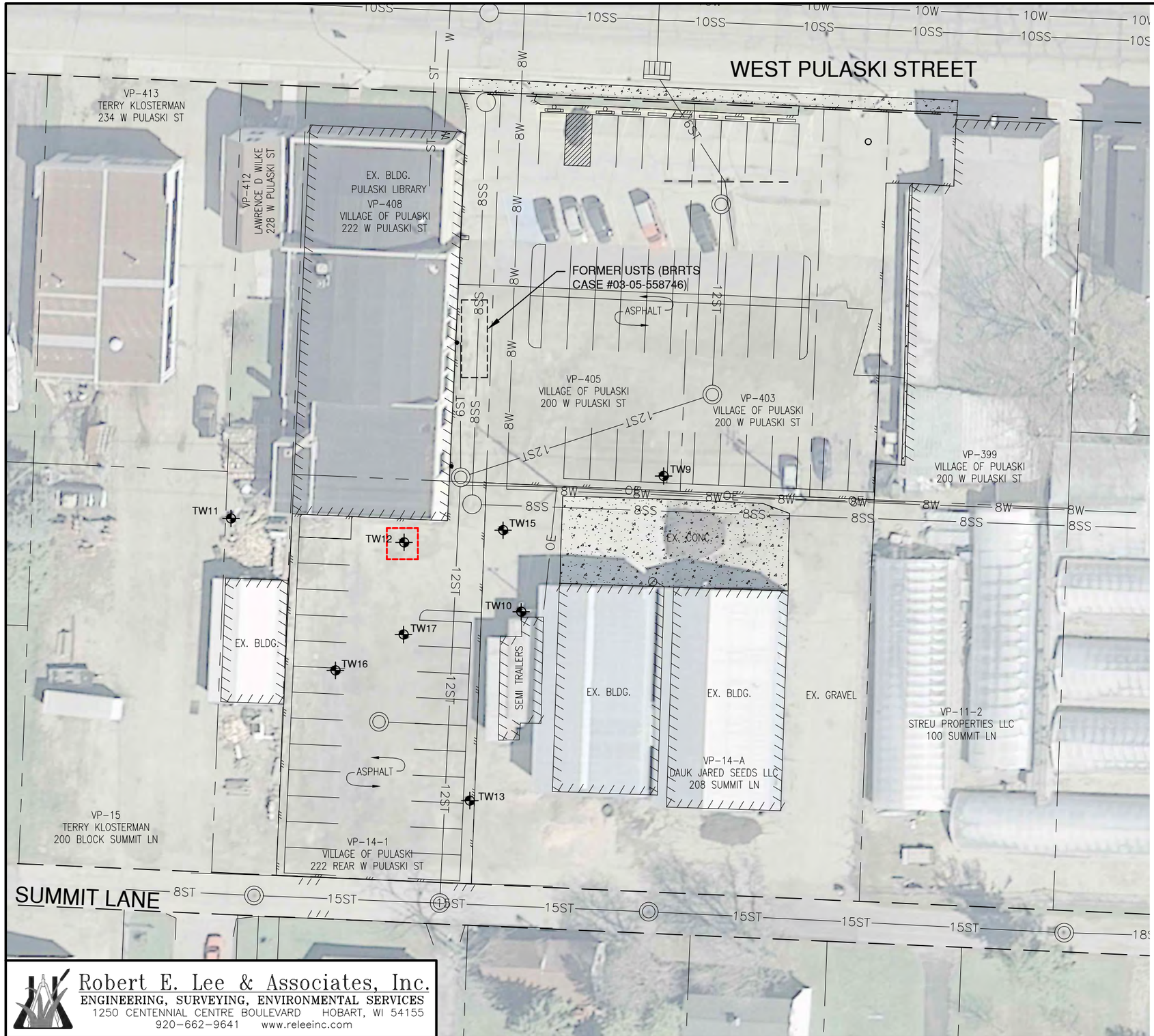
FIGURE B.1.a

File: R:\0200\0295\0295236\dwg\LOCATION MAP.dwg
Plot Date: Jun 07, 2018 - 8:22am



NORTH

0' 40' 80'

SCALE IN FEET

LEGEND

- TW1 — TEMPORARY WELL LOCATION (COMPLETED BY REL)
- ST — EX. STORM SEWER (SIZE NOTED)
- SAN — EX. SANITARY SEWER (SIZE NOTED)
- W — EX. WATERMAIN (SIZE NOTED)
- OE — EX. OVERHEAD ELECTRIC LINE
- APPROXIMATE PARCEL BOUNDARY
- FORMER 1,000 GALLON GASOLINE UST LOCATION

KARCZ FORD (FORMER) S. SIDE UST
222 W. PULASKI STREET
PULASKI, WISCONSIN

DETAILED SITE MAP

FIGURE B.1.b

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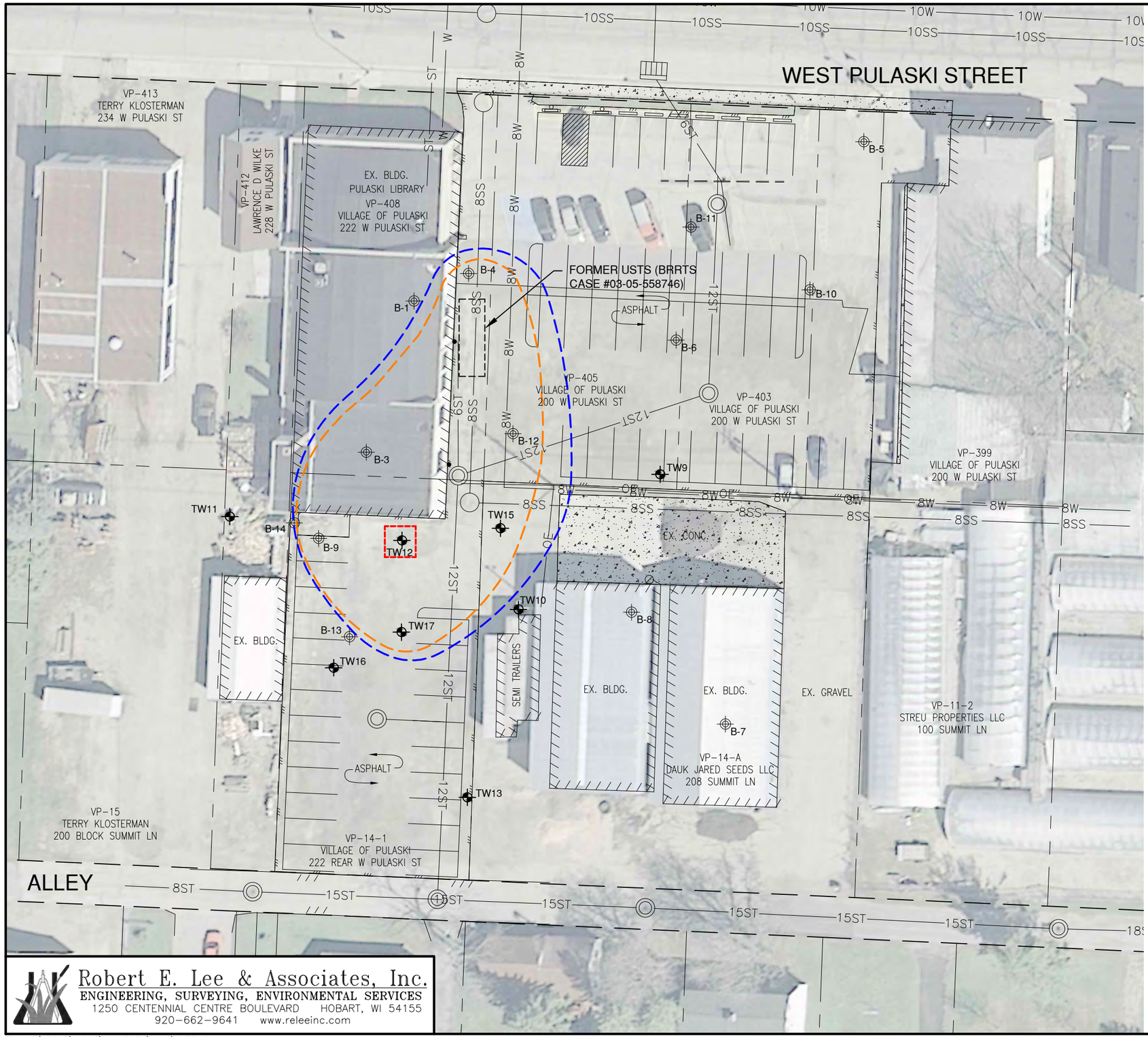

NORTH

0' 40' 80'

SCALE IN FEET

LEGEND

- TW1 — TEMPORARY MONITORING WELL LOCATION (COMPLETED BY REL)
- B-1 — TEMPORARY WELL LOCATION (COMPLETED BY AECOM DURING 2011-2012) INVESTIGATION FOR CLOSED CASE BRRTS#: 03-05-558746 (ABANDONED)
- ST — EX. STORM SEWER (SIZE NOTED)
- SAN — EX. SANITARY SEWER (SIZE NOTED)
- W — EX. WATERMAIN (SIZE NOTED)
- OE — EX. OVERHEAD ELECTRIC LINE
- APPROXIMATE PARCEL BOUNDARY
- FORMER 1,000 GALLON GASOLINE UST LOCATION
- ESTIMATED EXTENT OF PETROLEUM COMPOUNDS IN GROUNDWATER IN EXCESS OF CHAPTER NR 140 ENFORCEMENT STANDARD (ES)
- ESTIMATED EXTENT OF PETROLEUM COMPOUNDS IN GROUNDWATER IN EXCESS OF CHAPTER NR 140 PREVENTIVE ACTION LIMIT (PAL)

