May 12, 2014

NCDENR, DWM
UST Section
Attn.: Mr. Wayne Randolph, Regional Supervisor
Mr. Vincent Morgan
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Re.: Initial Abatement Action Report
Estate of Elizabeth King
1129 Essex Drive
Wilmington, North Carolina 28405
Incident No. 32898
ARM Project No.: 0669

Gentlemen,

Enclosed please find a copy of the Initial Abatement Action Report for the above referenced site. Based on findings of this investigation and success of the abatement activities, no petroleum impacts to soil or groundwater remain at the site. Groundwater impacts were initially identified in test well TW-1; however, confirmation groundwater sampling revealed all hydrocarbon compounds to be below NCAC 02L Groundwater Quality Standards. It is recommended that no further assessment or remediation be conducted and the site be issued a No Further Action letter.

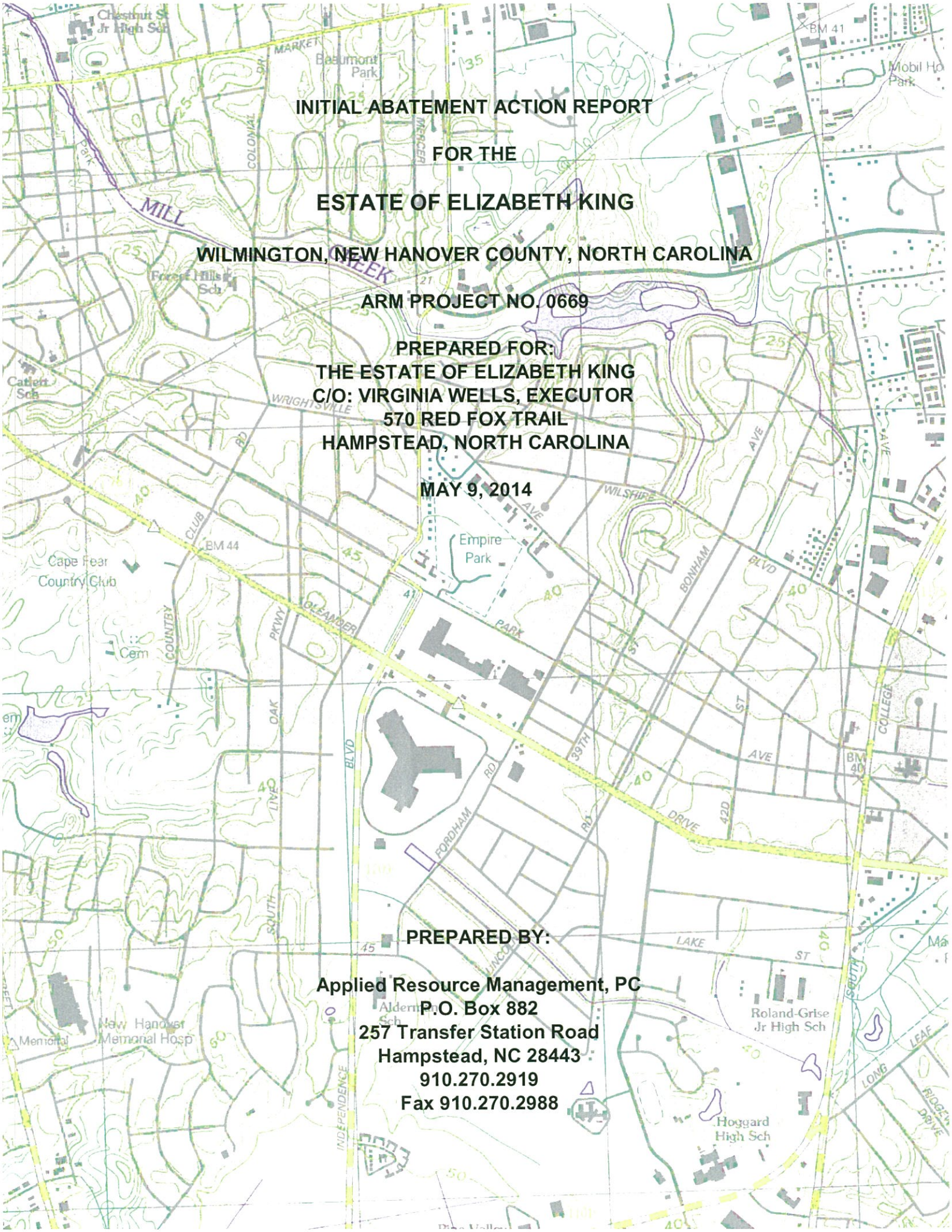
If you have any questions or require additional information, please do not hesitate to call.

Sincerely,

Joseph L Zuncich
Project Manager/CWD/Environmental Geologist

cc: w/encs. Estate of Elizabeth King
c/o Ms. Virginia Wells, Executor
570 Red Fox Trail
Hampstead, North Carolina 28443

Applied Resource Management, P. C.
P. O. Box 882, 257 Transfer Station Road, Hampstead, NC 28443 910.270.2919 Fax 910.270.2988



INITIAL ABATEMENT ACTION REPORT

FOR THE

ESTATE OF ELIZABETH KING

WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

ARM PROJECT NO. 0669

PREPARED FOR:
THE ESTATE OF ELIZABETH KING
C/O: VIRGINIA WELLS, EXECUTOR
570 RED FOX TRAIL
HAMPSTEAD, NORTH CAROLINA

MAY 9, 2014

PREPARED BY:

Applied Resource Management, PC
P.O. Box 882
257 Transfer Station Road
Hampstead, NC 28443
910.270.2919
Fax 910.270.2988

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APPENDIX D LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS

INITIAL ABATEMENT ACTION REPORT

FOR THE

ESTATE OF ELIZABETH KING

WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

ARM PROJECT NO. 0669

MAY 9, 2014

A. SITE IDENTIFICATION AND RELEASE INFORMATION

Facility I.D.:	Noncommercial-Residential Heating Oil UST
Site Name:	Estate of Elizabeth King
Site Location:	1129 Essex Drive
Nearest City/Town:	Wilmington
County:	New Hanover
UST Owner:	Ms. Virgina Wells, Executor
Address:	570 Red Fox Trail, Hampstead, NC, 28443
Phone:	(910) 270-2391
UST Operator (Last):	Estate of Elizabeth King
Address:	1129 Essex Drive, Wilmington, NC
Phone:	(910) 270-2391
Property Owner:	Ms. Elizabeth King
Address:	1129 Essex Drive, Wilmington, NC 28405
Phone:	(910) 270-2391
Property Occupant:	Ms. Elizabeth King
Address:	1129 Essex Drive, Wilmington, NC 28405
Phone:	(910) 270-2391
Consultant/Contractor:	Applied Resource Management, PC
Address:	257 Transfer Station Rd, PO Box 882, Hampstead, NC 28443
Phone:	(910) 270-2919

May 9, 2014

RELEASE INFORMATION

Date Discovered:	February 13, 2014 (Confirmed by laboratory results)
Site Coordinates:	Latitude: 34°13' 27.80" N Longitude: 77° 54' 31.42" W
Estimated Quantity of Release:	Unknown
Cause of Release:	Unknown
Source of Release:	Heating Oil Underground Storage Tank (UST)

Sizes and contents of UST system(s) from which the release occurred: The Underground Storage Tank (UST) was an estimated 560 gallon tank. The tank was found to be cut open and filled with sand. The fill sand was removed during tank cleaning operations. Fill sand from the tank and approximately 49 tons of petroleum impacted soil were excavated, loaded, and transported to Soil Recovery in Navassa, NC for thermal treatment. The tank was hauled off-site and disposed by Holden's Backhoe Service.

I, James L. Cornette a Professional Geologist for Applied Resource Management, P.C., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

James L. Cornette, PG
Project Manager

NORTH CAROLINA LICENSED SEAL 1214 GEOLOGIST JAMES L. CORNETTE

B. SITE HISTORY AND CHARACTERIZATION

The site is located at 1129 Essex Drive in Wilmington, North Carolina. Figure 1 is a Site Vicinity Map showing the project location. The subject property is residential with a two story dwelling. Applied Resource Management, PC, was contracted to remove the approximate 560 gallon heating oil underground storage tank (UST) located on the subject property. The date of tank installation is unknown. The release was confirmed by laboratory results on 2/13/14.

C. SITE CHECK

One estimated 560 gallon fuel oil UST was excavated and removed from the subject property. As part of the site check and UST closure activities, a total of four soil samples were collected. S-1 and S-2 were collected during the tank removal from the sidewall of each tank end. S-3 and S-4 were later collected from the east and west sidewall of the excavation area. All of the soil samples were collected at approximately three to four feet below ground surface and submitted for laboratory analysis under RBCA guidelines per EPA Methods 8260, 8270 BN, and MADEP EPH/VPH. Analytical results from the confirmation soil samples revealed no remaining impacts to the soil. Due to the presence of groundwater encountered within the excavation pit, one Type II monitoring well, identified as TW-1, was installed within the excavation area. After gauging and verifying that no free product was present in the well, the well was purged and developed. An initial groundwater sample was collected from the well and analyzed per RBCA guidelines for EPA Methods 602 with xylenes, 625BN, and MADEP EPH/VPH. Contaminant concentrations (naphthalene at 125 ppb, C9-C12 aliphatics at 1,280 ppb, C11-C22 Aliphatics at 821 ppb, and C9-C10 aromatics at 702 ppb) were identified above NCAC 02L Groundwater Quality Standards. None of the compounds revealed concentrations above NC Gross Contaminant Levels. A 24 Hour Release Notification Form with supporting documentation was submitted to the Division for review.

D. UST CLOSURE DOCUMENTATION

One UST was located at the northeast side of the residential building structure. The former tank basin location is shown on Figure 2. Tank specifics are as follows:

Tank No.	Date Installed	Size (gals.)	Tank Dimensions	Last Contents
UST-1	Unknown	Approx 560	Approx 42" x 92"	Fuel Oil

1.0 SITE CHARACTERISTICS

1.1 Describe Any Past Releases at this Site.

No previous known releases have been reported at this site.

1.2 Is the Facility Active or Inactive at this Time?

The facility is residential and was occupied at the time of the UST closure activities.

1.3 Describe Surrounding Property Use

Surrounding property usage is primarily residential with surrounding neighborhood development. Commercial activity is prevalent approximately 1,300 feet toward the northeast and east along Wrightsville Avenue and Independence Boulevard.

1.4 Describe Site Geology/Hydrogeology

The sediments underlying the site were found to be represented by tan-gray to brown, slightly clayey sands to approximately four feet deep changing to silty/very fine grained sands to approximately nine feet below ground surface. Groundwater was initially measured at approximately 4.12 feet below ground surface.

2.0 CLOSURE PROCEDURES

2.1 Describe Preparations for Closure Including the Steps Taken to Notify Authorities, Permits Obtained, and the Steps Taken to Clean and Purge the Tank

No notifications were required to remove the residential fuel oil UST. A utility locate was conducted prior to UST closure activities.

2.2 Amount of Residual Material Pumped from the Tank

The tank was found to be filled with sand from previous closure in-place activities. No fuel oil was found inside of the tank; therefore, no residual material was pumped out of the tank.

2.3 Describe the Storage, Sampling and Disposal of the Residual Material

No residual fluids were found in the tank during closure activities.

2.4 Removal Closure Procedures

Prior to tank removal activities, the UST was screened using a Gastech GT201 to confirm the absence of explosive vapors. After removing fill sand from the tank, field screening revealed less than 10% LEL. The tank was excavated, removed from the site, and properly disposed by Holden's Backhoe Service. A Tank Disposal Manifest is provided in Appendix A.

2.5 Contaminated Soil

Petroleum hydrocarbon odors were identified during the UST closure activities. Approximately 49.33 tons of petroleum contaminated soil was excavated, loaded, and transported to Soil Recovery Inc. in Navassa, NC for treatment. Non-Hazardous Soil Disposal Manifests and NC Certified Weight Tickets are provided in Appendix B. A waste composite soil sample identified as Comp-1 was collected from the excavated material and analyzed per EPA Methods 5030 and 3550 for Total Petroleum Hydrocarbons. Laboratory results revealed the waste material to contain 28 ppm Gasoline Range Organics (GRO) and 594 ppm Diesel Range Organics (DRO).

3.0 SITE INVESTIGATION

3.1 Provide Information on Field Screening and Observations, Include Methods Used to Calibrate Field Screening Instruments
(Refer to Figure 2)

The following summarizes tank observations subsequent to closure activities:

Tank	Material	Product	% LEL/O_2	Observations
T-1	Steel	Fuel Oil	<10/20.9	Tank surface in poor condition, moderate rust, and several holes observed.

3.2 Describe Soil Sampling Points and Sampling Procedures Used
(Refer to Figure 2, Appendices C, and D)

After the fuel oil tank was removed, the excavation sidewalls were checked for the presence of hydrocarbon odors. Additional soils were removed until no

odors or minimal odors were detected. As required, soil samples S-1 through S-4 were collected from each sidewall of the fuel oil UST excavation area at approximately three to four feet deep and immediately above the groundwater table. Soil sampling locations are depicted on Figure 2. All of the soil samples were submitted for laboratory analysis per EPA Methods 8260, 8270 BN, and MADEP EPH/VPH. In addition, one composite soil sample, identified as Comp-1, was collected from the excavated waste material and analyzed per EPA Methods 3550 and 5030 for Total Petroleum Hydrocarbons. The following summarizes the soil sample locations and analyses specifics:

Sample Designation	Sample Location	Sample Analyses
S-1	West end sidewall of UST at approximately 3-4 feet deep.	8260, 8270 BN, MADEP EPH and MADEP VPH
S-2	East end sidewall of UST at approximately 3-4 feet deep.	EPA 8260, 8270, MADEP EPH and MADEP VPH
S-3	North end sidewall of UST at approximately 3-4 feet deep.	8260, 8270 BN, MADEP EPH and MADEP VPH
S-4	South end sidewall of UST at approximately 3-4 feet deep.	8260, 8270 BN, MADEP EPH and MADEP VPH
Comp-1	Composite sample from soil stockpile waste material.	EPA 3550 and 5030

The soil samples were packed in proper laboratory glassware, fitted with a Teflon lid, and maintained at approximately four degrees Centigrade for transport to the laboratory. Proper chain-of-custody records were maintained throughout possession of the samples.

3.3 Describe Groundwater or Surface Water Sampling

Groundwater was encountered at approximately four to five feet deep within the excavation pit during the UST closure activities. One Type II monitoring well, TW-1, was installed within the excavation area. A Boring Log, NC Well Construction Record, and As-Built Well Detail are provided in Appendix C. After gauging, purging, and well development, one groundwater sample was collected from the well and submitted for laboratory analysis per EPA Methods 602 with xylenes, 625BN, and MADEP EPH/VPH.

3.4 Quality Control Measures

Soil samples were obtained from the hand auger or backhoe bucket from each sidewall of the fuel oil UST excavation area as part of closure activities. In addition, a decontaminated hand auger bucket was utilized to install monitoring well TW-1, located within the excavation area and immediately adjacent to the former tank location. Sampling employed the following procedures:

1. The samples were obtained from the hand auger or backhoe bucket.

2. The samples were obtained from the bucket using new, latex gloves, placed into glass sample jars, and fitted with Teflon lids.

3. The samples were labeled with the date, location, time, and analysis required prior to being individually sealed in a plastic bag and placed on ice for transport to the laboratory. Temperatures were maintained at or below four degrees Centigrade from sampling time to receipt at the laboratory.

4. The entire Chain-of-Custody record was maintained to ensure sample integrity during transport. The entire custody chain is presented in Appendix D.

3.5 Soil Investigation Results
(Refer to Table 1 and Appendix D)

UST closure soil samples S-1 and S-2 were collected during the tank removal from the east and west sidewalls of the excavation at approximately three to four feet below ground surface. Two additional soil samples, identified as S-3 and S-4, were later collected from the north and south sidewall locations of the former excavation area at the same depths. The soil samples were submitted for laboratory analysis per EPA Methods 8260, 8270 BN, and after the MADEP for EPH and VPH. As shown in Table 1, low level acetone concentrations were identified in all four soil samples, although none of the concentrations were found to exceed NC Soil-to-Groundwater Maximum Contaminant Concentration Limits. Laboratory results are provided in Appendix D.

E. FREE PRODUCT INVESTIGATION

No free product was observed on the groundwater surface within the tank pit area during UST closure activities. Also, no evidence of sheen or free product was identified within the test well constructed within the former UST basin excavation area.

F. GROUNDWATER INVESTIGATION

(Refer to Table 2 and Appendix D)

Due to the fact that groundwater was encountered within the excavation area during UST closure, one Type II monitoring well was installed. The well was gauged for the presence of free product. No measurable thickness was found. The well was purged, developed, and initially sampled under the RBCA guidelines per EPA Methods 602 with xylenes, 625 BN, and MADEP EPH/VPH. As shown in Table 2, petroleum hydrocarbon compounds naphthalene, C9-C12 aliphatics, C11-C22 Aliphatics, and C9-C10 aromatics were found at concentrations above NCAC 02L Groundwater Quality Standards. No chemical compounds were identified above the NC Gross Contaminant Levels. The test well was resampled on March 17, 2014 for EPA Method 602 plus naphthalene to confirm if the volatile organic compound naphthalene was present. Laboratory results revealed all volatile organic compounds to be compliant with non-detect levels. On April 22, 2014, a final groundwater sample was collected from test well TW-1 and analyzed for MADEP EPH and VPH compounds to confirm previous results. Analytical results for the confirmation sampling revealed all MADEP EPH and VPH compounds to be compliant as compared to NCAC 02L Groundwater Quality Standards. Laboratory results are provided in Appendix D.

G. INITIAL RESPONSE AND ABATEMENT ACTIVITIES

Residential fuel oil UST closure activities were recently conducted at the property. The fuel oil tank was excavated, removed from the site and disposed. In addition, approximately 49.33 tons of petroleum contaminated soil was excavated and removed from the site as part of initial abatement activities.

H. CONCLUSIONS AND RECOMMENDATIONS

One estimated 560 gallon fuel oil UST was excavated and removed from the subject property. As part of the site check and UST closure activities, a total of four soil samples (S-1 thru S-4) were collected from each sidewall of the fuel oil UST excavation area and submitted for laboratory analysis under RBCA guidelines. Analytical results for the confirmation soil samples revealed no remaining non-compliant impacts to the soil.

Due to the presence of groundwater encountered within the excavation pit, one Type II monitoring well, TW-1, was installed within the excavation area. After gauging and verifying that no free product was present in the well, the well was purged, developed, and one groundwater sample collected and analyzed. Initial groundwater sampling results revealed non-compliant naphthalene , C9-C12 aliphatics, C11-C22 Aliphatics, and C9-C10 aromatics concentrations above NCAC 02L Groundwater Quality Standards. No chemical compounds were identified above the NC Gross Contaminant

Levels. As part of the Initial Abatement Action phase, the test well was resampled twice to confirm the presence of hydrocarbon compounds. The 3/17/14 sampling event revealed all EPA Method 602 plus naphthalene hydrocarbon compounds to be compliant. Also, the resampling event on 4/22/14 revealed all MADEP EPH and VPH compounds to be complaint as compared to NCAC 02L Groundwater Quality Standards.

Based on findings of this investigation and success of the abatement activities, it is recommended that no further assessment or remediation be conducted and the site be issued a No Further Action letter.

TABLES

TABLE 1 (Page 1 Of 2)
SOIL SAMPLE RESULTS SUMMARY

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NORTH CAROLINA

ANALYTE	SOIL-TO-GROUNDWATER MAXIMUM CONTAMINANT CONCENTRATION	S-1 2/3/14	S-2 2/3/14	S-3 4/22/14	S-4 4/22/14	COMP-1 2/3/14
EPA METHOD 8260 (concentrations in ppb)						
ACETONE	24,000	29.3 J	24.6 J	28.7 J	16.4 J	NA
METHYLENE CHLORIDE	20	ND	ND	ND	ND	NA
BENZENE	5.6	ND	ND	ND	ND	NA
TOLUENE	4,300	ND	ND	ND	ND	NA
ETHYLBENZENE	4,900	ND	ND	ND	ND	NA
XYLENES	4,600	ND	ND	ND	ND	NA
1,3,5-TRIMETHYLBENZENE	8,300	ND	ND	ND	ND	NA
1,2,4-TRIMETHYLBENZENE	8,500	ND	ND	ND	ND	NA
P-ISOPROPYLTOLUENE	120	ND	ND	ND	ND	NA
NAPHTHALENE	160	ND	ND	ND	ND	NA
ALL OTHER COMPOUNDS	Varies	ND	ND	ND	ND	NA
EPA METHOD 8270 BN (concentrations in ppb)						
NAPHTHALENE	160	ND	ND	ND	ND	NA
2-METHYLNAPHTHALENE	3,600	ND	ND	ND	ND	NA
PHENANTHRENE	56,000	ND	ND	ND	ND	NA
ALL OTHER COMPOUNDS	Varies	ND	ND	ND	ND	NA
TOTAL PETROLEUM HYDROCARBONS (concentrations in ppm)						
GASOLINE RANGE ORGANICS	10	NA	NA	NA	NA	28.0
DIESEL RANGE ORGANICS	10	NA	NA	NA	NA	594

Shaded areas present non-compliant hydrocarbon concentrations.
ND = Not Detected
NA = Not Analyzed
ppb = parts per billion
J = Estimated concentration, below calibration range and above Method Detection limit
Note: Comp-1 collected as a waste composite stockpile soil sample

TABLE 1 (Page 2 Of 2)
SOIL SAMPLE RESULTS SUMMARY

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NORTH CAROLINA

HYDROCARBON FRACTION STANDARD RANGES	ANALYTICAL HYDROCARBON FRACTION RANGE	SOIL-TO-GROUND-WATER MSCC	S-1 2/3/14		S-2 2/3/14		S-3 4/22/14		S-4 4/22/14	
			LAB. RESULT CONC.	FINAL CONC.	LAB. RESULT CONC.	FINAL CONC.	LAB. RESULT CONC.	FINAL CONC.	LAB. RESULT CONC.	FINAL CONC.
MADEP VPH FOR LOW BOILING POINT FUELS (Concentrations in ppm)										
C5-C8 ALIPHATICS	C5-C8 ALIPHATICS (VPH)	68	ND	ND	ND	ND	ND	ND	ND	ND
C9-C18 ALIPHATICS	C9-C12 ALIPHATICS (VPH)	540	ND	ND	ND	ND	ND	ND	ND	ND
C9-C22 AROMATICS	C9-C10 AROMATICS (VPH)	31	ND	ND	ND	ND	ND	ND	ND	ND
MADEP EPH FOR MEDIUM TO HIGH BOILING POINT FUELS (Concentrations in ppm)										
C5-C8 ALIPHATICS	C5-C8 ALIPHATICS (VPH)	68	ND	ND	ND	ND	ND	ND	ND	ND
C9-C18 ALIPHATICS	C9-C12 ALIPHATICS (VPH)	540	ND	ND	ND	ND	ND	ND	ND	ND
	C9-C18 ALIPHATICS (EPH)		ND		ND		ND		ND	
C19-C36 ALIPHATICS	C19-C36 ALIPHATICS (EPH)	Considered Immobile	ND	ND	ND	ND	ND	ND	ND	ND
C9-C22 AROMATICS	C9-C10 AROMATICS (VPH)	31	ND	ND	ND	ND	ND	ND	ND	ND
	C11-C22 ALIPHATICS (EPH)		ND		ND		ND		ND	

Shaded areas represent non compliant hydrocarbon concentrations.
ND = Not Detected
ppm = parts per million

TABLE 2 (Page 1 of 2)
GROUNDWATER SAMPLE RESULTS SUMMARY

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NORTH CAROLINA

ANALYTE	GROSS CONTAMINANT LIMIT	STATE ACTION LIMIT	TW-1	
DATE SAMPLED			2/4/14	3/17/14
EPA METHOD 602/ 6200B (Concentrations in ppb)				
BENZENE	5,000	1	ND	ND
DIISOPROPYL ETHER	70,000	70	ND	ND
TOLUENE	260,000	600	ND	ND
ETHYLBENZENE	84,500	600	26.2	ND
XYLENES	85,500	500	57.7	ND
MTBE	20,000	20	ND	ND
NAPHTHALENE	6,000	6	125	ND
ALL OTHER COMPOUNDS	Varies	Varies	ND	ND
EPA METHOD 625 BN (Concentrations in ppb)				
NAPHTHALENE	6,000	6	38.2	NA
PHENANTHRENE	410	200	6.4 J	NA
FLUORENE	990	300	5.9 J	NA
ALL OTHER COMPOUNDS	Varies	Varies	ND	NA

ppb = parts per million
Shaded gray areas represent non-compliant hydrocarbon concentrations above NC State action limits
ND = Not Detected
J = Estimated Concentration

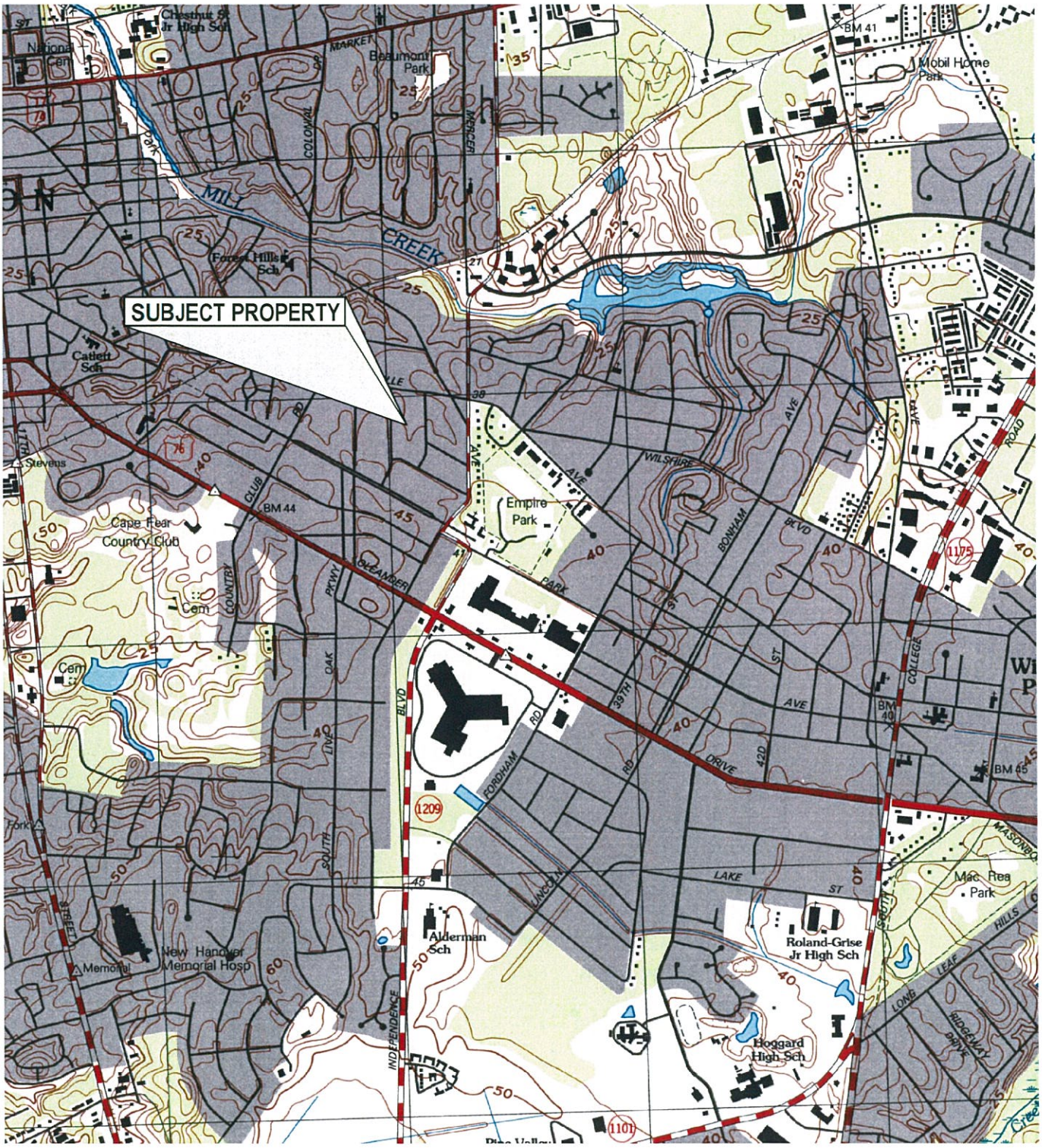
TABLE 2 (Page 2 of 2)
GROUNDWATER SAMPLE RESULTS SUMMARY

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NORTH CAROLINA

HYDROCARBON FRACTION STANDARD RANGES	ANALYTICAL HYDROCARBON FRACTION RANGE	02L STANDARD	TW-1			
			LAB. RESULT CONC.	FINAL CONC.	LAB. RESULT CONC.	FINAL CONC.
		DATE SAMPLED	2/4/14		4/22/14	
MADEP VPH FOR LOW BOILING POINT FUELS (Concentrations in ppb)						
C5-C8 ALIPHATICS	C5-C8 ALIPHATICS (VPH)	400	ND	ND	ND	ND
C9-C18 ALIPHATICS	C9-C12 ALIPHATICS (VPH)	700	1,280	1,280	ND	ND
C9-C22 AROMATICS	C9-C-10 AROMATICS (VPH)	200	702	702	ND	ND
MADEP EPH FOR MEDIUM TO HIGH BOILING POINT FUELS (Concentrations in ppb)						
C5-C8 ALIPHATICS	C5-C8 ALIPHATICS (VPH)	400	ND	ND	ND	ND
C9-C18 ALIPHATICS	C9-C12 ALIPHATICS (VPH)	700	1,280	1,280	ND	
	C9-C18 ALIPHATICS (EPH)		ND		ND	
C19-C36 ALIPHATICS	C19-C36 ALIPHATICS (EPH)	10,000	ND	ND	ND	ND
C9-C22 AROMATICS	C9-C10 AROMATICS (VPH)	200	702	1,523	ND	ND
	C11-C22 ALIPHATICS (EPH)		821		ND	

Shaded gray areas present non-compliant hydrocarbon concentrations
ppb = parts per billion
ND = Not detected
NA = Not analyzed