NOTE:
CONTAMINANT PLUME IS CO-MINGLED WITH PVOCs AND PAHs FROM CLOSED BRRTS CASE #03-05-558746

KARCZ FORD (FORMER) S. SIDE UST
222 W. PULASKI STREET
PULASKI, WISCONSIN

GROUNDWATER ISOCONCENTRATION

FIGURE B.3.b

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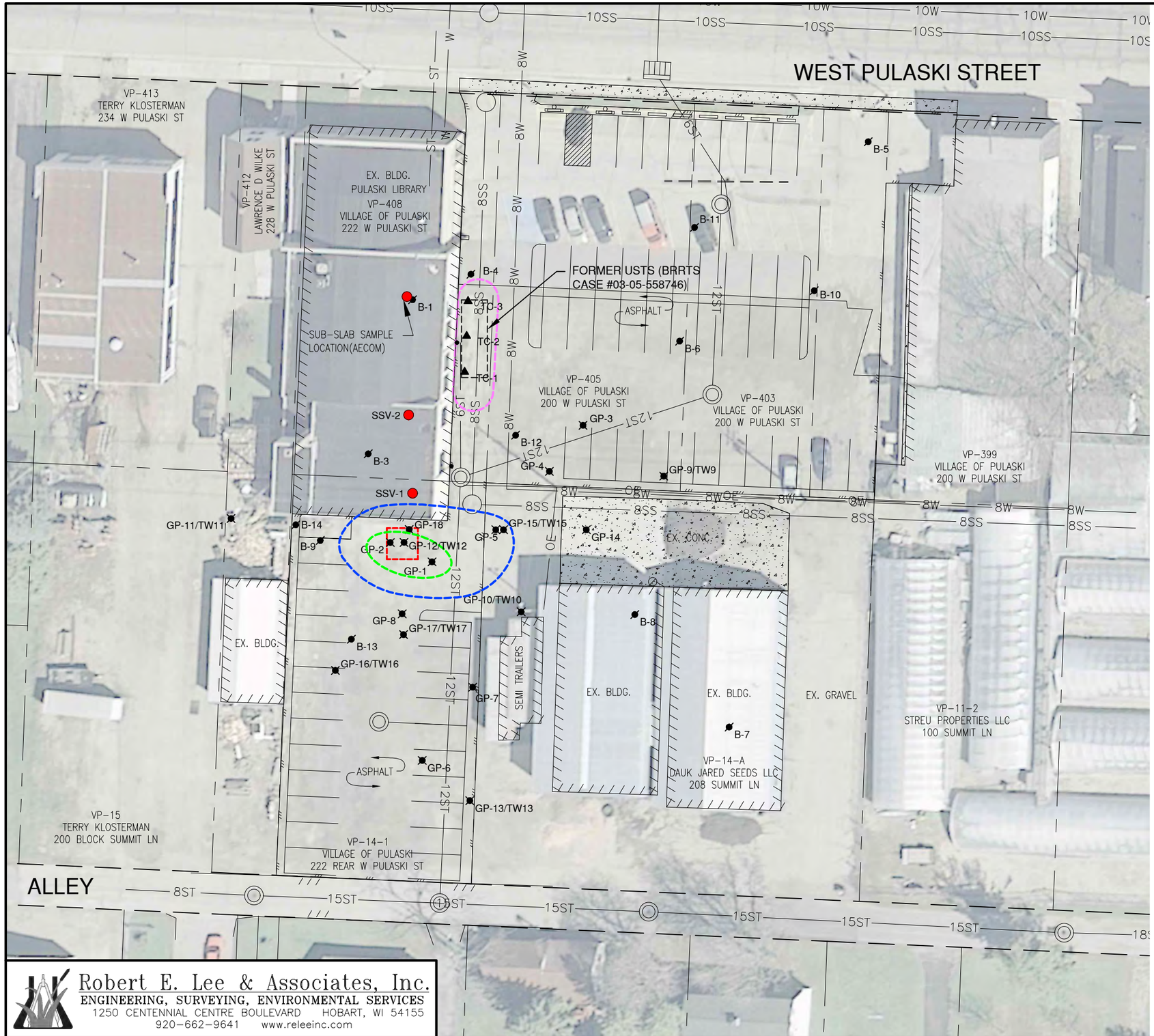

NORTH

0' 40' 80'

SCALE IN FEET

LEGEND

- B-1 — SOIL BORING/TEMPORARY WELL LOCATION (COMPLETED BY AECOM)
- TC-1 — UST CLOSURE SOIL SAMPLE LOCATION (COLLECTED BY AECOM)
- GP-1 — GEOPROBE SOIL BORING LOCATION (COMPLETED BY REL)
- SSV-1 — SUB-SLAB SAMPLE LOCATION
- ST — EX. STORM SEWER (SIZE NOTED)
- SAN — EX. SANITARY SEWER (SIZE NOTED)
- W — EX. WATERMAIN (SIZE NOTED)
- OE — EX. OVERHEAD ELECTRIC LINE
- APPROXIMATE PARCEL BOUNDARY
- FORMER 1,000 GALLON GASOLINE UST LOCATION
- ESTIMATED EXTENT OF CONTAMINATED SOIL IN EXCESS OF INDUSTRIAL AND NON-INDUSTRIAL DIRECT CONTACT RCLs
- ESTIMATED EXTENT OF CONTAMINATED SOIL IN EXCESS OF GROUNDWATER PATHWAY RCLs
- RESIDUAL SOIL CONTAMINATION IN EXCESS OF GROUNDWATER PATHWAY RCLs DELINEATED BY AECOM FOR BRRTS CASE #03-05-558746

KARCZ FORD (FORMER) S. SIDE UST
222 W. PULASKI STREET
PULASKI, WISCONSIN

VAPOR INTRUSION MAP

FIGURE B.4.a

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File: R:\0200\0295\0295236\dwg\SITE_PLAN.dwg
Plot Date: Jan 15, 2020 - 12:56pm

Table A.1.a - Groundwater Analytical Results
Karcz Ford (Former) - S Side UST
222 W Pulaski Street, Pulaski, WI

Sample ID:			TW-9	TW-10	TW-11	TW-12					TW-13	
Date:			9/27/2017	9/27/2017	9/27/2017	9/27/2017	8/8/2018	11/1/2018	2/4/2019	5/9/2019	9/27/2017	4/11/2018
Polynuclear Aromatic Hydrocarbons (ug/L)	**NR 140 ES**	**NR 140 PAL**										
Acenaphthene	NE	NE	<0.016	<0.016	<0.016	<0.80	---	---	---	---	<0.016	<0.008
Acenaphthylene	NE	NE	<0.019	<0.019	<0.019	<0.95	---	---	---	---	<0.019	<0.009
Anthracene	3000	600	<0.019	<0.019	0.026 J	<0.95	---	---	---	---	<0.019	<0.009
Benzo(a)anthracene	NE	NE	<0.017	<0.017	0.018 J	<0.85	---	---	---	---	0.085	<0.017
Benzo(a)pyrene	0.2	0.02	<0.02	<0.02	<0.02	<1.00	---	---	---	---	0.048 J	<0.017
Benzo(b)fluoranthene	0.2	0.02	<0.018	<0.018	<0.018	<0.90	---	---	---	---	0.054 J	<0.02
Benzo(g,h,i)perylene	NE	NE	<0.025	<0.025	<0.025	<1.25	---	---	---	---	0.035 J	<0.011
Benzo(k)fluoranthene	NE	NE	<0.016	<0.016	<0.016	<0.80	---	---	---	---	0.057	<0.014
Chrysene	0.2	0.02	<0.02	<0.02	<0.02	<1.00	---	---	---	---	*0.074*	<0.019
Dibenzo(a,h)anthracene	NE	NE	<0.025	<0.025	<0.025	<1.25	---	---	---	---	0.0282 J	<0.01
Fluoranthene	400	80	0.0232 J	<0.017	0.02 J	<0.85	---	---	---	---	0.07	<0.031
Fluorene	400	80	<0.021	<0.021	<0.021	<1.05	---	---	---	---	<0.021	<0.011
Indeno(1,2,3-cd)pyrene	NE	NE	<0.023	<0.023	<0.023	<1.15	---	---	---	---	0.032 J	<0.012
1-Methylnaphthalene	NE	NE	<0.024	<0.024	0.235	47	---	---	---	---	<0.024	<0.0239
2-Methylnaphthalene	NE	NE	0.0309 J	0.0254 J	0.044 J	93	---	---	---	---	<0.024	<0.04
Naphthalene	100	10	0.06 J	0.061 J	0.086	**209**	---	---	---	---	<0.025	<0.04
Phenanthrene	NE	NE	<0.025	<0.025	<0.025	<1.25	---	---	---	---	<0.025	<0.025
Pyrene	250	50	<0.02	<0.02	<0.02	<1.00	---	---	---	---	0.063 J	<0.03
Metals (ug/L)	**NR 140 ES**	**NR 140 PAL**										
Lead	15	1.5	<0.9	<0.9	<0.9	*6.4*	<0.8	*7.2*	<0.8	<4	<0.9	---

Key:

PAH - Polynuclear Aromatic Hydrocarbon
J - Analyte detected between the Laboratory Limit of Detection and Laboratory Limit of Quantitation
NE - Not Established by Chapter NR 140 Wis. Adm. Code
µg/L - Micrograms per liter
--- - Not Analyzed
0.2 - Exceeds Chapter NR 140 Enforcement Standard
0.02 - Exceeds Chapter NR 140 Preventive Action Limit

Table A.1.b - Groundwater Analytical Results
Karcz Ford (Former) - S Side UST
222 W Pulaski Street, Pulaski, WI