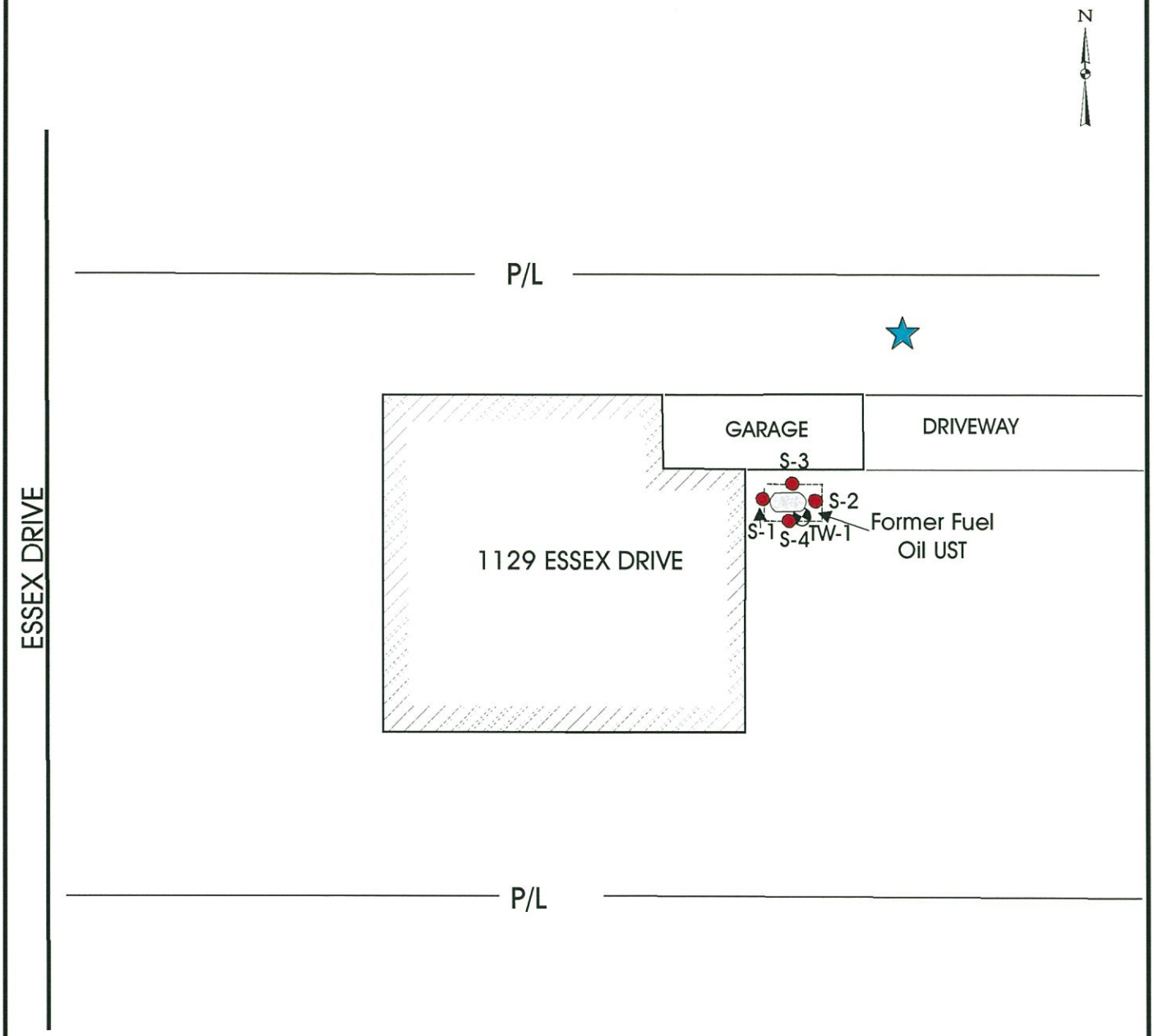
FIGURES



NOTE: Adapted from USGS Wilmington, NC, Topographic Quadrangle Map (1993).

Applied Resource Management, P. C.
Hampstead, NC 28443

TITLE:				FIGURE:
SITE VICINITY MAP				1
JOB: 0669-A	SCALE: 1"=2,000'	DATE: 2/17/14	DRAWN BY: KLC	



LEGEND

- Soil Sample Location
- Temporary Monitoring Well
- Approximate UST Basin/Excavation Area
- Irrigation Well Location
- P/L Approximate Property Boundary

Applied Resource Management, P. C.
Hampstead, NC 28443

TITLE:				FIGURE:
Site Sketch With Former Fuel Oil UST Basin, Soil Sample, And Monitoring Well Locations				2
JOB: 0669	SCALE: 1" = ~20'	DATE: 5/5/14	DRAWN BY: JLZ	

APPENDICES

APPENDIX A

HOLDEN'S BACKHOE SERVICE

3189 MT. MISERY RD. LELAND ,N.C. 28451 910/264-8020 CELL

910/371-1260 FAX

April 3, 2014

TO WHO IT MAY CONCERN,

THE FUEL TANK THAT WAS REMOVED FROM ESSEX DR. WILMINGTON , N.C. WAS CRUSHED AND SOLD FOR SCRAP . TANK REMAINS WERE CLEANED AT JOB SITE.

THANK YOU,

WAYNE HOLDEN

APPENDIX B

CERTIFICATE OF ACCEPTANCE

FROM: SOIL RECOVERY, INC.
P. O. BOX 395
CASTLE HAYNE, NC 28429

TO; APPLIED RESOURCES MANAGEMENT
P. O. BOX 443
HAMPSTEAD, NC 28443

RE; 1129 ESSEX DR.

ATTN; JOE L. ZUNCICH

SOIL RECOVERY, INC. HAS TAKEN FULL OWNERSHIP OF 49.33 TONS OF CONTAMINATED SOIL RECEIVED FROM THE PROPERTY OF ELIZABETH KING, LOCATED AT 1129 ESSEX DRIVE, WILMINGTON, NC. ALL LIABILITY WITH TREATMENT AND DISPOSAL OF THE CONTAMINATED SOIL WILL REMAIN WITH SOIL RECOVERY, INC.. APPLIED RESOURCES MANAGEMENT AND ELIZABETH KING ARE EXEMPT FROM ANY FURTHER LIABILITY AND/OR RESPONSIBILITY FOR THE 49.33 TONS OF CONTAMINATED SOIL.

Samuel E. Long Jr. — 2/5/14

SAMUEL E. LONG, JR., PRESIDENT — DATE

Susan Long — 2/5/14

WITNESS — DATE

Appt. Time _____

WEIGHED ON A FAIRBANKS SCALE

Number HBS2

Date 2/3/14

Customer Soil Recovery

Carrier 1129 Essex Dr.

Commodity Dirt

10:49 AM 2/03/2014

56340 lb G lbs. Gross
23040 lb T lbs. Tare
33300 lb N lbs. Net

Incoming Gross Weight

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2014
NANCY NEALE 30391
Nancy Neale
INVALID UNLESS SIGNED

Shipper ADI

Weigher Nancy Neale

Appt. Time _____

WEIGHED ON A FAIRBANKS SCALE

Number HBS2

Date 2/3/14

Customer Soil Recovery

Carrier 1129 Essex

Commodity Dirt

1:08 PM 2/03/2014

56300 lb G lbs. Gross
23040 lb T lbs. Tare
33260 lb N lbs. Net

Incoming Gross Weight

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2014
NANCY NEALE 30391
Nancy Neale
INVALID UNLESS SIGNED

Shipper ADI

Weigher Nancy Neale

Appt. Time _____

WEIGHED ON A FAIRBANKS SCALE

Number HBS2

Date 2/3/14

Customer Soil Recovery

Carrier 1129 Essex

Commodity Dirt

3:19 PM 2/03/2014

55140 lb G lbs. Gross
23040 lb T lbs. Tare
32100 lb N lbs. Net

Incoming Gross Weight

NORTH CAROLINA
PUBLIC WEIGHMASTER
LICENSE EXPIRES JUNE 30, 2014
NANCY NEALE 36301
Nancy Neale
INVALID UNLESS SIGNED

Shipper ADI

Weigher Nancy Neale

NON-HAZARDOUS WASTE MANIFEST

Date FEB 3, 2014
Manifest No. 01

Section 1 — GENERATOR (Generator completes all of Section 1)

a. Generator Name: Elizabeth King Residence

b. Generator Location: New Hanover

c. Address: 1129 Essex Dr., Wilmington, NC 28403

d. Address: 1129 Essex Drive, Wilmington, North Carolina 28403

e. Phone No.: 910 270-2391

f. Phone No.: 910 270-2919

g. Owner's Name: Same

h. Owner's Phone No.: Same

i. Description of Waste: Petroleum contaminated soil

j. Quantity: 15 est. Units: Tons Type: Soil

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable State law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations, and , if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Joe L. Zuncich — Generator Authorized Agent Name
Generator Signature
2/3/14 — Shipment Date

Section 2 — TRANSPORTER

TRANSPORTER 1	TRANSPORTER 2
a. Name: Holdens Backhoe Service	h. Name:
b. Address: 3189 Mt. Misery Rd., Leland, NC 28451	i. Address:
c. Driver Name/Title: Wayne Holden	j. Driver Name/Title:
d. Phone No.: 910 264-8020	k. Phone No.:
e. Truck No.: HBS 1 License No.: 4039708	k. Truck No.: License No.:
g. Driver Signature: Wayne Holden	m. Driver Signature:

Section 3 — DESTINATION

a. Site Name: Soil Recovery, Inc.

c. Phone No.: 910 254-0053

b. Physical Address: Navassa, Leland, North Carolina

d. Mailing Address: P.O. Box 395
Castle Hayne, North Carolina 28429

e. Discrepancy Indication Space:

I hereby certify that the above named material has been accepted, and to the best of my knowledge the foregoing is true and accurate.

Sam Long — Name of Authorized Agent
Signature of Authorized Agent
2/3/14 — Date

NON-HAZARDOUS WASTE MANIFEST

Date Feb 3, 2014
Manifest No. 02

Section 1 — GENERATOR (Generator completes all of Section 1)

a. Generator Name: Elizabeth King Residence

b. Generator Location: New Hanover

c. Address: 1129 Essex Dr., Wilmington, NC 28403

d. Address: 1129 Essex Drive, Wilmington, North Carolina 28403

e. Phone No.: 910 270-2391

f. Phone No.: 910 270-2919

g. Owner's Name: Same

h. Owner's Phone No.: Same

i. Description of Waste: Petroleum contaminated soil

j. Quantity: 15 est. Units: Tons Type: Soil

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable State law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations, and , if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Joe L. Zuncich — Generator Authorized Agent Name
Generator Signature
2-3-14 — Shipment Date

Section 2 — TRANSPORTER

TRANSPORTER 1

a. Name: Holdens Backhoe Service

b. Address: 3189 Mt. Misery Rd., Leland, NC 28451

c. Driver Name/Title:

d. Phone No.: 910 264-8020

e. Truck No.: H35 / License No.: 403978

g. Driver Signature:

TRANSPORTER 2

h. Name:

i. Address:

j. Driver Name/Title:

k. Phone No.:

k. Truck No.: License No.:

m. Driver Signature:

Section 3 — DESTINATION

a. Site Name: Soil Recovery, Inc.

b. Physical Address: Navassa, Leland, North Carolina

c. Phone No.: 910 254-0053

d. Mailing Address: P.O. Box 395
Castle Hayne, North Carolina 28429

e. Discrepancy Indication Space:

I hereby certify that the above named material has been accepted, and to the best of my knowledge the foregoing is true and accurate.

SAM LONG — Name of Authorized Agent
Signature of Authorized Agent
2/3/14 — Date

NON-HAZARDOUS WASTE MANIFEST

Date FEB 3 2014
Manifest No. 03

Section 1 — GENERATOR (Generator completes all of Section 1)

a. Generator Name: Elizabeth King Residence

b. Generator Location: New Hanover

c. Address: 1129 Essex Dr., Wilmington, NC 28403

d. Address: 1129 Essex Drive, Wilmington, North Carolina 28403

e. Phone No.: 910 270-2391

f. Phone No.: 910 270-2919

g. Owner's Name: Same

h. Owner's Phone No.: Same

i. Description of Waste: Petroleum contaminated soil

j. Quantity: 15 est. Units: Tons Type: Soil

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable State law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations, and , if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Joe L. Zuncich
Generator Authorized Agent Name — Generator Signature — Shipment Date

Section 2 — TRANSPORTER

TRANSPORTER 1

a. Name: Holdens Backhoe Service

b. Address: 3189 Mt. Misery Rd., Leland, NC 28451

c. Driver Name/Title: Wayne Holden

d. Phone No.: 910 264-8020

e. Truck No.: HBS1 License No.: 4034708

g. Driver Signature: Wayne Holden

TRANSPORTER 2

h. Name:

i. Address:

j. Driver Name/Title:

k. Phone No.:

k. Truck No.: License No.:

m. Driver Signature:

Section 3 — DESTINATION

a. Site Name: Soil Recovery, Inc.

b. Physical Address: Navassa, Leland, North Carolina

c. Phone No.: 910 254-0053

d. Mailing Address: P.O. Box 395
Castle Hayne, North Carolina 28429

e. Discrepancy Indication Space:

I hereby certify that the above named material has been accepted, and to the best of my knowledge the foregoing is true and accurate.

SAM LONG — Name of Authorized Agent
Signature of Authorized Agent
2/3/14 — Date

APPENDIX C

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NC

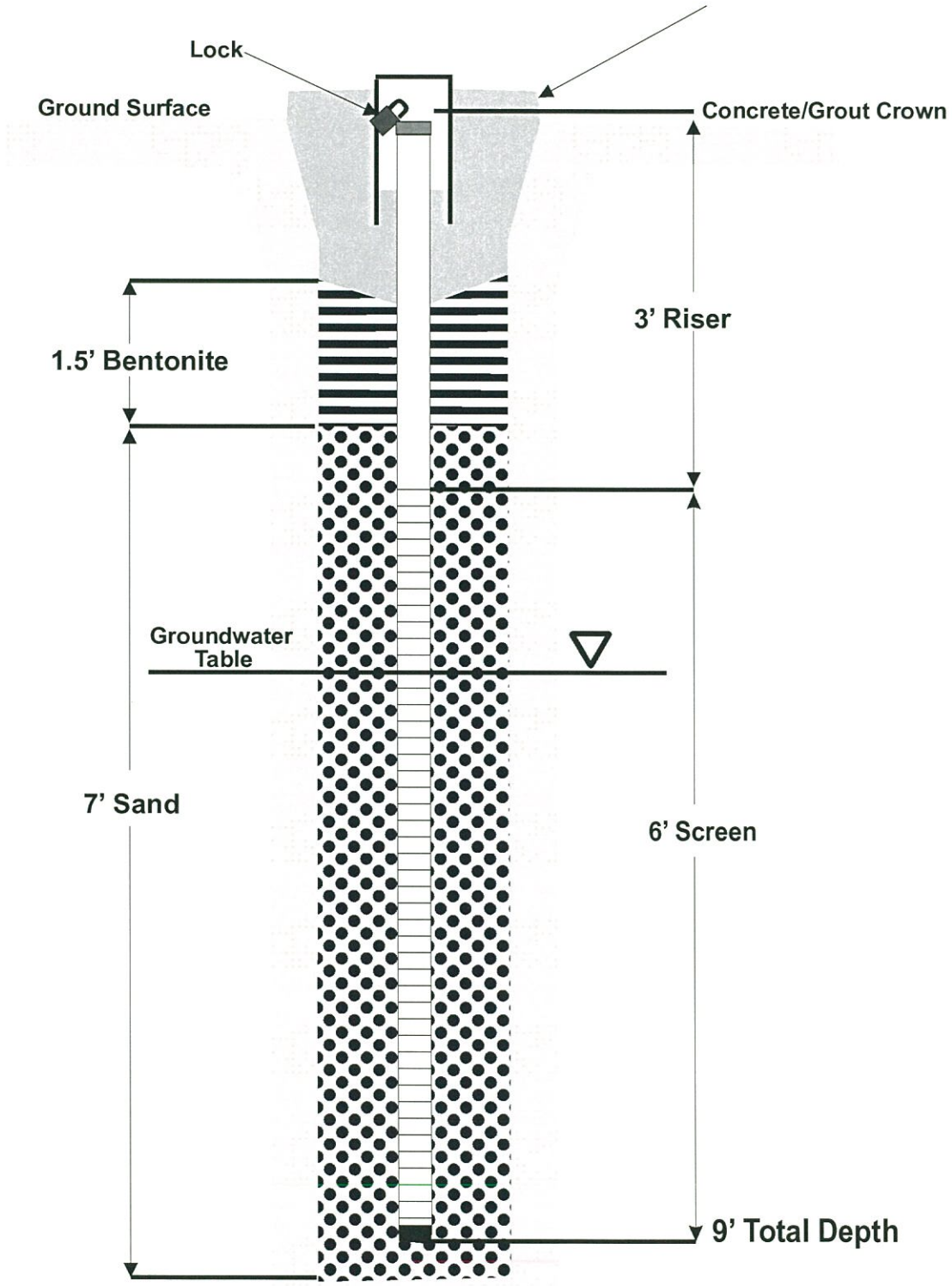
TW-1

Drilled by : Applied Resource Management
Logged by: J. Zuncich
Date: 2/3/14

Depth (ft.)	*Description*	*Water Content*	*Blow Count*
0 - 9.0	Tan brown, fine grained backfill sand material. No hydrocarbon odor.	Moderate to High	HA

HA = Hand auger
Boring advanced utilizing a decontaminated hand auger.