Sample ID:			TW-9				TW-10					TW-11				TW-12					
Date:			9/27/2017	4/11/2018	8/8/2018	11/1/2018	9/27/2017	4/11/2018	8/8/2018	11/1/2018	12/23/2019	9/27/2017	4/11/2018	8/8/2018	11/1/2018	9/27/2017	4/11/2018	8/8/2018	11/1/2018	2/4/2019	5/9/2019
Volatile Organic Compounds (ug/L)	**NR 140 ES**	**NR 140 PAL**																			
Benzene	5	0.5	<0.17	<0.22	<0.22	<0.22	<0.17	<0.22	<0.22	<0.22	<0.22	<0.17	<0.22	<0.22	<0.22	**760**	**9.7**	**770**	**540**	**680**	**440**
Bromobenzene	NE	NE	<0.43	---	---	---	<0.43	---	---	---	---	<0.43	---	---	---	<4.3	---	---	---	---	---
Bromodichloromethane	0.6	0.06	<0.31	---	---	---	<0.31	---	---	---	---	<0.31	---	---	---	<3.1	---	---	---	---	---
Bromoform	4.4	0.44	<0.49	---	---	---	<0.49	---	---	---	---	<0.49	---	---	---	<4.9	---	---	---	---	---
tert-Butylbenzene	NE	NE	<0.39	---	---	---	<0.39	---	---	---	---	<0.39	---	---	---	<3.9	---	---	---	---	---
sec-Butylbenzene	NE	NE	<0.24	---	---	---	<0.24	---	---	---	---	<0.24	---	---	---	9.9	---	---	---	---	---
n-Butylbenzene	NE	NE	<0.34	---	---	---	<0.34	---	---	---	---	<0.34	---	---	---	31	---	---	---	---	---
Carbon Tetrachloride	5	0.5	<0.21	---	---	---	<0.21	---	---	---	---	<0.21	---	---	---	<2.1	---	---	---	---	---
Chlorobenzene	NE	NE	<0.27	---	---	---	<0.27	---	---	---	---	<0.27	---	---	---	<2.7	---	---	---	---	---
Chloroethane	400	80	<0.5	---	---	---	<0.5	---	---	---	---	<0.5	---	---	---	<5	---	---	---	---	---
Chloroform	6	0.6	<0.96	---	---	---	<0.96	---	---	---	---	<0.96	---	---	---	<9.6	---	---	---	---	---
Chloromethane	30	3	<1.3	---	---	---	<1.3	---	---	---	---	<1.3	---	---	---	<13	---	---	---	---	---
2-Chlorotoluene	NE	NE	<0.36	---	---	---	<0.36	---	---	---	---	<0.36	---	---	---	<3.6	---	---	---	---	---
4-Chlorotoluene	NE	NE	<0.35	---	---	---	<0.35	---	---	---	---	<0.35	---	---	---	<3.5	---	---	---	---	---
1,2-Dibromo-3-chloropropane	0.2	0.02	<1.88	---	---	---	<1.88	---	---	---	---	<1.88	---	---	---	<18.8	---	---	---	---	---
Dibromochloromethane	60	6	<0.45	---	---	---	<0.45	---	---	---	---	<0.45	---	---	---	<4.5	---	---	---	---	---
1,4-Dichlorobenzene	75	15	0.45 J	---	---	---	0.55 J	---	---	---	---	0.51 J	---	---	---	<4.2	---	---	---	---	---
1,3-Dichlorobenzene	600	120	<0.45	---	---	---	<0.45	---	---	---	---	<0.45	---	---	---	<4.5	---	---	---	---	---
1,2-Dichlorobenzene	600	60	<0.34	---	---	---	<0.34	---	---	---	---	<0.34	---	---	---	<3.4	---	---	---	---	---
Dichlorodifluoromethane	1,000	200	<0.38	---	---	---	<0.38	---	---	---	---	<0.38	---	---	---	<3.8	---	---	---	---	---
1,2-Dichloroethane	5	0.5	<0.45	<0.25	---	---	<0.45	<0.25	---	---	---	<0.45	<0.25	---	---	**43**	*1.07*	---	---	**93**	**63**
1,1-Dichloroethane	850	85	<0.42	---	---	---	<0.42	---	---	---	---	<0.42	---	---	---	<4.2	---	---	---	---	---
1,1-Dichloroethene	7	0.7	<0.46	---	---	---	<0.46	---	---	---	---	<0.46	---	---	---	<4.6	---	---	---	---	---
cis-1,2-Dichloroethene	70	7	<0.41	---	---	---	<0.41	---	---	---	---	<0.41	---	---	---	<4.1	---	---	---	---	---
trans-1,2-Dichloroethene	100	20	<0.35	---	---	---	<0.35	---	---	---	---	<0.35	---	---	---	<3.5	---	---	---	---	---
1,2-Dichloropropane	5	0.5	<0.39	---	---	---	<0.39	---	---	---	---	<0.39	---	---	---	<3.9	---	---	---	---	---
1,3-Dichloropropane	NE	NE	<0.49	---	---	---	<0.49	---	---	---	---	<0.49	---	---	---	<4.9	---	---	---	---	---
trans-1,3-Dichloropropene	0.4	0.04	<0.42	---	---	---	<0.42	---	---	---	---	<0.42	---	---	---	<4.2	---	---	---	---	---
cis-1,3-Dichloropropene	0.4	0.04	<0.21	---	---	---	<0.21	---	---	---	---	<0.21	---	---	---	<2.1	---	---	---	---	---
Di-isopropyl ether	NE	NE	<0.26	---	---	---	<0.26	---	---	---	---	<0.26	---	---	---	<2.6	---	---	---	---	---
EDB (1,2-Dibromoethane)	0.05	0.005	<0.34	---	---	---	<0.34	---	---	---	---	<0.34	---	---	---	<3.4	---	---	---	---	---
Ethylbenzene	700	140	<0.2	<0.26	<0.53	<0.53	<0.2	<0.26	<0.53	<0.53	<0.26	<0.2	<0.26	<0.53	<0.53	*470*	7.2	*520*	*390*	*440*	*420*
Hexachlorobutadiene	NE	NE	<1.47	---	---	---	<1.47	---	---	---	---	<1.47	---	---	---	<14.7	---	---	---	---	---
Isopropylbenzene	NE	NE	<0.29	---	---	---	<0.29	---	---	---	---	<0.29	---	---	---	31.6	---	---	---	---	---
p-Isopropyltoluene	NE	NE	<0.28	---	---	---	<0.28	---	---	---	---	<0.28	---	---	---	7.0 J	---	---	---	---	---
Methylene chloride	5	0.5	<0.94	---	---	---	<0.94	---	---	---	---	<0.94	---	---	---	<9.4	---	---	---	---	---
Methyl tert-butyl ether	60	12	<0.82	<0.28	<0.57	<0.57	<0.82	<0.28	<0.57	<0.57	<0.28	<0.82	<0.28	<0.57	<0.57	<8.2	<0.28	<28.5	<5.7	<5.6	<2.8
Naphthalene	100	10	<2.17	<2.1	<1.7	<1.7	<2.17	<2.1	<1.7	<1.7	<2.1	<2.17	<2.1	<1.7	<1.7	**350**	2.78 J	122 J	**133**	*81 J*	*75*
n-Propylbenzene	NE	NE	<0.19	---	---	---	<0.19	---	---	---	---	<0.19	---	---	---	43	---	---	---	---	---
1,1,2,2-Tetrachloroethane	0.2	0.02	<0.69	---	---	---	<0.69	---	---	---	---	<0.69	---	---	---	<6.9	---	---	---	---	---
1,1,1,2-Tetrachloroethane	70	7	<0.47	---	---	---	<0.47	---	---	---	---	<0.47	---	---	---	<4.7	---	---	---	---	---
Tetrachloroethene	5	0.5	<0.48	---	---	---	<0.48	---	---	---	---	<0.48	---	---	---	<4.8	---	---	---	---	---
Toluene	800	160	<0.67	<0.19	<0.45	<0.45	<0.67	<0.19	<0.45	<0.45	<0.19	<0.67	<0.19	<0.45	<0.45	*760*	5.6	*231*	*281*	*460*	*222*
1,2,4-Trichlorobenzene	70	14	<1.29	---	---	---	<1.29	---	---	---	---	<1.29	---	---	---	<12.9	---	---	---	---	---
1,2,3-Trichlorobenzene	NE	NE	<0.83	---	---	---	<0.83	---	---	---	---	<0.83	---	---	---	<8.3	---	---	---	---	---
1,1,1-Trichloroethane	200	40	<0.35	---	---	---	<0.35	---	---	---	---	<0.35	---	---	---	<3.5	---	---	---	---	---
1,1,2-Trichloroethane	5	0.5	<0.65	---	---	---	<0.65	---	---	---	---	<0.65	---	---	---	<6.5	---	---	---	---	---
Trichloroethene (TCE)	5	0.5	<0.45	---	---	---	<0.45	---	---	---	---	<0.45	---	---	---	<4.5	---	---	---	---	---
Trichlorofluoromethane	NE	NE	<0.64	---	---	---	<0.64	---	---	---	---	<0.64	---	---	---	<6.4	---	---	---	---	---
Trimethylbenzenes	480	96	<2.05	<1.43	<1.48	<1.48	<2.05	<1.43	<1.48	<1.48	<1.43	<2.05	<1.43	<1.48	<1.48	**2,340**	15.7	**1,184**	**967**	**1,360**	**955**
Vinyl Chloride	0.2	0.02	<0.19	---	---	---	<0.19	---	---	---	---	<0.19	---	---	---	<1.9	---	---	---	---	---
Xylenes	2,000	400	<1.95	<0.72	<1.58	<1.58	<1.95	<0.72	<1.58	<1.58	<0.72	<1.95	<0.72	<1.58	<1.58	**11,200**	57.8	**2,180**	**2,760**	**4,140**	**2,520**

Key:

VOC	- Volatile Organic Compounds
J	- Analyte detected between the Laboratory Limit of Detection and the Laboratory Limit of Quantitation
NE	- Not established by Chapter NR 140 Wis. Adm. Code
µg/L	- Micrograms per liter
---	- Not analyzed
5	- Exceeds Chapter NR 140 Enforcement Standard
0.5	- Exceeds Chapter NR 140 Preventive Action Limit

Table A.1.b - Groundwater Analytical Results
Karcz Ford (Former) - S Side UST
222 W Pulaski Street, Pulaski, WI