TW-1



Applied Resource Management, P. C.
Hampstead, NC 28443

TITLE:				WELL ID:
Type II Monitoring Well Asbuilt				TW-1
JOB: 0669	SCALE: Not to scale	DATE: 2/20/14	DRAWN BY: JLZ	

WELL CONSTRUCTION RECORD

This form can be used for single or multiple wells

1. Well Contractor Information:

Joseph Zuncich

Well Contractor Name

3324-A

NC Well Contractor Certification Number

Applied Resource Management, P.C.

Company Name

2. Well Construction Permit #: N/A

List all applicable well construction permits (i.e. County, State, Variance, etc.)

3. Well Use (check well use):

Water Supply Well:

- ☐ Agricultural
- ☐ Municipal/Public
- ☐ Geothermal (Heating/Cooling Supply)
- ☐ Residential Water Supply (single)
- ☐ Industrial/Commercial
- ☐ Residential Water Supply (shared)
- ☐ Irrigation

Non-Water Supply Well:

- ☑ Monitoring
- ☐ Recovery

Injection Well:

- ☐ Aquifer Recharge
- ☐ Groundwater Remediation
- ☐ Aquifer Storage and Recovery
- ☐ Salinity Barrier
- ☐ Aquifer Test
- ☐ Stormwater Drainage
- ☐ Experimental Technology
- ☐ Subsidence Control
- ☐ Geothermal (Closed Loop)
- ☐ Tracer
- ☐ Geothermal (Heating/Cooling Return)
- ☐ Other (explain under #21 Remarks)

4. Date Well(s) Completed: 2/3/14 **Well ID#** TW-1

5a. Well Location:

Elizabeth King — Facility/Owner Name

N/A — Facility ID# (if applicable)

1129 Essex Drive, Wilmington, NC 28405

Physical Address, City, and Zip

New Hanover — County

05412-004-007 — Parcel Identification No. (PIN)

5b. Latitude and Longitude in degrees/minutes/seconds or decimal degrees:
(if well field, one lat/long is sufficient)

34 13'27.80" N 77 54'31.43" W

6. Is (are) the well(s): ☐ **Permanent** or ☑ **Temporary**

7. Is this a repair to an existing well: ☐ **Yes** or ☑ **No**

If this is a repair, fill out known well construction information and explain the nature of the repair under #21 remarks section or on the back of this form.

8. Number of wells constructed: 1

For multiple injection or non-water supply wells ONLY with the same construction, you can submit one form.

9. Total well depth below land surface: 9 **(ft.)**

For multiple wells list all depths if different (example- 3@200' and 2@100')

10. Static water level below top of casing: 4.16 **(ft.)**

If water level is above casing, use "+"

11. Borehole diameter: 3" **(in.)**

12. Well construction method: Hand Augered

(i.e. auger, rotary, cable, direct push, etc.)

FOR WATER SUPPLY WELLS ONLY:

13a. Yield (gpm) N/A **Method of test:** N/A

13b. Disinfection type: N/A **Amount:** N/A

For Internal Use ONLY:

14. WATER ZONES

FROM	TO	DESCRIPTION
ft.	ft.	
ft.	ft.	

15. OUTER CASING (for multi-cased wells) OR LINER (if applicable)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
0 ft.	3 ft.	2 in.	SCH40	PVC

16. INNER CASING OR TUBING (geothermal closed-loop)

FROM	TO	DIAMETER	THICKNESS	MATERIAL
ft.	ft.	in.		
ft.	ft.	in.		

17. SCREEN

FROM	TO	DIAMETER	SLOT SIZE	THICKNESS	MATERIAL
3 ft.	9 ft.	2 in.	.010	SCH40	PVC
ft.	ft.	in.			

18. GROUT

FROM	TO	MATERIAL	EMPLACEMENT METHOD & AMOUNT
0 ft.	1.5 ft.	Bentonite	Tremmie
ft.	ft.		
ft.	ft.		

19. SAND/GRAVEL PACK (if applicable)

FROM	TO	MATERIAL	EMPLACEMENT METHOD
1.5 ft.	9 ft.	Coarse	Poured
ft.	ft.		

20. DRILLING LOG (attach additional sheets if necessary)

FROM	TO	DESCRIPTION (color, hardness, soil/rock type, grain size, etc.)
0 ft.	8 ft.	Tan brown clean backfill sand
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	
ft.	ft.	

21. REMARKS

22. Certification:

Signature of Certified Well Contractor — Date 2/21/14

By signing this form, I hereby certify that the well(s) was (were) constructed in accordance with 15A NCAC 02C .0100 or 15A NCAC 02C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

23. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well construction details. You may also attach additional pages if necessary.

SUBMITTAL INSTUCTIONS

24a. For All Wells: Submit this form within 30 days of completion of well construction to the following:

Division of Water Quality, Information Processing Unit,
1617 Mail Service Center, Raleigh, NC 27699-1617

24b. For Injection Wells: In addition to sending the form to the address in 24a above, also submit a copy of this form within 30 days of completion of well construction to the following:

Division of Water Quality, Underground Injection Control Program,
1636 Mail Service Center, Raleigh, NC 27699-1636

24c. For Water Supply & Injection Wells: In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well construction to the county health department of the county where constructed.

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NC

SB-3

Drilled by : Applied Resource Management
Logged by: J. Zuncich
Date: 4/22/14

Depth (ft.)	*Description*	*Water Content*	*Blow Count*
0 - 4.0	Light gray to brown, silty to fine grained sand mixtures with low clay content. No hydrocarbon odor. Soil sample collected at 3-4 feet deep.	Low to Moist	HA

HA = Hand Auger

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NC

SB-4

Drilled by : Applied Resource Management
Logged by: J. Zuncich
Date: 4/22/14

Depth (ft.)	*Description*	*Water Content*	*Blow Count*
0 - 4.0	Light gray to brown, silty to fine grained sand mixtures with low clay content and tree root material. No hydrocarbon odor. Soil sample collected at 3-4 feet deep.	Low to Moist	HA

HA = Hand Auger

APPENDIX D

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

February 12, 2014

Joe Zunich
ARM'S Waterworks
PO Box 882
Hampstead, NC 28443

RE: Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Dear Joe Zunich:
Enclosed are the analytical results for sample(s) received by the laboratory on February 05, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

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

Sincerely,

Angela M. Baioni

Angela Baioni
angela.baioni@pacelabs.com
Project Manager

Enclosures

cc: Karen Corbett, ARM's Waterworks
Ellen Cornette, ARM'S Waterworks
James Cornette, ARM'S Waterworks

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92188624001	S-1	Solid	02/03/14 11:02	02/05/14 10:20
92188624002	S-2	Solid	02/03/14 11:31	02/05/14 10:20
92188624003	COMP 1	Solid	02/03/14 10:27	02/05/14 10:20
92188624004	TW-1	Water	02/04/14 12:14	02/05/14 10:20

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Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92188624001	S-1	MADEP EPH	EJK	7	PASI-C
		MADEP VPH	GAW	5	PASI-C
		EPA 8270	BPJ	74	PASI-C
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	LLW	1	PASI-C
92188624002	S-2	MADEP EPH	EJK	7	PASI-C
		MADEP VPH	GAW	5	PASI-C
		EPA 8270	BPJ	74	PASI-C
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	LLW	1	PASI-C
92188624003	COMP 1	EPA 8015 Modified	NU1	2	PASI-C
		EPA 8015 Modified	GAW	2	PASI-C
		ASTM D2974-87	LLW	1	PASI-C
92188624004	TW-1	MADEP EPH	EJK	7	PASI-C
		MADEP VPH	GAW	5	PASI-C
		EPA 625	BPJ	47	PASI-C
		SM 6200B	CAH	11	PASI-C

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www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: S-1 **Lab ID: 92188624001** Collected: 02/03/14 11:02 Received: 02/05/14 10:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP EPH NC Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C09-C18)	ND	mg/kg	11.4	11.4	1	02/05/14 11:15	02/06/14 10:17		N2
Aliphatic (C19-C36)	ND	mg/kg	11.4	11.4	1	02/05/14 11:15	02/06/14 10:17		N2
Aromatic (C11-C22)	ND	mg/kg	11.4	11.4	1	02/05/14 11:15	02/06/14 10:17		N2
Surrogates									
Nonatriacontane (S)	52	%	40-140		1	02/05/14 11:15	02/06/14 10:17	7194-86-7	
o-Terphenyl (S)	70	%	40-140		1	02/05/14 11:15	02/06/14 10:17	84-15-1	
2-Fluorobiphenyl (S)	98	%	40-140		1	02/05/14 11:15	02/06/14 10:17	321-60-8	
2-Bromonaphthalene (S)	113	%	40-140		1	02/05/14 11:15	02/06/14 10:17	580-13-2	
VPH NC Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Aliphatic (C05-C08)	ND	mg/kg	2.4	2.4	1	02/10/14 19:13	02/11/14 04:44		N2
Aliphatic (C09-C12)	ND	mg/kg	2.4	2.4	1	02/10/14 19:13	02/11/14 04:44		N2
Aromatic (C09-C10)	ND	mg/kg	2.4	2.4	1	02/10/14 19:13	02/11/14 04:44		N2
Surrogates									
4-Bromofluorobenzene (FID) (S)	117	%	70-130		1	02/10/14 19:13	02/11/14 04:44	460-00-4	
4-Bromofluorobenzene (PID) (S)	100	%	70-130		1	02/10/14 19:13	02/11/14 04:44	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Acenaphthene	ND	ug/kg	375	86.3	1	02/05/14 11:18	02/07/14 10:26	83-32-9	
Acenaphthylene	ND	ug/kg	375	88.6	1	02/05/14 11:18	02/07/14 10:26	208-96-8	
Aniline	ND	ug/kg	375	101	1	02/05/14 11:18	02/07/14 10:26	62-53-3	
Anthracene	ND	ug/kg	375	84.0	1	02/05/14 11:18	02/07/14 10:26	120-12-7	
Benzo(a)anthracene	ND	ug/kg	375	69.3	1	02/05/14 11:18	02/07/14 10:26	56-55-3	
Benzo(a)pyrene	ND	ug/kg	375	71.5	1	02/05/14 11:18	02/07/14 10:26	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	375	64.7	1	02/05/14 11:18	02/07/14 10:26	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	375	95.4	1	02/05/14 11:18	02/07/14 10:26	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	375	73.8	1	02/05/14 11:18	02/07/14 10:26	207-08-9	
Benzoic Acid	ND	ug/kg	1870	68.1	1	02/05/14 11:18	02/07/14 10:26	65-85-0	
Benzyl alcohol	ND	ug/kg	749	74.9	1	02/05/14 11:18	02/07/14 10:26	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	375	68.1	1	02/05/14 11:18	02/07/14 10:26	101-55-3	
Butylbenzylphthalate	ND	ug/kg	375	79.5	1	02/05/14 11:18	02/07/14 10:26	85-68-7	
4-Chloro-3-methylphenol	ND	ug/kg	749	77.2	1	02/05/14 11:18	02/07/14 10:26	59-50-7	
4-Chloroaniline	ND	ug/kg	1870	104	1	02/05/14 11:18	02/07/14 10:26	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	375	87.4	1	02/05/14 11:18	02/07/14 10:26	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	375	95.4	1	02/05/14 11:18	02/07/14 10:26	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	375	99.9	1	02/05/14 11:18	02/07/14 10:26	108-60-1	
2-Chloronaphthalene	ND	ug/kg	375	73.8	1	02/05/14 11:18	02/07/14 10:26	91-58-7	
2-Chlorophenol	ND	ug/kg	375	102	1	02/05/14 11:18	02/07/14 10:26	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	375	77.2	1	02/05/14 11:18	02/07/14 10:26	7005-72-3	
Chrysene	ND	ug/kg	375	50.0	1	02/05/14 11:18	02/07/14 10:26	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	375	79.5	1	02/05/14 11:18	02/07/14 10:26	53-70-3	
Dibenzofuran	ND	ug/kg	375	61.3	1	02/05/14 11:18	02/07/14 10:26	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	375	99.9	1	02/05/14 11:18	02/07/14 10:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	375	85.1	1	02/05/14 11:18	02/07/14 10:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	375	106	1	02/05/14 11:18	02/07/14 10:26	106-46-7	

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: S-1 **Lab ID: 92188624001** Collected: 02/03/14 11:02 Received: 02/05/14 10:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
3,3'-Dichlorobenzidine	ND	ug/kg	1870	81.7	1	02/05/14 11:18	02/07/14 10:26	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	375	81.7	1	02/05/14 11:18	02/07/14 10:26	120-83-2	
Diethylphthalate	ND	ug/kg	375	57.9	1	02/05/14 11:18	02/07/14 10:26	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	375	148	1	02/05/14 11:18	02/07/14 10:26	105-67-9	
Dimethylphthalate	ND	ug/kg	375	76.1	1	02/05/14 11:18	02/07/14 10:26	131-11-3	
Di-n-butylphthalate	ND	ug/kg	375	61.3	1	02/05/14 11:18	02/07/14 10:26	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	749	74.9	1	02/05/14 11:18	02/07/14 10:26	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1870	61.3	1	02/05/14 11:18	02/07/14 10:26	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	375	70.4	1	02/05/14 11:18	02/07/14 10:26	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	375	78.3	1	02/05/14 11:18	02/07/14 10:26	606-20-2	
Di-n-octylphthalate	ND	ug/kg	375	78.3	1	02/05/14 11:18	02/07/14 10:26	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	375	102	1	02/05/14 11:18	02/07/14 10:26	117-81-7	
Fluoranthene	ND	ug/kg	375	54.5	1	02/05/14 11:18	02/07/14 10:26	206-44-0	
Fluorene	ND	ug/kg	375	77.2	1	02/05/14 11:18	02/07/14 10:26	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	375	64.7	1	02/05/14 11:18	02/07/14 10:26	87-68-3	
Hexachlorobenzene	ND	ug/kg	375	47.7	1	02/05/14 11:18	02/07/14 10:26	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	375	69.3	1	02/05/14 11:18	02/07/14 10:26	77-47-4	
Hexachloroethane	ND	ug/kg	375	98.8	1	02/05/14 11:18	02/07/14 10:26	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	375	77.2	1	02/05/14 11:18	02/07/14 10:26	193-39-5	
Isophorone	ND	ug/kg	375	84.0	1	02/05/14 11:18	02/07/14 10:26	78-59-1	
1-Methylnaphthalene	ND	ug/kg	375	97.6	1	02/05/14 11:18	02/07/14 10:26	90-12-0	
2-Methylnaphthalene	ND	ug/kg	375	80.6	1	02/05/14 11:18	02/07/14 10:26	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	375	114	1	02/05/14 11:18	02/07/14 10:26	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	375	148	1	02/05/14 11:18	02/07/14 10:26		
Naphthalene	ND	ug/kg	375	92.0	1	02/05/14 11:18	02/07/14 10:26	91-20-3	
2-Nitroaniline	ND	ug/kg	1870	116	1	02/05/14 11:18	02/07/14 10:26	88-74-4	
3-Nitroaniline	ND	ug/kg	1870	102	1	02/05/14 11:18	02/07/14 10:26	99-09-2	
4-Nitroaniline	ND	ug/kg	749	106	1	02/05/14 11:18	02/07/14 10:26	100-01-6	
Nitrobenzene	ND	ug/kg	375	102	1	02/05/14 11:18	02/07/14 10:26	98-95-3	
2-Nitrophenol	ND	ug/kg	375	90.8	1	02/05/14 11:18	02/07/14 10:26	88-75-5	
4-Nitrophenol	ND	ug/kg	1870	67.0	1	02/05/14 11:18	02/07/14 10:26	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	375	121	1	02/05/14 11:18	02/07/14 10:26	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	375	71.5	1	02/05/14 11:18	02/07/14 10:26	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	375	111	1	02/05/14 11:18	02/07/14 10:26	86-30-6	
Pentachlorophenol	ND	ug/kg	1870	68.1	1	02/05/14 11:18	02/07/14 10:26	87-86-5	
Phenanthrene	ND	ug/kg	375	62.4	1	02/05/14 11:18	02/07/14 10:26	85-01-8	
Phenol	ND	ug/kg	375	112	1	02/05/14 11:18	02/07/14 10:26	108-95-2	
Pyrene	ND	ug/kg	375	63.6	1	02/05/14 11:18	02/07/14 10:26	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	375	72.7	1	02/05/14 11:18	02/07/14 10:26	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	375	116	1	02/05/14 11:18	02/07/14 10:26	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	375	82.9	1	02/05/14 11:18	02/07/14 10:26	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	73	%	23-110		1	02/05/14 11:18	02/07/14 10:26	4165-60-0	
2-Fluorobiphenyl (S)	71	%	30-110		1	02/05/14 11:18	02/07/14 10:26	321-60-8	
Terphenyl-d14 (S)	67	%	28-110		1	02/05/14 11:18	02/07/14 10:26	1718-51-0	