Sample ID:			TW-13				TW-15						TW-16					TW-17				
Date:			9/27/2017	4/11/2018	8/8/2018	11/1/2018	4/11/2018	8/8/2018	11/1/2018	2/4/2019	5/9/2019	12/23/2019	4/11/2018	8/8/2018	11/1/2018	2/4/2019	5/9/2019	4/11/2018	8/8/2018	11/1/2018	2/4/2019	5/9/2019
Volatile Organic Compounds (ug/L)	NR 140 ES	NR 140 PAL																				
Benzene	5	0.5	<0.17	<0.22	<0.22	<0.22	**1,940**	**3,800**	**3,600**	**3,800**	**3,400**	**3,400**	<0.22	<0.22	<0.22	<0.22	<0.22	**350**	**710**	**3,700**	**550**	**360**
Bromobenzene	NE	NE	<0.43	---	---	---	<4.4	---	---	---	---	---	<0.44	---	---	---	---	<4.4	---	---	---	---
Bromodichloromethane	0.6	0.06	<0.31	---	---	---	<3.3	---	---	---	---	---	<0.33	---	---	---	---	<3.3	---	---	---	---
Bromoform	4.4	0.44	<0.49	---	---	---	<4.5	---	---	---	---	---	<0.45	---	---	---	---	<4.5	---	---	---	---
tert-Butylbenzene	NE	NE	<0.39	---	---	---	<2.5	---	---	---	---	---	<0.25	---	---	---	---	<2.5	---	---	---	---
sec-Butylbenzene	NE	NE	<0.24	---	---	---	<7.9	---	---	---	---	---	<0.79	---	---	---	---	<7.9	---	---	---	---
n-Butylbenzene	NE	NE	<0.34	---	---	---	<7.1	---	---	---	---	---	<0.71	---	---	---	---	<7.1	---	---	---	---
Carbon Tetrachloride	5	0.5	<0.21	---	---	---	<3.1	---	---	---	---	---	<0.31	---	---	---	---	<3.1	---	---	---	---
Chlorobenzene	NE	NE	<0.27	---	---	---	<2.6	---	---	---	---	---	<0.26	---	---	---	---	<2.6	---	---	---	---
Chloroethane	400	80	<0.5	---	---	---	<6.1	---	---	---	---	---	<0.61	---	---	---	---	<6.1	---	---	---	---
Chloroform	6	0.6	<0.96	---	---	---	<2.6	---	---	---	---	---	<0.26	---	---	---	---	<2.6	---	---	---	---
Chloromethane	30	3	<1.3	---	---	---	<5.4	---	---	---	---	---	<0.54	---	---	---	---	<5.4	---	---	---	---
2-Chlorotoluene	NE	NE	<0.36	---	---	---	<3.1	---	---	---	---	---	<0.31	---	---	---	---	<3.1	---	---	---	---
4-Chlorotoluene	NE	NE	<0.35	---	---	---	<2.6	---	---	---	---	---	<0.26	---	---	---	---	<2.6	---	---	---	---
1,2-Dibromo-3-chloropropane	0.2	0.02	<1.88	---	---	---	<29.6	---	---	---	---	---	<2.96	---	---	---	---	<29.6	---	---	---	---
Dibromochloromethane	60	6	<0.45	---	---	---	<2.2	---	---	---	---	---	<0.22	---	---	---	---	<2.2	---	---	---	---
1,4-Dichlorobenzene	75	15	0.59 J	---	---	---	<7	---	---	---	---	---	<0.7	---	---	---	---	<7	---	---	---	---
1,3-Dichlorobenzene	600	120	<0.45	---	---	---	<8.5	---	---	---	---	---	<0.85	---	---	---	---	<8.5	---	---	---	---
1,2-Dichlorobenzene	600	60	<0.34	---	---	---	<8.6	---	---	---	---	---	<0.86	---	---	---	---	<8.6	---	---	---	---
Dichlorodifluoromethane	1,000	200	<0.38	---	---	---	<3.2	---	---	---	---	---	<0.32	---	---	---	---	<3.2	---	---	---	---
1,2-Dichloroethane	5	0.5	0.76 J	<0.25	---	---	**410**	**---**	**---**	**420**	**430**	**---**	<0.25	---	---	<0.25	<0.25	**47**	**---**	**---**	**35**	**38**
1,1-Dichloroethane	850	85	<0.42	---	---	---	<3.6	---	---	---	---	---	<0.36	---	---	---	---	<3.6	---	---	---	---
1,1-Dichloroethene	7	0.7	<0.46	---	---	---	<4.2	---	---	---	---	---	<0.42	---	---	---	---	<4.2	---	---	---	---
cis-1,2-Dichloroethene	70	7	<0.41	---	---	---	<3.7	---	---	---	---	---	<0.37	---	---	---	---	<3.7	---	---	---	---
trans-1,2-Dichloroethene	100	20	<0.35	---	---	---	<3.4	---	---	---	---	---	<0.34	---	---	---	---	<3.4	---	---	---	---
1,2-Dichloropropane	5	0.5	<0.39	---	---	---	<4.4	---	---	---	---	---	<0.44	---	---	---	---	<4.4	---	---	---	---
1,3-Dichloropropane	NE	NE	<0.49	---	---	---	<3	---	---	---	---	---	<0.3	---	---	---	---	<3	---	---	---	---
trans-1,3-Dichloropropene	0.4	0.04	<0.42	---	---	---	<3.2	---	---	---	---	---	<0.32	---	---	---	---	<3.2	---	---	---	---
cis-1,3-Dichloropropene	0.4	0.04	<0.21	---	---	---	<2.6	---	---	---	---	---	<0.26	---	---	---	---	<2.6	---	---	---	---
Di-isopropyl ether	NE	NE	<0.26	---	---	---	<2.1	---	---	---	---	---	<0.21	---	---	---	---	<2.1	---	---	---	---
EDB (1,2-Dibromoethane)	0.05	0.005	<0.34	---	---	---	<3.4	---	---	---	---	---	<0.34	---	---	---	---	<3.4	---	---	---	---
Ethylbenzene	700	140	<0.2	<0.26	<0.53	<0.53	122	*460*	**710**	**640**	**560**	**560**	<0.26	<0.53	<0.53	<0.26	<0.26	81	*155*	**3,700**	*213*	*152*
Hexachlorobutadiene	NE	NE	<1.47	---	---	---	<13.4	---	---	---	---	---	<1.34	---	---	---	---	<13.4	---	---	---	---
Isopropylbenzene	NE	NE	<0.29	---	---	---	<7.8	---	---	---	---	---	<0.78	---	---	---	---	<7.8	---	---	---	---
p-Isopropyltoluene	NE	NE	<0.28	---	---	---	<2.4	---	---	---	---	---	<0.24	---	---	---	---	<2.4	---	---	---	---
Methylene chloride	5	0.5	<0.94	---	---	---	<13.2	---	---	---	---	---	<1.32	---	---	---	---	<13.2	---	---	---	---
Methyl tert-butyl ether	60	12	<0.82	<0.28	<0.57	<0.57	<2.8	<5.7	<5.7	<2.8	<14	<14	<0.28	<0.57	<0.57	<0.28	<0.28	<2.8	<5.7	<5.7	<2.8	<2.8
Naphthalene	100	10	<2.17	<2.1	<1.7	<1.7	<21	*58*	**188**	**127**	**148 J**	**112 J**	<2.1	<1.7	<1.7	<2.1	<2.1	<21	24.6 J	**820**	<21	<21
n-Propylbenzene	NE	NE	<0.19	---	---	---	<6.1	---	---	---	---	---	<0.61	---	---	---	---	<6.1	---	---	---	---
1,1,2,2-Tetrachloroethane	0.2	0.02	<0.69	---	---	---	<3	---	---	---	---	---	<0.3	---	---	---	---	<3	---	---	---	---
1,1,1,2-Tetrachloroethane	70	7	<0.47	---	---	---	<3.5	---	---	---	---	---	<0.35	---	---	---	---	<3.5	---	---	---	---
Tetrachloroethene	5	0.5	<0.48	---	---	---	<3.8	---	---	---	---	---	<0.38	---	---	---	---	<3.8	---	---	---	---
Toluene	800	160	<0.67	<0.19	<0.45	<0.45	*720*	*480*	**1,250**	**1,110**	**1,220**	**1,570**	<0.19	<0.45	<0.45	<0.19	<0.19	129	51	*700*	30.1	25.7
1,2,4-Trichlorobenzene	70	14	<1.29	---	---	---	<11.5	---	---	---	---	---	<1.15	---	---	---	---	<11.5	---	---	---	---
1,2,3-Trichlorobenzene	NE	NE	<0.83	---	---	---	<17.1	---	---	---	---	---	<1.71	---	---	---	---	<17.1	---	---	---	---
1,1,1-Trichloroethane	200	40	<0.35	---	---	---	<3.3	---	---	---	---	---	<0.33	---	---	---	---	<3.3	---	---	---	---
1,1,2-Trichloroethane	5	0.5	<0.65	---	---	---	<4.2	---	---	---	---	---	<0.42	---	---	---	---	<4.2	---	---	---	---
Trichloroethene (TCE)	5	0.5	<0.45	---	---	---	<3	---	---	---	---	---	<0.3	---	---	---	---	<3	---	---	---	---
Trichlorofluoromethane	NE	NE	<0.64	---	---	---	<3.5	---	---	---	---	---	<0.35	---	---	---	---	<3.5	---	---	---	---
Trimethylbenzenes	480	96	<2.05	<1.43	<1.48	<1.48	54.4 J	*344*	**885**	**851**	**969**	**820**	<1.43	<1.48	<1.48	<1.43	<1.43	*156*	53 J	**5,370**	*134 J*	64
Vinyl Chloride	0.2	0.02	<0.19	---	---	---	<2	---	---	---	---	---	<0.2	---	---	---	---	<2	---	---	---	---
Xylenes	2,000	400	<1.95	<0.72	<1.58	<1.58	*582*	*831*	**2,130**	**2,200**	**2,930**	**2,830**	<0.72	<1.58	<1.58	<0.72	<0.72	*810*	101 J	**4,340**	72.2 J	96.1 J

Key:

VOC	- Volatile Organic Compounds
J	- Analyte detected between the Laboratory Limit of Detection and the Laboratory Limit of Quantitation
NE	- Not established by Chapter NR 140 Wis. Adm. Code
µg/L	- Micrograms per liter
---	- Not analyzed
5	- Exceeds Chapter NR 140 Enforcement Standard
0.5	- Exceeds Chapter NR 140 Preventive Action Limit

Table A.4 - Sub-slab Vapor Sampling Results
Karcz Ford (Former) - S Side UST
222 W Pulaski Street, Pulaski, WI

Sample ID	Sample Location	Date Collected	Relevant VOCs (µg/m^3)							
			Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes
Large Commercial/Industrial Vapor Risk Screening Level -- µg/m^3			1,600	4,900	47,000	360	2,200,000	26,000	26,000	44,000
Small Commercial Vapor Risk Screening Level -- µg/m^3			530	1,600	16,000	120	730,000	8,700	8,700	15,000
Residential Vapor Risk Screening Level -- µg/m^3			120	370	3,700	28	170,000	2,100	2,100	3,300
SSV-1	South portion of the Building	12/10/2019	0.47 J	0.74 J	<0.99	2.7 J	2.5	1.7	0.98 J	2.93 J
		2/4/2020	<0.21	<0.42	<0.92	4.3	1.5	1.3 J	0.64 J	3.3 J
SSV-2	South portion of the Building	12/10/2019	7.5	0.95 J	<1.0	3.0 J	16.6	1.9	1.1 J	5.6 J
		2/4/2020	0.34 J	<0.47	<1.0	<2.0	1.5	<0.70	<0.62	1.85 J

Key:

VOC - Volatile Organic Compound
NE - No screening level established
ND - Not detected above laboratory detection limits
µg/m^3 - Micrograms per cubic meter
J - Estimated concentration at or above the laboratory Limit of Detection and Limit of Quantitation
22 - Vapor Risk Screening Level (VRSL) exceeded

Notes:

1.) Samples were collected in 1.4-liter summa canister over an approximate 15-minute period and analyzed using the U.S. EPA TO-15 analytical method
2.) The Vapor Risk Screening Level (VRSL) was obtained from WDNR's *Quick Look-Up Table for Indoor Air Vapor Action Levels and Vapor Risk Screening Levels*, based on November 2017 U.S. EPA Regional Screening Level Tables
3.) Leak detection was tested using the water-dam method and shut-in tests, no samples are collected if leak detection tests fail

Table A.6 - Water Level Elevations
Karcz Ford (Former) - S Side UST
222 W Pulaski Street, Pulaski, WI

Well: TW-9
Screen Interval: 3 - 13'
Ground Surface Elevation: 99.22
Riser Pipe Elevation: 98.95

Measurement Date	Depth to Water		Groundwater Elevation
	Below Riser	Below Ground	
09/15/17	5.22	5.49	93.73
09/27/17	5.33	5.60	93.62
04/11/18	4.33	4.60	94.62
08/08/18	5.13	5.40	93.82
11/01/18	4.96	5.23	93.99
02/04/19	7.42	7.69	91.53
05/09/19	3.46	3.73	95.49

Well: TW-10
Screen Interval: 3 - 13'
Ground Surface Elevation: 98.86
Riser Pipe Elevation: 98.56

Measurement Date	Depth to Water		Groundwater Elevation
	Below Riser	Below Ground	
09/15/17	4.54	4.84	94.02
09/27/17	4.87	5.17	93.69
04/11/18	3.51	3.81	95.05
08/08/18	4.13	4.43	94.43
11/01/18	3.62	3.92	94.94
02/04/19	8.42	8.72	90.14
05/09/19	1.91	2.21	96.65
12/23/19	4.85	5.15	93.71

Well: TW-11
Screen Interval: 3 - 13'
Ground Surface Elevation: 100.35
Riser Pipe Elevation: 100.12

Measurement Date	Depth to Water		Groundwater Elevation
	Below Riser	Below Ground	
09/15/17	3.77	4.00	96.35
09/27/17	4.34	4.57	95.78
04/11/18	3.74	3.97	96.38
08/08/18	3.45	3.68	96.67
11/01/18	2.82	3.05	97.30
02/04/19	5.37	5.60	94.75
05/09/19	1.84	2.07	98.28

Well: TW-12
Screen Interval: 3 - 13'
Ground Surface Elevation: 99.78
Riser Pipe Elevation: 99.56

Measurement Date	Depth to Water		Groundwater Elevation
	Below Riser	Below Ground	
09/15/17	4.62	4.84	94.94
09/27/17	5.02	5.24	94.54
04/11/18	5.64	5.86	93.92
08/08/18	4.85	5.07	94.71
11/01/18	4.34	4.56	95.22
02/04/19	5.81	6.03	93.75
05/09/19	3.26	3.48	96.30

Well: TW-13
Screen Interval: 3 - 13'
Ground Surface Elevation: 97.59
Riser Pipe Elevation: 97.34

Measurement Date	Depth to Water		Groundwater Elevation
	Below Riser	Below Ground	
09/15/17	7.45	7.70	89.89
09/27/17	8.07	8.32	89.27
04/11/18	7.26	7.51	90.08
08/08/18	8.41	8.66	88.93
11/01/18	6.72	6.97	90.62
02/04/19	8.52	8.77	88.82
05/09/19	5.02	5.27	92.32

Well: TW-15
Screen Interval: 4-14'
Ground Surface Elevation: 99.51
Riser Pipe Elevation: 99.32

Measurement Date	Depth to Water		Groundwater Elevation
	Below Riser	Below Ground	
04/11/18	6.87	7.06	92.45
08/08/18	5.49	5.68	93.83
11/01/18	5.36	5.55	93.96
02/04/19	7.33	7.52	91.99
05/09/19	3.87	4.06	95.45
12/23/19	5.67	5.86	93.65

Well: TW-16
Screen Interval: 4-14'
Ground Surface Elevation: 98.42
Riser Pipe Elevation: 98.29

Measurement Date	Depth to Water		Groundwater Elevation
	Below Riser	Below Ground	
04/11/18	3.87	4.00	94.42
08/08/18	4.32	4.45	93.97
11/01/18	3.83	3.96	94.46
02/04/19	8.61	8.74	89.68
05/09/19	2.02	2.15	96.27

Well: TW-17
Screen Interval: 4-14'
Ground Surface Elevation: 98.65
Riser Pipe Elevation: 98.43

Measurement Date	Depth to Water		Groundwater Elevation
	Below Riser	Below Ground	
04/11/18	4.84	5.06	93.59
08/08/18	4.85	5.07	93.58
11/01/18	4.37	4.59	94.06
02/04/19	6.16	6.38	92.27
05/09/19	3.12	3.34	95.31

A

ATTACHMENT A

VAPOR INTRUSION SAMPLING FIELD FORMS

Sub-Slab Soil Vapor Sampling Field Data Sheet

Project No.:	0295-236	Helium Detector (model/serial #):	N/A
Project Name:	722 W Pulaski St	Weather:	10-15°F sunny
Sample Location ID:	Pulaski Library	Air Temperature:	↓
Date:	12-10-19	Atmospheric Pressure:	30.18 in
Field Personnel:	CMA		
Recorded by:	CMA		

Slab Data

Surface/Slab Type:	Concrete
Surface/Slab Thickness (inches):	8"
Depth of hole through slab:	4"
Length of sampling train (feet):	1.5

Volume to purge (mL): 3 (tubing volumes) x 2.4 mL/foot x #feet =

Helium Tracer Leak Test Field Data

Date	Time	Cumulative volume purged (mL)	Helium beneath shroud (%) min	Helium beneath shroud (%) max	Helium in pump discharge (%)
			water dam only		

Canister Information

Date	Start Time	End Time	Sample ID No.	Canister ID No.	Flow Controller No.	Vacuum Gauge No.	Initial Vacuum	Final Vacuum
12-10-19	1212	[illegible]	SSV-1	0617	FC2458		-28	-5
↓								
	1229	1302	SSV-2	0631	FC2329		-27	-5

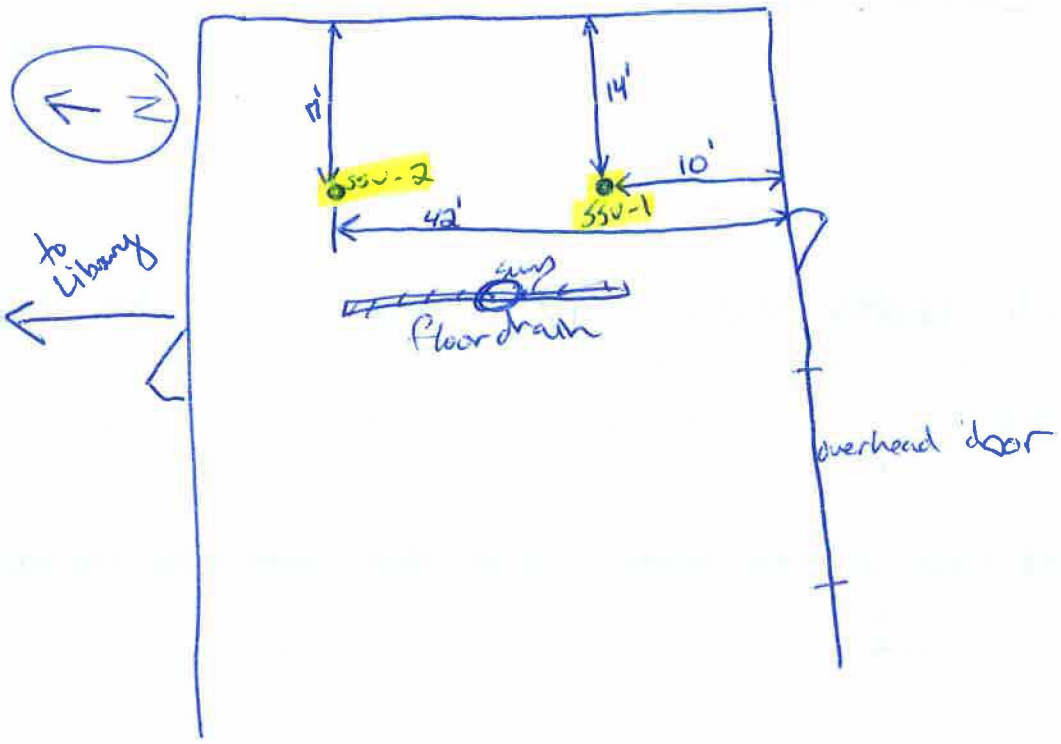
Comments: SSV-1 + SSV-2 both passed water dam leak test (10 min)
SSV-1 passed 1 min shut in test @ 25" Hg
1205 start purging SSV-1 (for 5 min w/ RED add) initial RED 0.3 final 0.0
SSV-2 passed shut in @ 25" " " initial RED 0.2 final 0.2
1223 start purging SSV-2

Project #: _____ Sample Location ID: _____

Date: _____

Location Description: Include floor type description, location of sample probe, fuel sources, stored chemical, drains, etc.