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ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: S-1 **Lab ID: 92188624001** Collected: 02/03/14 11:02 Received: 02/05/14 10:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Surrogates									
Phenol-d6 (S)	68	%	22-110		1	02/05/14 11:18	02/07/14 10:26	13127-88-3	
2-Fluorophenol (S)	76	%	13-110		1	02/05/14 11:18	02/07/14 10:26	367-12-4	
2,4,6-Tribromophenol (S)	68	%	27-110		1	02/05/14 11:18	02/07/14 10:26	118-79-6	
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Acetone	**29.3J**	ug/kg	73.1	7.3	1		02/10/14 17:00	67-64-1	
Benzene	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	71-43-2	
Bromobenzene	ND	ug/kg	3.7	1.5	1		02/10/14 17:00	108-86-1	
Bromochloromethane	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	74-97-5	
Bromodichloromethane	ND	ug/kg	3.7	1.4	1		02/10/14 17:00	75-27-4	
Bromoform	ND	ug/kg	3.7	1.7	1		02/10/14 17:00	75-25-2	
Bromomethane	ND	ug/kg	7.3	1.8	1		02/10/14 17:00	74-83-9	
2-Butanone (MEK)	ND	ug/kg	73.1	2.1	1		02/10/14 17:00	78-93-3	
n-Butylbenzene	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	104-51-8	
sec-Butylbenzene	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	135-98-8	
tert-Butylbenzene	ND	ug/kg	3.7	1.5	1		02/10/14 17:00	98-06-6	
Carbon tetrachloride	ND	ug/kg	3.7	1.9	1		02/10/14 17:00	56-23-5	
Chlorobenzene	ND	ug/kg	3.7	1.4	1		02/10/14 17:00	108-90-7	
Chloroethane	ND	ug/kg	7.3	1.8	1		02/10/14 17:00	75-00-3	
Chloroform	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	67-66-3	
Chloromethane	ND	ug/kg	7.3	1.8	1		02/10/14 17:00	74-87-3	
2-Chlorotoluene	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	95-49-8	
4-Chlorotoluene	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	3.7	2.6	1		02/10/14 17:00	96-12-8	
Dibromochloromethane	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	106-93-4	
Dibromomethane	ND	ug/kg	3.7	1.8	1		02/10/14 17:00	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	3.7	1.4	1		02/10/14 17:00	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	3.7	1.5	1		02/10/14 17:00	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	7.3	2.6	1		02/10/14 17:00	75-71-8	
1,1-Dichloroethane	ND	ug/kg	3.7	1.1	1		02/10/14 17:00	75-34-3	
1,2-Dichloroethane	ND	ug/kg	3.7	1.6	1		02/10/14 17:00	107-06-2	
1,1-Dichloroethene	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	3.7	1.0	1		02/10/14 17:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	3.7	1.4	1		02/10/14 17:00	156-60-5	
1,2-Dichloropropane	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	78-87-5	
1,3-Dichloropropane	ND	ug/kg	3.7	1.4	1		02/10/14 17:00	142-28-9	
2,2-Dichloropropane	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	594-20-7	
1,1-Dichloropropene	ND	ug/kg	3.7	1.1	1		02/10/14 17:00	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	3.7	1.1	1		02/10/14 17:00	10061-02-6	
Diisopropyl ether	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	108-20-3	
Ethylbenzene	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	100-41-4	

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ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: S-1 **Lab ID: 92188624001** Collected: 02/03/14 11:02 Received: 02/05/14 10:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Hexachloro-1,3-butadiene	ND	ug/kg	3.7	1.5	1		02/10/14 17:00	87-68-3	
2-Hexanone	ND	ug/kg	36.6	2.9	1		02/10/14 17:00	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	3.7	1.4	1		02/10/14 17:00	98-82-8	
p-Isopropyltoluene	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	99-87-6	
Methylene Chloride	ND	ug/kg	14.6	2.2	1		02/10/14 17:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	36.6	2.7	1		02/10/14 17:00	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	3.7	1.1	1		02/10/14 17:00	1634-04-4	
Naphthalene	ND	ug/kg	3.7	0.88	1		02/10/14 17:00	91-20-3	
n-Propylbenzene	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	103-65-1	
Styrene	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	3.7	1.5	1		02/10/14 17:00	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	3.7	1.4	1		02/10/14 17:00	79-34-5	
Tetrachloroethene	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	127-18-4	
Toluene	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	3.7	1.6	1		02/10/14 17:00	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	3.7	1.5	1		02/10/14 17:00	79-00-5	
Trichloroethene	ND	ug/kg	3.7	1.5	1		02/10/14 17:00	79-01-6	
Trichlorofluoromethane	ND	ug/kg	3.7	1.6	1		02/10/14 17:00	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	3.7	1.2	1		02/10/14 17:00	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	3.7	1.5	1		02/10/14 17:00	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.7	1.3	1		02/10/14 17:00	108-67-8	
Vinyl acetate	ND	ug/kg	36.6	6.4	1		02/10/14 17:00	108-05-4	
Vinyl chloride	ND	ug/kg	7.3	1.3	1		02/10/14 17:00	75-01-4	
Xylene (Total)	ND	ug/kg	7.3	2.6	1		02/10/14 17:00	1330-20-7	
m&p-Xylene	ND	ug/kg	7.3	2.6	1		02/10/14 17:00	179601-23-1	
o-Xylene	ND	ug/kg	3.7	1.4	1		02/10/14 17:00	95-47-6	
Surrogates									
Toluene-d8 (S)	100	%	70-130		1		02/10/14 17:00	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130		1		02/10/14 17:00	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	70-132		1		02/10/14 17:00	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**11.9**	%	0.10	0.10	1		02/06/14 15:49		

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ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: S-2 **Lab ID: 92188624002** Collected: 02/03/14 11:31 Received: 02/05/14 10:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP EPH NC Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C09-C18)	ND	mg/kg	11.7	11.7	1	02/05/14 11:15	02/06/14 10:50		N2
Aliphatic (C19-C36)	ND	mg/kg	11.7	11.7	1	02/05/14 11:15	02/06/14 10:50		N2
Aromatic (C11-C22)	ND	mg/kg	11.7	11.7	1	02/05/14 11:15	02/06/14 10:50		N2
Surrogates									
Nonatriacontane (S)	54	%	40-140		1	02/05/14 11:15	02/06/14 10:50	7194-86-7	
o-Terphenyl (S)	76	%	40-140		1	02/05/14 11:15	02/06/14 10:50	84-15-1	
2-Fluorobiphenyl (S)	90	%	40-140		1	02/05/14 11:15	02/06/14 10:50	321-60-8	
2-Bromonaphthalene (S)	102	%	40-140		1	02/05/14 11:15	02/06/14 10:50	580-13-2	
VPH NC Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Aliphatic (C05-C08)	ND	mg/kg	2.3	2.3	1	02/10/14 19:13	02/11/14 05:07		N2
Aliphatic (C09-C12)	ND	mg/kg	2.3	2.3	1	02/10/14 19:13	02/11/14 05:07		N2
Aromatic (C09-C10)	ND	mg/kg	2.3	2.3	1	02/10/14 19:13	02/11/14 05:07		N2
Surrogates									
4-Bromofluorobenzene (FID) (S)	122	%	70-130		1	02/10/14 19:13	02/11/14 05:07	460-00-4	
4-Bromofluorobenzene (PID) (S)	102	%	70-130		1	02/10/14 19:13	02/11/14 05:07	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Acenaphthene	ND	ug/kg	386	88.8	1	02/05/14 11:18	02/07/14 10:54	83-32-9	
Acenaphthylene	ND	ug/kg	386	91.2	1	02/05/14 11:18	02/07/14 10:54	208-96-8	
Aniline	ND	ug/kg	386	104	1	02/05/14 11:18	02/07/14 10:54	62-53-3	
Anthracene	ND	ug/kg	386	86.5	1	02/05/14 11:18	02/07/14 10:54	120-12-7	
Benzo(a)anthracene	ND	ug/kg	386	71.3	1	02/05/14 11:18	02/07/14 10:54	56-55-3	
Benzo(a)pyrene	ND	ug/kg	386	73.6	1	02/05/14 11:18	02/07/14 10:54	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	386	66.6	1	02/05/14 11:18	02/07/14 10:54	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	386	98.2	1	02/05/14 11:18	02/07/14 10:54	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	386	76.0	1	02/05/14 11:18	02/07/14 10:54	207-08-9	
Benzoic Acid	ND	ug/kg	1930	70.1	1	02/05/14 11:18	02/07/14 10:54	65-85-0	
Benzyl alcohol	ND	ug/kg	772	77.2	1	02/05/14 11:18	02/07/14 10:54	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	386	70.1	1	02/05/14 11:18	02/07/14 10:54	101-55-3	
Butylbenzylphthalate	ND	ug/kg	386	81.8	1	02/05/14 11:18	02/07/14 10:54	85-68-7	
4-Chloro-3-methylphenol	ND	ug/kg	772	79.5	1	02/05/14 11:18	02/07/14 10:54	59-50-7	
4-Chloroaniline	ND	ug/kg	1930	108	1	02/05/14 11:18	02/07/14 10:54	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	386	90.0	1	02/05/14 11:18	02/07/14 10:54	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	386	98.2	1	02/05/14 11:18	02/07/14 10:54	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	386	103	1	02/05/14 11:18	02/07/14 10:54	108-60-1	
2-Chloronaphthalene	ND	ug/kg	386	76.0	1	02/05/14 11:18	02/07/14 10:54	91-58-7	
2-Chlorophenol	ND	ug/kg	386	105	1	02/05/14 11:18	02/07/14 10:54	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	386	79.5	1	02/05/14 11:18	02/07/14 10:54	7005-72-3	
Chrysene	ND	ug/kg	386	51.4	1	02/05/14 11:18	02/07/14 10:54	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	386	81.8	1	02/05/14 11:18	02/07/14 10:54	53-70-3	
Dibenzofuran	ND	ug/kg	386	63.1	1	02/05/14 11:18	02/07/14 10:54	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	386	103	1	02/05/14 11:18	02/07/14 10:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	386	87.7	1	02/05/14 11:18	02/07/14 10:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	386	109	1	02/05/14 11:18	02/07/14 10:54	106-46-7	

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ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: S-2 **Lab ID: 92188624002** Collected: 02/03/14 11:31 Received: 02/05/14 10:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
3,3'-Dichlorobenzidine	ND	ug/kg	1930	84.2	1	02/05/14 11:18	02/07/14 10:54	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	386	84.2	1	02/05/14 11:18	02/07/14 10:54	120-83-2	
Diethylphthalate	ND	ug/kg	386	59.6	1	02/05/14 11:18	02/07/14 10:54	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	386	152	1	02/05/14 11:18	02/07/14 10:54	105-67-9	
Dimethylphthalate	ND	ug/kg	386	78.3	1	02/05/14 11:18	02/07/14 10:54	131-11-3	
Di-n-butylphthalate	ND	ug/kg	386	63.1	1	02/05/14 11:18	02/07/14 10:54	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	772	77.2	1	02/05/14 11:18	02/07/14 10:54	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1930	63.1	1	02/05/14 11:18	02/07/14 10:54	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	386	72.5	1	02/05/14 11:18	02/07/14 10:54	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	386	80.7	1	02/05/14 11:18	02/07/14 10:54	606-20-2	
Di-n-octylphthalate	ND	ug/kg	386	80.7	1	02/05/14 11:18	02/07/14 10:54	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	386	105	1	02/05/14 11:18	02/07/14 10:54	117-81-7	
Fluoranthene	ND	ug/kg	386	56.1	1	02/05/14 11:18	02/07/14 10:54	206-44-0	
Fluorene	ND	ug/kg	386	79.5	1	02/05/14 11:18	02/07/14 10:54	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	386	66.6	1	02/05/14 11:18	02/07/14 10:54	87-68-3	
Hexachlorobenzene	ND	ug/kg	386	49.1	1	02/05/14 11:18	02/07/14 10:54	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	386	71.3	1	02/05/14 11:18	02/07/14 10:54	77-47-4	
Hexachloroethane	ND	ug/kg	386	102	1	02/05/14 11:18	02/07/14 10:54	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	386	79.5	1	02/05/14 11:18	02/07/14 10:54	193-39-5	
Isophorone	ND	ug/kg	386	86.5	1	02/05/14 11:18	02/07/14 10:54	78-59-1	
1-Methylnaphthalene	ND	ug/kg	386	101	1	02/05/14 11:18	02/07/14 10:54	90-12-0	
2-Methylnaphthalene	ND	ug/kg	386	83.0	1	02/05/14 11:18	02/07/14 10:54	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	386	117	1	02/05/14 11:18	02/07/14 10:54	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	386	152	1	02/05/14 11:18	02/07/14 10:54		
Naphthalene	ND	ug/kg	386	94.7	1	02/05/14 11:18	02/07/14 10:54	91-20-3	
2-Nitroaniline	ND	ug/kg	1930	119	1	02/05/14 11:18	02/07/14 10:54	88-74-4	
3-Nitroaniline	ND	ug/kg	1930	105	1	02/05/14 11:18	02/07/14 10:54	99-09-2	
4-Nitroaniline	ND	ug/kg	772	109	1	02/05/14 11:18	02/07/14 10:54	100-01-6	
Nitrobenzene	ND	ug/kg	386	105	1	02/05/14 11:18	02/07/14 10:54	98-95-3	
2-Nitrophenol	ND	ug/kg	386	93.5	1	02/05/14 11:18	02/07/14 10:54	88-75-5	
4-Nitrophenol	ND	ug/kg	1930	69.0	1	02/05/14 11:18	02/07/14 10:54	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	386	125	1	02/05/14 11:18	02/07/14 10:54	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	386	73.6	1	02/05/14 11:18	02/07/14 10:54	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	386	115	1	02/05/14 11:18	02/07/14 10:54	86-30-6	
Pentachlorophenol	ND	ug/kg	1930	70.1	1	02/05/14 11:18	02/07/14 10:54	87-86-5	
Phenanthrene	ND	ug/kg	386	64.3	1	02/05/14 11:18	02/07/14 10:54	85-01-8	
Phenol	ND	ug/kg	386	116	1	02/05/14 11:18	02/07/14 10:54	108-95-2	
Pyrene	ND	ug/kg	386	65.5	1	02/05/14 11:18	02/07/14 10:54	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	386	74.8	1	02/05/14 11:18	02/07/14 10:54	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	386	119	1	02/05/14 11:18	02/07/14 10:54	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	386	85.3	1	02/05/14 11:18	02/07/14 10:54	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	58	%	23-110		1	02/05/14 11:18	02/07/14 10:54	4165-60-0	
2-Fluorobiphenyl (S)	59	%	30-110		1	02/05/14 11:18	02/07/14 10:54	321-60-8	
Terphenyl-d14 (S)	52	%	28-110		1	02/05/14 11:18	02/07/14 10:54	1718-51-0	