Location Sketch:



Sub-Slab Soil Vapor Sampling Field Data Sheet

Project No.:	0295-236	Helium Detector (model/serial #):	N/A
Project Name:	Pulaski Library	Weather:	Sunny N 11mph wind
Sample Location ID:		Air Temperature:	23°F
Date:	2-4-2020	Atmospheric Pressure:	30.20"
Field Personnel:	CMA		~10° colder than yesterday
Recorded by:	CMA		

Slab Data

Surface/Slab Type:	Conc.
Surface/Slab Thickness (inches):	8"
Depth of hole through slab:	4"
Length of sampling train (feet):	10.5

Volume to purge (mL): 3 (tubing volumes) x 2.4 mL/foot x #feet =

Helium Tracer Leak Test Field Data

Date	Time	Cumulative volume purged (mL)	Helium beneath shroud (%) min	Helium beneath shroud (%) max	Helium in pump discharge (%)

Canister Information

Date	Start Time	End Time	Sample ID No.	Canister ID No.	Flow Controller No.	Vacuum Gauge No.	Initial Vacuum	Final Vacuum
2-4-2020	0958	1040	SSV-1 ✓	0056	1575	—	-30	-4
↓	1013	1050	SSV-2 ✓	0243	1248	—	-28	-4

0925 onsite

Comments: Both passed 10 min water dam leak test
SSV-1 passed 1 min shut in test purge for 5 min w/PID initial PID = 0.3 Final PID = 0.0

SSV-2 passed 1 min shut in test
purge 5 min w/PID initial PID = 0.0 Final PID = 0.1

1104 offsite → Man door locked ✓ overhead door shut ✓

Project #: _____ Sample Location ID: _____

Date: _____

Location Description: Include floor type description, location of sample probe, fuel sources, stored chemical, drains, etc.

Location Sketch:

B

ATTACHMENT B

STANDARD OPERATING PROCEDURE 11:
SUB-SLAB VAPOR SAMPLES

STANDARD OPERATING PROCEDURE 11
Sub-Slab Vapor Samples

Initiator: Approved:

1.0 Purpose

The purpose of this standard operating procedure (SOP) is to describe the procedures for the collection of sub-slab vapor samples.

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent upon site conditions, equipment limitations or limitations imposed by the procedure. In all instances, the actual procedures used should be documented and described in an appropriated site report.

2.0 Equipment

- Sampling and Analysis Plan (SAP)
- Health and Safety Plan (HSP)
- Field book
- Waterproof ink pen
- 9/16” open ended wrench
- Helium shroud
- Helium canister
- Helium meter
- Vacuum pump; calibrated to 200 mL/min. flow rate
- Rotary hammer drill and 5/8” drill bits
- Shop vac with HEPA filter

- Stainless steel Vapor Pin™, silicone sleeve and installation/extraction tool
- Laboratory provided evacuated SUMMA canister and flow restrictor
- ¼ inch outside diameter high density polyethylene (HDPE) tubing
- Hydraulic concrete
- Trowel
- Sub-Slab Soil Vapor Sampling Field Data Sheet
- Camera

3.0 Procedures

3.1 Field Preparation

1. Set up shop vac to collect drill cuttings to be generated during Step 2.
2. Utilizing rotary hammer, drill a 5/8 inch hole in concrete floor. Hole should penetrate thickness of concrete floor and extend approximately 1 inch into sub-grade material.
3. Vacuum cuttings from drilled hole.
4. Install Vapor Pin™ per manufactures instructions.
5. Install approximately 3 feet of HDPE tubing and shut off valve to the Vapor Pin™. Keep valve in closed position.

3.2 Tracer Gas Monitoring

1. Assemble valve and flow restrictor provided by laboratory to SUMMA canister. Flow restrictor should limit flow so that a 6 liter (L) SUMMA canister will be fully evacuated in 1 hour. Fittings should be tightened using an open-ended 9/16” wrench. Fittings should be snug but not over tightened.

2. Install helium shroud over Vapor Pin™. Connect HDPE tubing to vacuum pump and SUMMA canister using a 3-way valve. Attach canister of helium gas to helium shroud using plastic tubing.
3. Open valve on Vapor Pin™. Using vacuum pump, evacuate approximately three tubing volumes of air through Vapor Pin™ and HDPE tubing. (Note: Flow rate of vacuum pump should not exceed 200 mL/min.) (Volume of ¼" HDPE tubing is approximately 2.4 mL per foot of tubing.)
4. Open valve on helium canister to fill helium shroud with helium.
5. Measure helium concentration in helium shroud using helium meter. (Note: concentration of helium in shroud should be 10 to 50% by volume.) Record minimum and maximum helium concentrations on sub-slab soil vapor sampling field data form. Close helium valve when sufficient helium concentration has been achieved.
6. Open valve to vacuum pump. Turn on vacuum pump and draw air through Vapor Pin™ and tubing at a flow rate not to exceed 200 mL/min. Monitor pump effluent with helium meter. Helium concentration in pump effluent should not exceed 2% helium by volume. If concentration of helium in sampling train is less than 2% by volume, move ahead to next step. If not, Vapor Pin™ will need to be reset and steps 3 through 6 should be repeated.

3.3 "Shut in" Test

1. Close all valves in sampling train except the one leading to the vacuum pump.
2. Using vacuum pump, apply a vacuum to tubing between 50 and 100 inches of H_2O.
3. Close valve and monitor vacuum reading for 1 minute. If no vacuum loss is noted in 1 minute, continue with sampling. If vacuum loss in noted, adjust fittings and repeat steps 1 through 3.
4. Close valve to vacuum pump and turn off vacuum pump.

3.4 Sample Collection

1. Record canister identification number, sample identification number, flow controller identification number, and vacuum gauge number on sub-slab soil vapor sampling field data air sampling form.
2. With 3-way valve leading to SUMMA canister closed, open valve on SUMMA canister and record initial vacuum (- inches Hg) on sub-slab soil vapor sampling field data air sampling form. *(Note: Initial vacuum of SUMMA canister should be between -24 and -30 inches Hg. If the initial vacuum is below, -24 inches Hg, the SUMMA canister should not be used.)* Close valve on SUMMA canister before proceeding to next step.
3. Open 3-way valve to SUMMA canister and valve to Vapor Pin™.
4. Open valve on SUMMA canister. Record date and time valve was opened on sub-slab soil vapor sampling field data air sampling form.
5. Photograph sample setup and location. Sketch the location of sub-slab sample on the sub-slab soil vapor sampling field data form.
6. Close valve on SUMMA canister, record time valve was closed and final canister volume (- inches Hg). *(Note: The valve should be closed in less than 30 minutes, so that a partial vacuum remains in the canister. The SUMMA canister should not be allowed to be come to ambient pressure (i.e., 0 inches Hg). A vacuum of -2 to -5 inches Hg should be present in the SUMMA canister at the end of sampling. Valve should be closed by authorized REL staff.)*
7. Remove flow restrictor using 9/16" open ended wrench. Replace brass cap on SUMMA canister.
8. Remove Vapor Pin™ following manufactures instructions.
9. Plug hole in concrete using hydraulic concrete. Photograph finished concrete patch.
10. Discard sample tubing.
11. Repackage SUMMA canister and flow restrictor in laboratory provided shipping package.
12. Complete laboratory provided chain of custody form.

13. Return SUMMA canister, flow restrictor, and chain of custody form to Pace Analytical for analysis utilizing Laboratory Method TO-15.

C

ATTACHMENT C

LABORATORY ANALYTICAL REPORTS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

December 18, 2019

Nicole LaPlant
Robert E. Lee & Associates
1250 Centennial Center Blvd.
Hobart, WI 54155

RE: Project: 295-236 Pulaski
Pace Project No.: 10502396

Dear Nicole LaPlant:
Enclosed are the analytical results for sample(s) received by the laboratory on December 12, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kirsten Hogberg
kirsten.hogberg@pacelabs.com
(612)607-1700
Project Manager

Enclosures

cc: Alan Gustafson, Robert E. Lee & Associates, Inc.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 295-236 Pulaski
Pace Project No.: 10502396

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Massachusetts DWP Certification #: via MN 027-053-137
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

Pace Analytical Services, LLC
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Minneapolis, MN 55414
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SAMPLE SUMMARY

Project: 295-236 Pulaski
Pace Project No.: 10502396

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10502396001	**SSV-1**	Air	12/10/19 12:50	12/12/19 10:05
10502396002	**SSV-2**	Air	12/10/19 13:02	12/12/19 10:05

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 295-236 Pulaski
Pace Project No.: 10502396

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10502396001	**SSV-1**	TO-15	MJL	9
10502396002	**SSV-2**	TO-15	MJL	9

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 295-236 Pulaski
Pace Project No.: 10502396

Sample: SSV-1 **Lab ID: 10502396001** Collected: 12/10/19 12:50 Received: 12/12/19 10:05 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.47J**	ug/m3	0.48	0.23	1.49		12/17/19 15:13	71-43-2	
Ethylbenzene	**0.74J**	ug/m3	1.3	0.45	1.49		12/17/19 15:13	100-41-4	
Methyl-tert-butyl ether	**<0.99**	ug/m3	5.5	0.99	1.49		12/17/19 15:13	1634-04-4	
Naphthalene	**2.7J**	ug/m3	4.0	2.0	1.49		12/17/19 15:13	91-20-3	
Toluene	**2.5**	ug/m3	1.1	0.52	1.49		12/17/19 15:13	108-88-3	
1,2,4-Trimethylbenzene	**1.7**	ug/m3	1.5	0.67	1.49		12/17/19 15:13	95-63-6	
1,3,5-Trimethylbenzene	**0.98J**	ug/m3	1.5	0.59	1.49		12/17/19 15:13	108-67-8	
m&p-Xylene	**2.3J**	ug/m3	2.6	1.0	1.49		12/17/19 15:13	179601-23-1	
o-Xylene	**0.63J**	ug/m3	1.3	0.51	1.49		12/17/19 15:13	95-47-6	

Sample: SSV-2 **Lab ID: 10502396002** Collected: 12/10/19 13:02 Received: 12/12/19 10:05 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**7.5**	ug/m3	0.51	0.24	1.58		12/17/19 16:06	71-43-2	
Ethylbenzene	**0.95J**	ug/m3	1.4	0.48	1.58		12/17/19 16:06	100-41-4	
Methyl-tert-butyl ether	**<1.0**	ug/m3	5.8	1.0	1.58		12/17/19 16:06	1634-04-4	
Naphthalene	**3.0J**	ug/m3	4.2	2.1	1.58		12/17/19 16:06	91-20-3	
Toluene	**16.6**	ug/m3	1.2	0.55	1.58		12/17/19 16:06	108-88-3	
1,2,4-Trimethylbenzene	**1.9**	ug/m3	1.6	0.71	1.58		12/17/19 16:06	95-63-6	
1,3,5-Trimethylbenzene	**1.1J**	ug/m3	1.6	0.63	1.58		12/17/19 16:06	108-67-8	
m&p-Xylene	**4.3**	ug/m3	2.8	1.1	1.58		12/17/19 16:06	179601-23-1	
o-Xylene	**1.3J**	ug/m3	1.4	0.54	1.58		12/17/19 16:06	95-47-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 295-236 Pulaski
Pace Project No.: 10502396

QC Batch: 650408
QC Batch Method: TO-15
Analysis Method: TO-15
Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10502396001, 10502396002

METHOD BLANK: 3497411
Matrix: Air
Associated Lab Samples: 10502396001, 10502396002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	<0.23	0.50	12/17/19 10:39	
1,3,5-Trimethylbenzene	ug/m3	<0.20	0.50	12/17/19 10:39	
Benzene	ug/m3	<0.076	0.16	12/17/19 10:39	
Ethylbenzene	ug/m3	<0.15	0.44	12/17/19 10:39	
m&p-Xylene	ug/m3	<0.35	0.88	12/17/19 10:39	
Methyl-tert-butyl ether	ug/m3	<0.33	1.8	12/17/19 10:39	
Naphthalene	ug/m3	<0.66	1.3	12/17/19 10:39	
o-Xylene	ug/m3	<0.17	0.44	12/17/19 10:39	
Toluene	ug/m3	<0.18	0.38	12/17/19 10:39	

LABORATORY CONTROL SAMPLE: 3497412

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	50	53.1	106	70-134	
1,3,5-Trimethylbenzene	ug/m3	50	53.7	107	70-132	
Benzene	ug/m3	32.5	33.9	105	70-130	
Ethylbenzene	ug/m3	44.1	53.6	121	67-131	
m&p-Xylene	ug/m3	88.3	94.8	107	70-132	
Methyl-tert-butyl ether	ug/m3	36.6	41.4	113	70-130	
Naphthalene	ug/m3	53.3	56.6	106	56-130	
o-Xylene	ug/m3	44.1	53.2	120	70-130	
Toluene	ug/m3	38.3	44.5	116	70-130	

SAMPLE DUPLICATE: 3498544

Parameter	Units	10502396001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	1.7	1.7	3	25	
1,3,5-Trimethylbenzene	ug/m3	0.98J	0.98J		25	
Benzene	ug/m3	0.47J	0.49		25	
Ethylbenzene	ug/m3	0.74J	0.80J		25	
m&p-Xylene	ug/m3	2.3J	2.3J		25	
Methyl-tert-butyl ether	ug/m3	<0.99	<0.99		25	
Naphthalene	ug/m3	2.7J	2.8J		25	
o-Xylene	ug/m3	0.63J	0.66J		25	
Toluene	ug/m3	2.5	2.7	6	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 295-236 Pulaski
Pace Project No.: 10502396

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 295-236 Pulaski
Pace Project No.: 10502396

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10502396001	**SSV-1**	TO-15	650408		
10502396002	**SSV-2**	TO-15	650408		

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www.pacelabs.com

AIR: CHAIN-OF-CUSTODY

The Chain-of-Custody is a LEGAL DOCUMENT. All rel

WO#: 10502396

10502396

48457

Page: 1 of 1

Section A Required Client Information:

Company: Robert E. Lee + Assoc
Address: 1250 Centennial Centre Blvd Hobart WI 54155
Email To: nlaplant@releeinc.com
Phone: 9206629641 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Nicole LaPlant
Copy To: Alan Gustafson
Purchase Order No.:
Project Name: Pulaski
Project Number: 295-236

Section C Invoice Information:

Attention: Nicole / Jaci
Company Name: Robert E. Lee + Associates
Address: 1250 Centennial Centre Blvd, Hobart
Pace Quote Reference:
Pace Project Manager/Sales Rep.
Pace Profile #: 23223

Program: [X] UST [ ] Superfund [ ] Emissions [ ] Clean Air Act [ ] Voluntary Clean Up [ ] Dry Clean [ ] RCRA [ ] Other

Location of Sampling by State: WI

Reporting Units: [X] ug/m³ [ ] mg/m³ [ ] PPBV [ ] PPMV [ ] Other

Report Level: II. III. IV. Other

'Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE - END/GRAB DATE	COMPOSITE - END/GRAB TIME	Canister Pressure (Initial Field - in Hg)	Canister Pressure (Final Field - in Hg)	Summa Can Number	Flow Control Number	Method: PM10	3C - Fixed Gas (%)	TO-3 BTEX	TO-3M (Methane)	TO-14	TO-15 Full List VOCs	TO-15 Short List BTEX	TO-15 Short List Chlorinated	TO-15 Short List (other)	PVOCs + Nap only	Pace Lab ID
1	SSV-1	6LC		12-10-19	1212	12-10-19	1250	-28	-5	06174588								X				001
2	SSV-2	6LC		↓ 1229 ~~1209~~		↓	1302	-27	-5	06312329								X				002
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Comments: PVOCs + Naphthalene only

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
REL	12-10-19	1400	PACE	12/12/19	1005

SAMPLE CONDITIONS

	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N	Y/N
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Cody Applekamp

SIGNATURE of SAMPLER: DATE Signed (MM / DD / YY): 12-10-19

ORIGINAL

Pace Analytical	Document Name: Air Sample Condition Upon Receipt	Document Revised: 14Oct2019 Page 1 of 1
	Document No.: F-MN-A-106-rev.19	Issuing Authority:

Air Sample Condition Upon Receipt

Client Name: ROBERT E. LEE & ASSOCIATES

Project # WO#: 10502396

PM: KNH Due Date: 12/19/19

CLIENT: RELEE

Courier: ☒Fed Ex ☐UPS ☐USPS ☐Client ☐Pace ☐SpeeDee ☐Commercial **See Exception** ☐

Tracking Number: 1083 0282 8845

Custody Seal on Cooler/Box Present? ☐Yes ☒No **Seals Intact?** ☐Yes ☒No

Packing Material: ☐Bubble Wrap ☐Bubble Bags ☒Foam ☐None ☐Tin Can ☐Other:_____ **Temp Blank rec:** ☐Yes ☒No

Temp. (TO17 and TO13 samples only) (°C): X **Corrected Temp (°C):** X **Thermometer Used:** ☐G87A9170600254 ☐G87A9155100842

Temp should be above freezing to 6°C **Correction Factor:** X **Date & Initials of Person Examining Contents:** 12/12/19 CMY

Type of ice Received ☐Blue ☐Wet ☒None

		Comments:
Chain of Custody Present?	☒Yes ☐No	1.
Chain of Custody Filled Out?	☒Yes ☐No	2.
Chain of Custody Relinquished?	☒Yes ☐No	3.
Sampler Name and/or Signature on COC?	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time?	☒Yes ☐No	5.
Short Hold Time Analysis (<72 hr)?	☐Yes ☒No	6.
Rush Turn Around Time Requested?	☐Yes ☒No	7.
Sufficient Volume?	☒Yes ☐No	8.
Correct Containers Used?	☒Yes ☐No	9.
-Pace Containers Used?	☒Yes ☐No	
Containers Intact?	☒Yes ☐No	10.
Media: Air Can Airbag Filter TDT Passive		11. Individually Certified Cans Y (N) (list which samples)
Is sufficient information available to reconcile samples to the COC?	☒Yes ☐No	12.
Do cans need to be pressurized? **(DO NOT PRESSURIZE 3C or ASTM 1946!!!)**	☒Yes ☐No	13.

Gauge # ☐10AIR26 ☒10AIR34 ☐10AIR35 ☐4097

Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
SSV-1	0617	2458	-3	-5					
SSV-2	0631	2329	-4.5	-5					

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐Yes ☐No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Kristen Hopberg **Date:** 12/13/2019

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

February 11, 2020

Nicole LaPlant
Robert E. Lee & Associates
1250 Centennial Center Blvd.
Hobart, WI 54155

RE: Project: 0295-236 Former KarczFord
Pace Project No.: 10507523

Dear Nicole LaPlant:
Enclosed are the analytical results for sample(s) received by the laboratory on February 05, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kirsten Hogberg
kirsten.hogberg@pacelabs.com
(612)607-1700
Project Manager

Enclosures

cc: Alan Gustafson, Robert E. Lee & Associates, Inc.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 0295-236 Former KarczFord
Pace Project No.: 10507523

Pace Analytical Services Minneapolis

A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Massachusetts DWP Certification #: via MN 027-053-137
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 0295-236 Former KarczFord
Pace Project No.: 10507523

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10507523001	**SSV-1**	Air	02/04/20 10:40	02/05/20 10:45
10507523002	**SSV-2**	Air	02/04/20 10:50	02/05/20 10:45

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SAMPLE ANALYTE COUNT

Project: 0295-236 Former KarczFord
Pace Project No.: 10507523

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10507523001	**SSV-1**	TO-15	AC1	9
10507523002	**SSV-2**	TO-15	AC1	9

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 0295-236 Former KarczFord
Pace Project No.: 10507523