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ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: S-2 **Lab ID: 92188624002** Collected: 02/03/14 11:31 Received: 02/05/14 10:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Surrogates									
Phenol-d6 (S)	63	%	22-110		1	02/05/14 11:18	02/07/14 10:54	13127-88-3	
2-Fluorophenol (S)	58	%	13-110		1	02/05/14 11:18	02/07/14 10:54	367-12-4	
2,4,6-Tribromophenol (S)	71	%	27-110		1	02/05/14 11:18	02/07/14 10:54	118-79-6	
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Acetone	**24.6J**	ug/kg	76.2	7.6	1		02/10/14 17:19	67-64-1	
Benzene	ND	ug/kg	3.8	1.2	1		02/10/14 17:19	71-43-2	
Bromobenzene	ND	ug/kg	3.8	1.5	1		02/10/14 17:19	108-86-1	
Bromochloromethane	ND	ug/kg	3.8	1.3	1		02/10/14 17:19	74-97-5	
Bromodichloromethane	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	75-27-4	
Bromoform	ND	ug/kg	3.8	1.8	1		02/10/14 17:19	75-25-2	
Bromomethane	ND	ug/kg	7.6	1.9	1		02/10/14 17:19	74-83-9	
2-Butanone (MEK)	ND	ug/kg	76.2	2.2	1		02/10/14 17:19	78-93-3	
n-Butylbenzene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	104-51-8	
sec-Butylbenzene	ND	ug/kg	3.8	1.2	1		02/10/14 17:19	135-98-8	
tert-Butylbenzene	ND	ug/kg	3.8	1.5	1		02/10/14 17:19	98-06-6	
Carbon tetrachloride	ND	ug/kg	3.8	2.0	1		02/10/14 17:19	56-23-5	
Chlorobenzene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	108-90-7	
Chloroethane	ND	ug/kg	7.6	1.8	1		02/10/14 17:19	75-00-3	
Chloroform	ND	ug/kg	3.8	1.2	1		02/10/14 17:19	67-66-3	
Chloromethane	ND	ug/kg	7.6	1.8	1		02/10/14 17:19	74-87-3	
2-Chlorotoluene	ND	ug/kg	3.8	1.3	1		02/10/14 17:19	95-49-8	
4-Chlorotoluene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	3.8	2.7	1		02/10/14 17:19	96-12-8	
Dibromochloromethane	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	106-93-4	
Dibromomethane	ND	ug/kg	3.8	1.9	1		02/10/14 17:19	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	3.8	1.5	1		02/10/14 17:19	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	3.8	1.3	1		02/10/14 17:19	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	7.6	2.7	1		02/10/14 17:19	75-71-8	
1,1-Dichloroethane	ND	ug/kg	3.8	1.1	1		02/10/14 17:19	75-34-3	
1,2-Dichloroethane	ND	ug/kg	3.8	1.7	1		02/10/14 17:19	107-06-2	
1,1-Dichloroethene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	3.8	1.1	1		02/10/14 17:19	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	156-60-5	
1,2-Dichloropropane	ND	ug/kg	3.8	1.3	1		02/10/14 17:19	78-87-5	
1,3-Dichloropropane	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	142-28-9	
2,2-Dichloropropane	ND	ug/kg	3.8	1.3	1		02/10/14 17:19	594-20-7	
1,1-Dichloropropene	ND	ug/kg	3.8	1.1	1		02/10/14 17:19	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	3.8	1.1	1		02/10/14 17:19	10061-02-6	
Diisopropyl ether	ND	ug/kg	3.8	1.3	1		02/10/14 17:19	108-20-3	
Ethylbenzene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	100-41-4	

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ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: S-2 **Lab ID: 92188624002** Collected: 02/03/14 11:31 Received: 02/05/14 10:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Hexachloro-1,3-butadiene	ND	ug/kg	3.8	1.5	1		02/10/14 17:19	87-68-3	
2-Hexanone	ND	ug/kg	38.1	3.0	1		02/10/14 17:19	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	98-82-8	
p-Isopropyltoluene	ND	ug/kg	3.8	1.3	1		02/10/14 17:19	99-87-6	
Methylene Chloride	ND	ug/kg	15.2	2.3	1		02/10/14 17:19	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	38.1	2.8	1		02/10/14 17:19	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	3.8	1.1	1		02/10/14 17:19	1634-04-4	
Naphthalene	ND	ug/kg	3.8	0.91	1		02/10/14 17:19	91-20-3	
n-Propylbenzene	ND	ug/kg	3.8	1.3	1		02/10/14 17:19	103-65-1	
Styrene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	3.8	1.6	1		02/10/14 17:19	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	79-34-5	
Tetrachloroethene	ND	ug/kg	3.8	1.3	1		02/10/14 17:19	127-18-4	
Toluene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	3.8	1.7	1		02/10/14 17:19	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	3.8	1.2	1		02/10/14 17:19	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	3.8	1.6	1		02/10/14 17:19	79-00-5	
Trichloroethene	ND	ug/kg	3.8	1.6	1		02/10/14 17:19	79-01-6	
Trichlorofluoromethane	ND	ug/kg	3.8	1.7	1		02/10/14 17:19	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	3.8	1.2	1		02/10/14 17:19	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	3.8	1.5	1		02/10/14 17:19	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	108-67-8	
Vinyl acetate	ND	ug/kg	38.1	6.7	1		02/10/14 17:19	108-05-4	
Vinyl chloride	ND	ug/kg	7.6	1.4	1		02/10/14 17:19	75-01-4	
Xylene (Total)	ND	ug/kg	7.6	2.7	1		02/10/14 17:19	1330-20-7	
m&p-Xylene	ND	ug/kg	7.6	2.7	1		02/10/14 17:19	179601-23-1	
o-Xylene	ND	ug/kg	3.8	1.4	1		02/10/14 17:19	95-47-6	
Surrogates									
Toluene-d8 (S)	101	%	70-130		1		02/10/14 17:19	2037-26-5	
4-Bromofluorobenzene (S)	85	%	70-130		1		02/10/14 17:19	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-132		1		02/10/14 17:19	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**14.5**	%	0.10	0.10	1		02/06/14 15:49		

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ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: COMP 1 **Lab ID: 92188624003** Collected: 02/03/14 10:27 Received: 02/05/14 10:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified			Preparation Method: EPA 3546					
Diesel Components	**594**	mg/kg	23.4	21.1	4	02/05/14 11:20	02/08/14 14:42	68334-30-5	
Surrogates									
n-Pentacosane (S)	66	%	41-119		4	02/05/14 11:20	02/08/14 14:42	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified			Preparation Method: EPA 5035A/5030B					
Gasoline Range Organics	**28.0**	mg/kg	5.2	5.2	1	02/06/14 11:32	02/06/14 20:19	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	122	%	70-167		1	02/06/14 11:32	02/06/14 20:19	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**14.5**	%	0.10	0.10	1		02/06/14 15:49		

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ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: TW-1 **Lab ID: 92188624004** Collected: 02/04/14 12:14 Received: 02/05/14 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP EPH NC Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C09-C18)	ND	ug/L	100	100	1	02/11/14 08:39	02/11/14 20:38		N2
Aliphatic (C19-C36)	ND	ug/L	100	100	1	02/11/14 08:39	02/11/14 20:38		N2
Aromatic (C11-C22)	**821**	ug/L	100	100	1	02/11/14 08:39	02/11/14 20:38		N2
Surrogates									
Nonatriacontane (S)	58	%	40-140		1	02/11/14 08:39	02/11/14 20:38	7194-86-7	
o-Terphenyl (S)	65	%	40-140		1	02/11/14 08:39	02/11/14 20:38	84-15-1	
2-Fluorobiphenyl (S)	87	%	40-140		1	02/11/14 08:39	02/11/14 20:38	321-60-8	
2-Bromonaphthalene (S)	127	%	40-140		1	02/11/14 08:39	02/11/14 20:38	580-13-2	
VPH NC Water	Analytical Method: MADEP VPH								
Aliphatic (C05-C08)	ND	ug/L	50.0	50.0	1		02/06/14 16:55		N2
Aliphatic (C09-C12)	**1280**	ug/L	50.0	50.0	1		02/06/14 16:55		N2
Aromatic (C09-C10)	**702**	ug/L	50.0	50.0	1		02/06/14 16:55		N2
Surrogates									
4-Bromofluorobenzene (FID) (S)	100	%	70-130		1		02/06/14 16:55	460-00-4	
4-Bromofluorobenzene (PID) (S)	123	%	70-130		1		02/06/14 16:55	460-00-4	
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625								
Acenaphthene	ND	ug/L	8.3	0.42	1	02/06/14 09:30	02/08/14 01:59	83-32-9	
Acenaphthylene	ND	ug/L	8.3	0.35	1	02/06/14 09:30	02/08/14 01:59	208-96-8	
Anthracene	ND	ug/L	8.3	0.23	1	02/06/14 09:30	02/08/14 01:59	120-12-7	
Benzo(a)anthracene	ND	ug/L	8.3	0.55	1	02/06/14 09:30	02/08/14 01:59	56-55-3	
Benzo(a)pyrene	ND	ug/L	8.3	0.50	1	02/06/14 09:30	02/08/14 01:59	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	8.3	0.47	1	02/06/14 09:30	02/08/14 01:59	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	8.3	0.63	1	02/06/14 09:30	02/08/14 01:59	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	8.3	0.72	1	02/06/14 09:30	02/08/14 01:59	207-08-9	
4-Bromophenylphenyl ether	ND	ug/L	8.3	1.4	1	02/06/14 09:30	02/08/14 01:59	101-55-3	
Butylbenzylphthalate	ND	ug/L	8.3	1.3	1	02/06/14 09:30	02/08/14 01:59	85-68-7	
bis(2-Chloroethoxy)methane	ND	ug/L	16.7	1.5	1	02/06/14 09:30	02/08/14 01:59	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	8.3	1.7	1	02/06/14 09:30	02/08/14 01:59	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	8.3	1.6	1	02/06/14 09:30	02/08/14 01:59	108-60-1	
2-Chloronaphthalene	ND	ug/L	8.3	1.6	1	02/06/14 09:30	02/08/14 01:59	91-58-7	
4-Chlorophenylphenyl ether	ND	ug/L	8.3	1.4	1	02/06/14 09:30	02/08/14 01:59	7005-72-3	
Chrysene	ND	ug/L	8.3	0.35	1	02/06/14 09:30	02/08/14 01:59	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	8.3	0.92	1	02/06/14 09:30	02/08/14 01:59	53-70-3	
3,3'-Dichlorobenzidine	ND	ug/L	41.7	3.5	1	02/06/14 09:30	02/08/14 01:59	91-94-1	
Diethylphthalate	ND	ug/L	8.3	0.97	1	02/06/14 09:30	02/08/14 01:59	84-66-2	
Dimethylphthalate	ND	ug/L	8.3	1.3	1	02/06/14 09:30	02/08/14 01:59	131-11-3	
Di-n-butylphthalate	ND	ug/L	8.3	1.2	1	02/06/14 09:30	02/08/14 01:59	84-74-2	
2,4-Dinitrotoluene	ND	ug/L	8.3	1.5	1	02/06/14 09:30	02/08/14 01:59	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	8.3	1.6	1	02/06/14 09:30	02/08/14 01:59	606-20-2	
Di-n-octylphthalate	ND	ug/L	8.3	1.1	1	02/06/14 09:30	02/08/14 01:59	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	8.3	1.3	1	02/06/14 09:30	02/08/14 01:59	117-81-7	
Fluoranthene	ND	ug/L	8.3	0.35	1	02/06/14 09:30	02/08/14 01:59	206-44-0	
Fluorene	**5.9J**	ug/L	8.3	0.35	1	02/06/14 09:30	02/08/14 01:59	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	8.3	1.6	1	02/06/14 09:30	02/08/14 01:59	87-68-3	

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ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Sample: TW-1 **Lab ID: 92188624004** Collected: 02/04/14 12:14 Received: 02/05/14 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV	Analytical Method: EPA 625 Preparation Method: EPA 625								
Hexachlorobenzene	ND	ug/L	8.3	1.2	1	02/06/14 09:30	02/08/14 01:59	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	16.7	1.5	1	02/06/14 09:30	02/08/14 01:59	77-47-4	
Hexachloroethane	ND	ug/L	8.3	1.8	1	02/06/14 09:30	02/08/14 01:59	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	8.3	0.48	1	02/06/14 09:30	02/08/14 01:59	193-39-5	
Isophorone	ND	ug/L	16.7	1.5	1	02/06/14 09:30	02/08/14 01:59	78-59-1	
Naphthalene	**38.2**	ug/L	8.3	0.57	1	02/06/14 09:30	02/08/14 01:59	91-20-3	
Nitrobenzene	ND	ug/L	8.3	1.8	1	02/06/14 09:30	02/08/14 01:59	98-95-3	
N-Nitrosodimethylamine	ND	ug/L	8.3	1.5	1	02/06/14 09:30	02/08/14 01:59	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	8.3	1.6	1	02/06/14 09:30	02/08/14 01:59	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	16.7	1.7	1	02/06/14 09:30	02/08/14 01:59	86-30-6	
Phenanthrene	**6.4J**	ug/L	8.3	0.37	1	02/06/14 09:30	02/08/14 01:59	85-01-8	
Pyrene	ND	ug/L	8.3	0.32	1	02/06/14 09:30	02/08/14 01:59	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	8.3	1.6	1	02/06/14 09:30	02/08/14 01:59	120-82-1	
Surrogates									
Nitrobenzene-d5 (S)	39	%	10-120		1	02/06/14 09:30	02/08/14 01:59	4165-60-0	
2-Fluorobiphenyl (S)	42	%	15-120		1	02/06/14 09:30	02/08/14 01:59	321-60-8	
Terphenyl-d14 (S)	43	%	11-131		1	02/06/14 09:30	02/08/14 01:59	1718-51-0	
Phenol-d6 (S)	24	%	10-120		1	02/06/14 09:30	02/08/14 01:59	13127-88-3	
2-Fluorophenol (S)	28	%	10-120		1	02/06/14 09:30	02/08/14 01:59	367-12-4	
2,4,6-Tribromophenol (S)	59	%	10-137		1	02/06/14 09:30	02/08/14 01:59	118-79-6	
602 Volatiles by Method 6200	Analytical Method: SM 6200B								
Benzene	ND	ug/L	1.0	1.0	1		02/11/14 12:18	71-43-2	
Diisopropyl ether	ND	ug/L	1.0	1.0	1		02/11/14 12:18	108-20-3	
Ethylbenzene	**26.2**	ug/L	1.0	1.0	1		02/11/14 12:18	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	1.0	1.0	1		02/11/14 12:18	1634-04-4	
Naphthalene	**125**	ug/L	2.0	2.0	1		02/11/14 12:18	91-20-3	
Toluene	ND	ug/L	1.0	1.0	1		02/11/14 12:18	108-88-3	
m&p-Xylene	**46.4**	ug/L	2.0	2.0	1		02/11/14 12:18	179601-23-1	
o-Xylene	**11.3**	ug/L	1.0	1.0	1		02/11/14 12:18	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		02/11/14 12:18	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		02/11/14 12:18	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		02/11/14 12:18	2037-26-5	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: GCV/7790
QC Batch Method: EPA 5035A/5030B
Analysis Method: EPA 8015 Modified
Analysis Description: Gasoline Range Organics
Associated Lab Samples: 92188624003

METHOD BLANK: 1134090
Matrix: Solid
Associated Lab Samples: 92188624003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	6.0	02/06/14 16:04	
4-Bromofluorobenzene (S)	%	103	70-167	02/06/14 16:04	

LABORATORY CONTROL SAMPLE: 1134091

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	50	50.4	101	70-165	
4-Bromofluorobenzene (S)	%			108	70-167	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1134155 1134156

Parameter	Units	92188593001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	mg/kg	ND	37.3	37.3	41.2	41.4	110	111	47-187	1	30	
4-Bromofluorobenzene (S)	%						103	110	70-167			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1134158 1134159

Parameter	Units	92188593018 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	mg/kg	ND	78.1	78.1	81.9	85.4	105	109	47-187	4	30	
4-Bromofluorobenzene (S)	%						102	104	70-167			

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: GCV/7798 | Analysis Method: MADEP VPH
QC Batch Method: MADEP VPH | Analysis Description: VPH NC Soil
Associated Lab Samples: 92188624001, 92188624002

METHOD BLANK: 1136316 | Matrix: Solid
Associated Lab Samples: 92188624001, 92188624002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C05-C08)	mg/kg	ND	2.5	02/10/14 23:45	N2
Aliphatic (C09-C12)	mg/kg	ND	2.5	02/10/14 23:45	N2
Aromatic (C09-C10)	mg/kg	ND	2.5	02/10/14 23:45	N2
4-Bromofluorobenzene (FID) (S)	%	96	70-130	02/10/14 23:45	
4-Bromofluorobenzene (PID) (S)	%	83	70-130	02/10/14 23:45	

LABORATORY CONTROL SAMPLE & LCSD: 1136317 1136318

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08)	mg/kg	14.9	13.9	14.4	94	97	70-130	3	25	N2
Aliphatic (C09-C12)	mg/kg	14.9	13.5	14.9	91	100	30-130	10	25	N2
Aromatic (C09-C10)	mg/kg	5	3.9	4.0	78	80	70-130	2	25	N2
4-Bromofluorobenzene (FID) (S)	%				95	97	70-130			
4-Bromofluorobenzene (PID) (S)	%				91	88	70-130			

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: GCV/7789
QC Batch Method: MADEP VPH
Analysis Method: MADEP VPH
Analysis Description: VPH NC Water
Associated Lab Samples: 92188624004

METHOD BLANK: 1134045
Matrix: Water
Associated Lab Samples: 92188624004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C05-C08)	ug/L	ND	50.0	02/06/14 10:45	N2
Aliphatic (C09-C12)	ug/L	ND	50.0	02/06/14 10:45	N2
Aromatic (C09-C10)	ug/L	ND	50.0	02/06/14 10:45	N2
4-Bromofluorobenzene (FID) (S)	%	93	70-130	02/06/14 10:45	
4-Bromofluorobenzene (PID) (S)	%	79	70-130	02/06/14 10:45	

LABORATORY CONTROL SAMPLE & LCSD: 1134046 1134047

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08)	ug/L	300	263	276	88	92	70-130	5	25	N2
Aliphatic (C09-C12)	ug/L	300	276	306	92	102	30-130	10	25	N2
Aromatic (C09-C10)	ug/L	100	79.2	82.2	79	82	70-130	4	25	N2
4-Bromofluorobenzene (FID) (S)	%				93	85	70-130			
4-Bromofluorobenzene (PID) (S)	%				88	85	70-130			

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: MSV/25772 | Analysis Method: SM 6200B
QC Batch Method: SM 6200B | Analysis Description: 602 by 6200B
Associated Lab Samples: 92188624004

METHOD BLANK: 1136286 | Matrix: Water
Associated Lab Samples: 92188624004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	02/11/14 07:03	
Diisopropyl ether	ug/L	ND	1.0	02/11/14 07:03	
Ethylbenzene	ug/L	ND	1.0	02/11/14 07:03	
m&p-Xylene	ug/L	ND	2.0	02/11/14 07:03	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/11/14 07:03	
Naphthalene	ug/L	ND	2.0	02/11/14 07:03	
o-Xylene	ug/L	ND	1.0	02/11/14 07:03	
Toluene	ug/L	ND	1.0	02/11/14 07:03	
1,2-Dichloroethane-d4 (S)	%	99	70-130	02/11/14 07:03	
4-Bromofluorobenzene (S)	%	98	70-130	02/11/14 07:03	
Toluene-d8 (S)	%	102	70-130	02/11/14 07:03	

LABORATORY CONTROL SAMPLE: 1136287

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	49.0	98	60-140	
Diisopropyl ether	ug/L	50	49.9	100	60-140	
Ethylbenzene	ug/L	50	46.4	93	60-140	
m&p-Xylene	ug/L	100	97.6	98	60-140	
Methyl-tert-butyl ether	ug/L	50	51.6	103	60-140	
Naphthalene	ug/L	50	48.9	98	60-140	
o-Xylene	ug/L	50	49.5	99	60-140	
Toluene	ug/L	50	46.9	94	60-140	
1,2-Dichloroethane-d4 (S)	%			99	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1136288 1136289

Parameter	Units	92188388002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	22.2	21.9	111	110	60-140	1	30	
Diisopropyl ether	ug/L	ND	20	20	21.6	21.2	108	106	60-140	2	30	
Ethylbenzene	ug/L	ND	20	20	21.3	20.9	106	104	60-140	2	30	
m&p-Xylene	ug/L	ND	40	40	43.4	43.0	108	108	60-140	1	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	22.0	21.5	110	108	60-140	2	30	
Naphthalene	ug/L	ND	20	20	20.3	19.4	101	97	60-140	4	30	
o-Xylene	ug/L	ND	20	20	22.3	21.5	112	107	60-140	4	30	
Toluene	ug/L	ND	20	20	20.9	21.0	104	104	60-140	0	30	
1,2-Dichloroethane-d4 (S)	%						97	97	70-130			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1136288 1136289

Parameter	Units	92188388002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
4-Bromofluorobenzene (S)	%						101	98	70-130			
Toluene-d8 (S)	%						102	102	70-130			

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: MSV/25759 | Analysis Method: EPA 8260
QC Batch Method: EPA 8260 | Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92188624001, 92188624002

METHOD BLANK: 1135969 | Matrix: Solid
Associated Lab Samples: 92188624001, 92188624002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	4.7	02/10/14 12:25	
1,1,1-Trichloroethane	ug/kg	ND	4.7	02/10/14 12:25	
1,1,2,2-Tetrachloroethane	ug/kg	ND	4.7	02/10/14 12:25	
1,1,2-Trichloroethane	ug/kg	ND	4.7	02/10/14 12:25	
1,1-Dichloroethane	ug/kg	ND	4.7	02/10/14 12:25	
1,1-Dichloroethene	ug/kg	ND	4.7	02/10/14 12:25	
1,1-Dichloropropene	ug/kg	ND	4.7	02/10/14 12:25	
1,2,3-Trichlorobenzene	ug/kg	ND	4.7	02/10/14 12:25	
1,2,3-Trichloropropane	ug/kg	ND	4.7	02/10/14 12:25	
1,2,4-Trichlorobenzene	ug/kg	ND	4.7	02/10/14 12:25	
1,2,4-Trimethylbenzene	ug/kg	ND	4.7	02/10/14 12:25	
1,2-Dibromo-3-chloropropane	ug/kg	ND	4.7	02/10/14 12:25	
1,2-Dibromoethane (EDB)	ug/kg	ND	4.7	02/10/14 12:25	
1,2-Dichlorobenzene	ug/kg	ND	4.7	02/10/14 12:25	
1,2-Dichloroethane	ug/kg	ND	4.7	02/10/14 12:25	
1,2-Dichloropropane	ug/kg	ND	4.7	02/10/14 12:25	
1,3,5-Trimethylbenzene	ug/kg	ND	4.7	02/10/14 12:25	
1,3-Dichlorobenzene	ug/kg	ND	4.7	02/10/14 12:25	
1,3-Dichloropropane	ug/kg	ND	4.7	02/10/14 12:25	
1,4-Dichlorobenzene	ug/kg	ND	4.7	02/10/14 12:25	
2,2-Dichloropropane	ug/kg	ND	4.7	02/10/14 12:25	
2-Butanone (MEK)	ug/kg	ND	94.7	02/10/14 12:25	
2-Chlorotoluene	ug/kg	ND	4.7	02/10/14 12:25	
2-Hexanone	ug/kg	ND	47.3	02/10/14 12:25	
4-Chlorotoluene	ug/kg	ND	4.7	02/10/14 12:25	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	47.3	02/10/14 12:25	
Acetone	ug/kg	ND	94.7	02/10/14 12:25	
Benzene	ug/kg	ND	4.7	02/10/14 12:25	
Bromobenzene	ug/kg	ND	4.7	02/10/14 12:25	
Bromochloromethane	ug/kg	ND	4.7	02/10/14 12:25	
Bromodichloromethane	ug/kg	ND	4.7	02/10/14 12:25	
Bromoform	ug/kg	ND	4.7	02/10/14 12:25	
Bromomethane	ug/kg	ND	9.5	02/10/14 12:25	
Carbon tetrachloride	ug/kg	ND	4.7	02/10/14 12:25	
Chlorobenzene	ug/kg	ND	4.7	02/10/14 12:25	
Chloroethane	ug/kg	ND	9.5	02/10/14 12:25	
Chloroform	ug/kg	ND	4.7	02/10/14 12:25	
Chloromethane	ug/kg	ND	9.5	02/10/14 12:25	
cis-1,2-Dichloroethene	ug/kg	ND	4.7	02/10/14 12:25	
cis-1,3-Dichloropropene	ug/kg	ND	4.7	02/10/14 12:25	
Dibromochloromethane	ug/kg	ND	4.7	02/10/14 12:25	
Dibromomethane	ug/kg	ND	4.7	02/10/14 12:25	
Dichlorodifluoromethane	ug/kg	ND	9.5	02/10/14 12:25	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

METHOD BLANK: 1135969 Matrix: Solid
Associated Lab Samples: 92188624001, 92188624002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/kg	ND	4.7	02/10/14 12:25	
Ethylbenzene	ug/kg	ND	4.7	02/10/14 12:25	
Hexachloro-1,3-butadiene	ug/kg	ND	4.7	02/10/14 12:25	
Isopropylbenzene (Cumene)	ug/kg	ND	4.7	02/10/14 12:25	
m&p-Xylene	ug/kg	ND	9.5	02/10/14 12:25	
Methyl-tert-butyl ether	ug/kg	ND	4.7	02/10/14 12:25	
Methylene Chloride	ug/kg	ND	18.9	02/10/14 12:25	
n-Butylbenzene	ug/kg	ND	4.7	02/10/14 12:25	
n-Propylbenzene	ug/kg	ND	4.7	02/10/14 12:25	
Naphthalene	ug/kg	ND	4.7	02/10/14 12:25	
o-Xylene	ug/kg	ND	4.7	02/10/14 12:25	
p-Isopropyltoluene	ug/kg	ND	4.7	02/10/14 12:25	
sec-Butylbenzene	ug/kg	ND	4.7	02/10/14 12:25	
Styrene	ug/kg	ND	4.7	02/10/14 12:25	
tert-Butylbenzene	ug/kg	ND	4.7	02/10/14 12:25	
Tetrachloroethene	ug/kg	ND	4.7	02/10/14 12:25	
Toluene	ug/kg	ND	4.7	02/10/14 12:25	
trans-1,2-Dichloroethene	ug/kg	ND	4.7	02/10/14 12:25	
trans-1,3-Dichloropropene	ug/kg	ND	4.7	02/10/14 12:25	
Trichloroethene	ug/kg	ND	4.7	02/10/14 12:25	
Trichlorofluoromethane	ug/kg	ND	4.7	02/10/14 12:25	
Vinyl acetate	ug/kg	ND	47.3	02/10/14 12:25	
Vinyl chloride	ug/kg	ND	9.5	02/10/14 12:25	
Xylene (Total)	ug/kg	ND	9.5	02/10/14 12:25	
1,2-Dichloroethane-d4 (S)	%	132	70-132	02/10/14 12:25	
4-Bromofluorobenzene (S)	%	95	70-130	02/10/14 12:25	
Toluene-d8 (S)	%	102	70-130	02/10/14 12:25	

LABORATORY CONTROL SAMPLE: 1135970

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	50.3	46.7	93	70-131	
1,1,1-Trichloroethane	ug/kg	50.3	46.0	92	70-141	
1,1,2,2-Tetrachloroethane	ug/kg	50.3	52.8	105	70-130	
1,1,2-Trichloroethane	ug/kg	50.3	52.3	104	70-132	
1,1-Dichloroethane	ug/kg	50.3	47.0	93	70-143	
1,1-Dichloroethene	ug/kg	50.3	44.2	88	70-137	
1,1-Dichloropropene	ug/kg	50.3	46.5	93	70-135	
1,2,3-Trichlorobenzene	ug/kg	50.3	41.9	83	69-153	
1,2,3-Trichloropropane	ug/kg	50.3	52.1	104	70-130	
1,2,4-Trichlorobenzene	ug/kg	50.3	39.2	78	55-171	
1,2,4-Trimethylbenzene	ug/kg	50.3	44.3	88	70-149	
1,2-Dibromo-3-chloropropane	ug/kg	50.3	48.0	96	68-141	
1,2-Dibromoethane (EDB)	ug/kg	50.3	51.3	102	70-130	
1,2-Dichlorobenzene	ug/kg	50.3	43.8	87	70-140	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

LABORATORY CONTROL SAMPLE: 1135970

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/kg	50.3	49.1	98	70-137	
1,2-Dichloropropane	ug/kg	50.3	50.7	101	70-133	
1,3,5-Trimethylbenzene	ug/kg	50.3	44.6	89	70-143	
1,3-Dichlorobenzene	ug/kg	50.3	41.4	82	70-144	
1,3-Dichloropropane	ug/kg	50.3	47.3	94	70-132	
1,4-Dichlorobenzene	ug/kg	50.3	42.1	84	70-142	
2,2-Dichloropropane	ug/kg	50.3	45.5	90	68-152	
2-Butanone (MEK)	ug/kg	101	112	112	70-149	
2-Chlorotoluene	ug/kg	50.3	45.0	89	70-141	
2-Hexanone	ug/kg	101	99.1	99	70-149	
4-Chlorotoluene	ug/kg	50.3	43.8	87	70-149	
4-Methyl-2-pentanone (MIBK)	ug/kg	101	107	106	70-153	
Acetone	ug/kg	101	109	109	70-157	
Benzene	ug/kg	50.3	49.3	98	70-130	
Bromobenzene	ug/kg	50.3	44.1	88	70-141	
Bromochloromethane	ug/kg	50.3	47.2	94	70-149	
Bromodichloromethane	ug/kg	50.3	50.0	99	70-130	
Bromoform	ug/kg	50.3	49.5	98	70-131	
Bromomethane	ug/kg	50.3	52.5	104	64-136	
Carbon tetrachloride	ug/kg	50.3	45.6	91	70-154	
Chlorobenzene	ug/kg	50.3	45.3	90	70-135	
Chloroethane	ug/kg	50.3	52.3	104	68-151	
Chloroform	ug/kg	50.3	46.5	92	70-130	
Chloromethane	ug/kg	50.3	53.0	105	70-132	
cis-1,2-Dichloroethene	ug/kg	50.3	45.5	90	70-140	
cis-1,3-Dichloropropene	ug/kg	50.3	50.2	100	70-137	
Dibromochloromethane	ug/kg	50.3	48.8	97	70-130	
Dibromomethane	ug/kg	50.3	51.1	102	70-136	
Dichlorodifluoromethane	ug/kg	50.3	54.3	108	36-148	
Diisopropyl ether	ug/kg	50.3	49.9	99	70-139	
Ethylbenzene	ug/kg	50.3	45.0	89	70-137	
Hexachloro-1,3-butadiene	ug/kg	50.3	43.4	86	70-145	
Isopropylbenzene (Cumene)	ug/kg	50.3	46.6	93	70-141	
m&p-Xylene	ug/kg	101	91.0	90	70-140	
Methyl-tert-butyl ether	ug/kg	50.3	51.7	103	45-150	
Methylene Chloride	ug/kg	50.3	51.1	102	70-133	
n-Butylbenzene	ug/kg	50.3	42.7	85	65-155	
n-Propylbenzene	ug/kg	50.3	44.6	89	70-148	
Naphthalene	ug/kg	50.3	46.4	92	70-148	
o-Xylene	ug/kg	50.3	46.0	91	70-141	
p-Isopropyltoluene	ug/kg	50.3	44.3	88	70-148	
sec-Butylbenzene	ug/kg	50.3	48.3	96	70-145	
Styrene	ug/kg	50.3	47.3	94	70-138	
tert-Butylbenzene	ug/kg	50.3	45.5	90	70-143	
Tetrachloroethene	ug/kg	50.3	41.3	82	70-140	
Toluene	ug/kg	50.3	49.0	97	70-130	
trans-1,2-Dichloroethene	ug/kg	50.3	45.1	90	70-136	
trans-1,3-Dichloropropene	ug/kg	50.3	51.4	102	70-138	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