Sample: SSV-1 **Lab ID: 10507523001** Collected: 02/04/20 10:40 Received: 02/05/20 10:45 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**<0.21**	ug/m3	0.45	0.21	1.39		02/08/20 22:00	71-43-2	
Ethylbenzene	**<0.42**	ug/m3	1.2	0.42	1.39		02/08/20 22:00	100-41-4	
Methyl-tert-butyl ether	**<0.92**	ug/m3	5.1	0.92	1.39		02/08/20 22:00	1634-04-4	
Naphthalene	**4.3**	ug/m3	3.7	1.8	1.39		02/08/20 22:00	91-20-3	
Toluene	**1.5**	ug/m3	1.1	0.49	1.39		02/08/20 22:00	108-88-3	
1,2,4-Trimethylbenzene	**1.3J**	ug/m3	1.4	0.63	1.39		02/08/20 22:00	95-63-6	
1,3,5-Trimethylbenzene	**0.64J**	ug/m3	1.4	0.55	1.39		02/08/20 22:00	108-67-8	
m&p-Xylene	**2.2J**	ug/m3	2.5	0.97	1.39		02/08/20 22:00	179601-23-1	
o-Xylene	**1.1J**	ug/m3	1.2	0.48	1.39		02/08/20 22:00	95-47-6	

Sample: SSV-2 **Lab ID: 10507523002** Collected: 02/04/20 10:50 Received: 02/05/20 10:45 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.34J**	ug/m3	0.50	0.24	1.55		02/08/20 22:29	71-43-2	
Ethylbenzene	**<0.47**	ug/m3	1.4	0.47	1.55		02/08/20 22:29	100-41-4	
Methyl-tert-butyl ether	**<1.0**	ug/m3	5.7	1.0	1.55		02/08/20 22:29	1634-04-4	
Naphthalene	**<2.0**	ug/m3	4.1	2.0	1.55		02/08/20 22:29	91-20-3	
Toluene	**1.5**	ug/m3	1.2	0.54	1.55		02/08/20 22:29	108-88-3	
1,2,4-Trimethylbenzene	**<0.70**	ug/m3	1.5	0.70	1.55		02/08/20 22:29	95-63-6	
1,3,5-Trimethylbenzene	**<0.62**	ug/m3	1.5	0.62	1.55		02/08/20 22:29	108-67-8	
m&p-Xylene	**<1.1**	ug/m3	2.7	1.1	1.55		02/08/20 22:29	179601-23-1	
o-Xylene	**0.75J**	ug/m3	1.4	0.53	1.55		02/08/20 22:29	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 0295-236 Former KarczFord
Pace Project No.: 10507523

QC Batch: 659024
QC Batch Method: TO-15
Analysis Method: TO-15
Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10507523001, 10507523002

METHOD BLANK: 3537409
Matrix: Air
Associated Lab Samples: 10507523001, 10507523002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	<0.45	1.0	02/08/20 11:18	
1,3,5-Trimethylbenzene	ug/m3	<0.40	1.0	02/08/20 11:18	
Benzene	ug/m3	<0.15	0.32	02/08/20 11:18	
Ethylbenzene	ug/m3	<0.30	0.88	02/08/20 11:18	
m&p-Xylene	ug/m3	<0.70	1.8	02/08/20 11:18	
Methyl-tert-butyl ether	ug/m3	<0.66	3.7	02/08/20 11:18	
Naphthalene	ug/m3	<1.3	2.7	02/08/20 11:18	
o-Xylene	ug/m3	<0.34	0.88	02/08/20 11:18	
Toluene	ug/m3	<0.35	0.77	02/08/20 11:18	

LABORATORY CONTROL SAMPLE: 3537410

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	50	57.0	114	70-137	
1,3,5-Trimethylbenzene	ug/m3	50	58.8	118	70-136	
Benzene	ug/m3	32.5	29.9	92	70-133	
Ethylbenzene	ug/m3	44.1	47.7	108	70-142	
m&p-Xylene	ug/m3	88.3	95.8	109	70-141	
Methyl-tert-butyl ether	ug/m3	36.6	34.5	94	70-131	
Naphthalene	ug/m3	53.3	49.6	93	63-130	
o-Xylene	ug/m3	44.1	46.8	106	70-135	
Toluene	ug/m3	38.3	41.7	109	70-136	

SAMPLE DUPLICATE: 3537566

Parameter	Units	10507479001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	ND	<0.70		25	
1,3,5-Trimethylbenzene	ug/m3	ND	<0.62		25	
Benzene	ug/m3	0.85	0.86	1	25	
Ethylbenzene	ug/m3	ND	<0.47		25	
m&p-Xylene	ug/m3	ND	<1.1		25	
Methyl-tert-butyl ether	ug/m3	ND	<1.0		25	
Naphthalene	ug/m3	5.8	6.3	8	25	
o-Xylene	ug/m3	ND	<0.53		25	
Toluene	ug/m3	4.0	4.9	20	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 0295-236 Former KarczFord
Pace Project No.: 10507523

SAMPLE DUPLICATE: 3537567

Parameter	Units	10507708005 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	2.5	2.3	7	25	
1,3,5-Trimethylbenzene	ug/m3	2.9	2.8	4	25	
Benzene	ug/m3	0.31J	0.34J		25	
Ethylbenzene	ug/m3	2.8	2.6	6	25	
m&p-Xylene	ug/m3	10.3	10.4	1	25	
Methyl-tert-butyl ether	ug/m3	<0.95	<0.95		25	
Naphthalene	ug/m3	4.0	3.9	1	25	
o-Xylene	ug/m3	3.9	3.8	2	25	
Toluene	ug/m3	2.5	2.6	4	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 0295-236 Former KarczFord
Pace Project No.: 10507523

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 0295-236 Former KarczFord
Pace Project No.: 10507523

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10507523001	**SSV-1**	TO-15	659024		
10507523002	**SSV-2**	TO-15	659024		

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www.pacelabs.com

AIR: CHAIN-OF-CUSTODY / A

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fie

WO# : 10507523

10507523

43560

Page: 1 of 1

Section A
Required Client Information:

Company: REL
Address: 1250 Centennial Centre Blvd
Hobart WI
Email To: agustafson@releaine.com
Phone: 9706629641 Fax: —
Requested Due Date/TAT:

Section B
Required Project Information:

Report To: Nicole LaPlant Alan Gustafson
Copy To:
Purchase Order No.:
Project Name: Former Karcz Ford
Project Number: 0295-236

Section C
Invoice Information:

Attention: Alan, Nicole, Jaci
Company Name: REL
Address:
Pace Quote Reference:
Pace Project Manager/Sales Rep.
Pace Profile #: 23223

Program
☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act
☐ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☐ Other____

Location of Sampling by State: WI

Reporting Units
ug/m³___ mg/m³___
PPBV___ PPMV___
Other___

Report Level II.___ III.___ IV.___ Other____

'Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	'Section D Required Client Information / AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE - END/GRAB DATE	COMPOSITE - END/GRAB TIME	Canister Pressure (Initial Field - in Hg)	Canister Pressure (Final Field - in Hg)	Summa Can Number	Flow Control Number	Method: PM10	3C - Fixed Gas (%)	TO-3 BTEX	TO-3M (Methane)	TO-14	TO-15 Full List VOCs	TO-15 Short List BTEX	TO-15 Short List Chlorinated	TO-15 Short List (Other)	Pace Lab ID
1	SSV-1	6LC		2-4-2020	0958	2-4-2020	1040	-30	-4	00563	15751							X		PVOCs + Naphthalene ONLY	001
2	SSV-2	6LC		2-4-2020	1013	2-4-2020	1050	-28	-4	02431	12481							X			002
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments: PVOCs + Naphthalene ONLY

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
REL	2-4-2020	1200	RACE	2/5/20	1045

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
—	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Cody Applekamp
SIGNATURE of SAMPLER: Cody Applekamp
DATE Signed (MM / DD / YY): 2-4-2020

ORIGINAL

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414 Air Technical Phone: 612.607.6386

Pace Analytical®	Document Name: Air Sample Condition Upon Receipt	Document Revised: 19Nov2019 Page 1 of 1
	Document No.: F-MN-A-106-rev.20	Pace Analytical Services - Minneapolis

Air Sample Condition Upon Receipt

Client Name: ROBERT E LEE & ASSOCIATES

Project #: WO#: 10507523

PM: KNH Due Date: 02/12/20

CLIENT: RELEE

Courier: [X] Fed Ex [ ] UPS [ ] USPS [ ] Client [ ] Pace [ ] SpeeDee [ ] Commercial See Exception [ ]

Tracking Number: 1083 0284 1956

Custody Seal on Cooler/Box Present? [ ] Yes [X] No **Seals Intact?** [ ] Yes [X] No

Packing Material: [ ] Bubble Wrap [ ] Bubble Bags [X] Foam [ ] None [ ] Tin Can [ ] Other: _____ **Temp Blank rec:** [ ] Yes [X] No

Temp. (TO17 and TO13 samples only) (°C): X **Corrected Temp (°C):** X

Thermometer Used: [ ] G87A9170600254 [ ] G87A9155100842

Temp should be above freezing to 6°C **Correction Factor:** X **Date & Initials of Person Examining Contents:** 2/5/20 CMY

Type of ice Received [ ] Blue [ ] Wet [X] None

		Comments:
Chain of Custody Present?	[X] Yes [ ] No	1.
Chain of Custody Filled Out?	[X] Yes [ ] No	2.
Chain of Custody Relinquished?	[X] Yes [ ] No	3.
Sampler Name and/or Signature on COC?	[X] Yes [ ] No [ ] N/A	4.
Samples Arrived within Hold Time?	[X] Yes [ ] No	5.
Short Hold Time Analysis (<72 hr)?	[ ] Yes [X] No	6.
Rush Turn Around Time Requested?	[ ] Yes [X] No	7.
Sufficient Volume?	[X] Yes [ ] No	8.
Correct Containers Used? **(Tedlar bags not acceptable container for TO-14, TO-15 or APH)** -Pace Containers Used?	[X] Yes [ ] No [X] Yes [ ] No	9.
Containers Intact? **(visual inspection/no leaks when pressurized)**	[X] Yes [ ] No	10.
Media: (Air Can) Airbag Filter TDT Passive		11. Individually Certified Cans Y (N) (list which samples)
Is sufficient information available to reconcile samples to the COC?	[X] Yes [ ] No	12.
Do cans need to be pressurized? **(DO NOT PRESSURIZE 3C or ASTM 1946!!!)**	[X] Yes [ ] No	13.

Gauge # [X] 10AIR26 [ ] 10AIR34 [ ] 10AIR35 [ ] 4097

Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
SSV-1	0056	1575	-1	+5					
SSV-2	0243	1248	-4	+5					

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** [ ] Yes [ ] No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Joanne Richardson **Date:** 2-5-20

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)