LABORATORY CONTROL SAMPLE: 1135970

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/kg	50.3	45.7	91	70-132	
Trichlorofluoromethane	ug/kg	50.3	48.0	95	69-134	
Vinyl acetate	ug/kg	101	84.1	84	24-161	
Vinyl chloride	ug/kg	50.3	52.7	105	55-140	
Xylene (Total)	ug/kg	151	137	91	70-141	
1,2-Dichloroethane-d4 (S)	%			104	70-132	
4-Bromofluorobenzene (S)	%			93	70-130	
Toluene-d8 (S)	%			105	70-130	

MATRIX SPIKE SAMPLE: 1136314

Parameter	Units	92189080002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/kg	ND	46.1	58.1	126	49-180	
Benzene	ug/kg	ND	46.1	50.3	109	50-166	
Chlorobenzene	ug/kg	ND	46.1	43.0	93	43-169	
Toluene	ug/kg	ND	46.1	45.5	99	52-163	
Trichloroethene	ug/kg	ND	46.1	46.3	100	49-167	
1,2-Dichloroethane-d4 (S)	%				141	70-132	S0
4-Bromofluorobenzene (S)	%				89	70-130	
Toluene-d8 (S)	%				103	70-130	

SAMPLE DUPLICATE: 1136315

Parameter	Units	92188624001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,1-Trichloroethane	ug/kg	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,2-Trichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethene	ug/kg	ND	ND		30	
1,1-Dichloropropene	ug/kg	ND	ND		30	
1,2,3-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,3-Trichloropropane	ug/kg	ND	ND		30	
1,2,4-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,4-Trimethylbenzene	ug/kg	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		30	
1,2-Dichlorobenzene	ug/kg	ND	ND		30	
1,2-Dichloroethane	ug/kg	ND	ND		30	
1,2-Dichloropropane	ug/kg	ND	ND		30	
1,3,5-Trimethylbenzene	ug/kg	ND	ND		30	
1,3-Dichlorobenzene	ug/kg	ND	ND		30	
1,3-Dichloropropane	ug/kg	ND	ND		30	
1,4-Dichlorobenzene	ug/kg	ND	ND		30	
2,2-Dichloropropane	ug/kg	ND	ND		30	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

SAMPLE DUPLICATE: 1136315

Parameter	Units	92188624001 Result	Dup Result	RPD	Max RPD	Qualifiers
2-Butanone (MEK)	ug/kg	ND	ND		30	
2-Chlorotoluene	ug/kg	ND	ND		30	
2-Hexanone	ug/kg	ND	ND		30	
4-Chlorotoluene	ug/kg	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		30	
Acetone	ug/kg	29.3J	23.8J		30	
Benzene	ug/kg	ND	ND		30	
Bromobenzene	ug/kg	ND	ND		30	
Bromochloromethane	ug/kg	ND	ND		30	
Bromodichloromethane	ug/kg	ND	ND		30	
Bromoform	ug/kg	ND	ND		30	
Bromomethane	ug/kg	ND	ND		30	
Carbon tetrachloride	ug/kg	ND	ND		30	
Chlorobenzene	ug/kg	ND	ND		30	
Chloroethane	ug/kg	ND	ND		30	
Chloroform	ug/kg	ND	ND		30	
Chloromethane	ug/kg	ND	ND		30	
cis-1,2-Dichloroethene	ug/kg	ND	ND		30	
cis-1,3-Dichloropropene	ug/kg	ND	ND		30	
Dibromochloromethane	ug/kg	ND	ND		30	
Dibromomethane	ug/kg	ND	ND		30	
Dichlorodifluoromethane	ug/kg	ND	ND		30	1g
Diisopropyl ether	ug/kg	ND	ND		30	
Ethylbenzene	ug/kg	ND	ND		30	
Hexachloro-1,3-butadiene	ug/kg	ND	ND		30	
Isopropylbenzene (Cumene)	ug/kg	ND	ND		30	
m&p-Xylene	ug/kg	ND	ND		30	
Methyl-tert-butyl ether	ug/kg	ND	ND		30	
Methylene Chloride	ug/kg	ND	ND		30	
n-Butylbenzene	ug/kg	ND	ND		30	
n-Propylbenzene	ug/kg	ND	ND		30	
Naphthalene	ug/kg	ND	ND		30	
o-Xylene	ug/kg	ND	ND		30	
p-Isopropyltoluene	ug/kg	ND	ND		30	
sec-Butylbenzene	ug/kg	ND	ND		30	
Styrene	ug/kg	ND	ND		30	
tert-Butylbenzene	ug/kg	ND	ND		30	
Tetrachloroethene	ug/kg	ND	ND		30	
Toluene	ug/kg	ND	ND		30	
trans-1,2-Dichloroethene	ug/kg	ND	ND		30	
trans-1,3-Dichloropropene	ug/kg	ND	ND		30	
Trichloroethene	ug/kg	ND	ND		30	
Trichlorofluoromethane	ug/kg	ND	ND		30	
Vinyl acetate	ug/kg	ND	ND		30	
Vinyl chloride	ug/kg	ND	ND		30	
Xylene (Total)	ug/kg	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	111	137	21		S0
4-Bromofluorobenzene (S)	%	96	85	11		

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

SAMPLE DUPLICATE: 1136315

Parameter	Units	92188624001 Result	Dup Result	RPD	Max RPD	Qualifiers
Toluene-d8 (S)	%	100	106	7		

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: OEXT/25797 | Analysis Method: EPA 625
QC Batch Method: EPA 625 | Analysis Description: 625 MSS
Associated Lab Samples: 92188624004

METHOD BLANK: 1133181 | Matrix: Water
Associated Lab Samples: 92188624004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	5.0	02/07/14 21:24	
2,4-Dinitrotoluene	ug/L	ND	5.0	02/07/14 21:24	
2,6-Dinitrotoluene	ug/L	ND	5.0	02/07/14 21:24	
2-Chloronaphthalene	ug/L	ND	5.0	02/07/14 21:24	
3,3'-Dichlorobenzidine	ug/L	ND	25.0	02/07/14 21:24	
4-Bromophenylphenyl ether	ug/L	ND	5.0	02/07/14 21:24	
4-Chlorophenylphenyl ether	ug/L	ND	5.0	02/07/14 21:24	
Acenaphthene	ug/L	ND	5.0	02/07/14 21:24	
Acenaphthylene	ug/L	ND	5.0	02/07/14 21:24	
Anthracene	ug/L	ND	5.0	02/07/14 21:24	
Benzo(a)anthracene	ug/L	ND	5.0	02/07/14 21:24	
Benzo(a)pyrene	ug/L	ND	5.0	02/07/14 21:24	
Benzo(b)fluoranthene	ug/L	ND	5.0	02/07/14 21:24	
Benzo(g,h,i)perylene	ug/L	ND	5.0	02/07/14 21:24	
Benzo(k)fluoranthene	ug/L	ND	5.0	02/07/14 21:24	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	02/07/14 21:24	
bis(2-Chloroethyl) ether	ug/L	ND	5.0	02/07/14 21:24	
bis(2-Chloroisopropyl) ether	ug/L	ND	5.0	02/07/14 21:24	
bis(2-Ethylhexyl)phthalate	ug/L	3.2J	5.0	02/07/14 21:24	
Butylbenzylphthalate	ug/L	ND	5.0	02/07/14 21:24	
Chrysene	ug/L	ND	5.0	02/07/14 21:24	
Di-n-butylphthalate	ug/L	ND	5.0	02/07/14 21:24	
Di-n-octylphthalate	ug/L	ND	5.0	02/07/14 21:24	
Dibenz(a,h)anthracene	ug/L	ND	5.0	02/07/14 21:24	
Diethylphthalate	ug/L	ND	5.0	02/07/14 21:24	
Dimethylphthalate	ug/L	ND	5.0	02/07/14 21:24	
Fluoranthene	ug/L	ND	5.0	02/07/14 21:24	
Fluorene	ug/L	ND	5.0	02/07/14 21:24	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	02/07/14 21:24	
Hexachlorobenzene	ug/L	ND	5.0	02/07/14 21:24	
Hexachlorocyclopentadiene	ug/L	ND	10.0	02/07/14 21:24	
Hexachloroethane	ug/L	ND	5.0	02/07/14 21:24	
Indeno(1,2,3-cd)pyrene	ug/L	ND	5.0	02/07/14 21:24	
Isophorone	ug/L	ND	10.0	02/07/14 21:24	
N-Nitroso-di-n-propylamine	ug/L	ND	5.0	02/07/14 21:24	
N-Nitrosodimethylamine	ug/L	ND	5.0	02/07/14 21:24	
N-Nitrosodiphenylamine	ug/L	ND	10.0	02/07/14 21:24	
Naphthalene	ug/L	ND	5.0	02/07/14 21:24	
Nitrobenzene	ug/L	ND	5.0	02/07/14 21:24	
Phenanthrene	ug/L	ND	5.0	02/07/14 21:24	
Pyrene	ug/L	ND	5.0	02/07/14 21:24	
2,4,6-Tribromophenol (S)	%	93	10-137	02/07/14 21:24	
2-Fluorobiphenyl (S)	%	66	15-120	02/07/14 21:24	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

METHOD BLANK: 1133181 Matrix: Water
Associated Lab Samples: 92188624004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2-Fluorophenol (S)	%	49	10-120	02/07/14 21:24	
Nitrobenzene-d5 (S)	%	71	10-120	02/07/14 21:24	
Phenol-d6 (S)	%	37	10-120	02/07/14 21:24	
Terphenyl-d14 (S)	%	80	11-131	02/07/14 21:24	

LABORATORY CONTROL SAMPLE: 1133182

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	36.4	73	44-142	
2,4-Dinitrotoluene	ug/L	50	52.1	104	39-139	
2,6-Dinitrotoluene	ug/L	50	50.6	101	50-158	
2-Chloronaphthalene	ug/L	50	36.6	73	60-118	
3,3'-Dichlorobenzidine	ug/L	100	102	102	1-262	
4-Bromophenylphenyl ether	ug/L	50	48.1	96	53-127	
4-Chlorophenylphenyl ether	ug/L	50	46.8	94	25-158	
Acenaphthene	ug/L	50	41.8	84	47-145	
Acenaphthylene	ug/L	50	43.2	86	33-145	
Anthracene	ug/L	50	47.9	96	1-166	
Benzo(a)anthracene	ug/L	50	49.0	98	33-143	
Benzo(a)pyrene	ug/L	50	53.4	107	17-163	
Benzo(b)fluoranthene	ug/L	50	47.7	95	24-159	
Benzo(g,h,i)perylene	ug/L	50	50.3	101	1-219	
Benzo(k)fluoranthene	ug/L	50	49.8	100	11-162	
bis(2-Chloroethoxy)methane	ug/L	50	44.4	89	33-184	
bis(2-Chloroethyl) ether	ug/L	50	43.7	87	12-158	
bis(2-Chloroisopropyl) ether	ug/L	50	37.4	75	36-166	
bis(2-Ethylhexyl)phthalate	ug/L	50	48.8	98	8-158	
Butylbenzylphthalate	ug/L	50	48.8	98	1-152	
Chrysene	ug/L	50	50.3	101	17-168	
Di-n-butylphthalate	ug/L	50	47.1	94	1-118	
Di-n-octylphthalate	ug/L	50	46.3	93	4-146	
Dibenz(a,h)anthracene	ug/L	50	52.0	104	1-227	
Diethylphthalate	ug/L	50	43.7	87	1-114	
Dimethylphthalate	ug/L	50	42.1	84	1-112	
Fluoranthene	ug/L	50	50.8	102	26-137	
Fluorene	ug/L	50	44.9	90	59-121	
Hexachloro-1,3-butadiene	ug/L	50	34.8	70	24-116	
Hexachlorobenzene	ug/L	50	43.6	87	1-152	
Hexachlorocyclopentadiene	ug/L	50	46.8	94	25-150	
Hexachloroethane	ug/L	50	33.6	67	40-113	
Indeno(1,2,3-cd)pyrene	ug/L	50	53.0	106	1-171	
Isophorone	ug/L	50	49.6	99	21-196	
N-Nitroso-di-n-propylamine	ug/L	50	40.1	80	1-230	
N-Nitrosodimethylamine	ug/L	50	23.7	47	25-150	
N-Nitrosodiphenylamine	ug/L	50	39.9	80	25-150	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

LABORATORY CONTROL SAMPLE: 1133182

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	50	41.7	83	21-133	
Nitrobenzene	ug/L	50	45.1	90	35-180	
Phenanthrene	ug/L	50	46.7	93	54-120	
Pyrene	ug/L	50	48.8	98	52-115	
2,4,6-Tribromophenol (S)	%			120	10-137	
2-Fluorobiphenyl (S)	%			85	15-120	
2-Fluorophenol (S)	%			52	10-120	
Nitrobenzene-d5 (S)	%			86	10-120	
Phenol-d6 (S)	%			37	10-120	
Terphenyl-d14 (S)	%			100	11-131	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1133183 1133184

Parameter	Units	92188197001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trichlorobenzene	ug/L	ND	100	100	73.6	78.8	74	79	44-142	7	30	
2,4-Dinitrotoluene	ug/L	ND	100	100	106	112	106	112	39-139	6	30	
2,6-Dinitrotoluene	ug/L	ND	100	100	101	105	101	105	50-158	4	30	
2-Chloronaphthalene	ug/L	ND	100	100	74.1	75.2	74	75	60-118	2	30	
3,3'-Dichlorobenzidine	ug/L	ND	200	200	215	213	108	106	1-262	1	30	
4-Bromophenylphenyl ether	ug/L	ND	100	100	85.1	89.6	85	90	53-127	5	30	
4-Chlorophenylphenyl ether	ug/L	ND	100	100	93.5	91.7	93	92	25-158	2	30	
Acenaphthene	ug/L	ND	100	100	83.9	86.7	84	87	47-145	3	30	
Acenaphthylene	ug/L	ND	100	100	87.6	89.0	88	89	33-145	2	30	
Anthracene	ug/L	ND	100	100	91.3	94.2	91	94	1-166	3	30	
Benzo(a)anthracene	ug/L	ND	100	100	92.5	96.0	93	96	33-143	4	30	
Benzo(a)pyrene	ug/L	ND	100	100	99.7	102	100	102	17-163	2	30	
Benzo(b)fluoranthene	ug/L	ND	100	100	94.1	98.9	94	99	24-159	5	30	
Benzo(g,h,i)perylene	ug/L	ND	100	100	97.3	95.8	97	96	1-219	2	30	
Benzo(k)fluoranthene	ug/L	ND	100	100	90.9	91.9	91	92	11-162	1	30	
bis(2-Chloroethoxy)methane	ug/L	ND	100	100	88.4	94.8	88	95	33-184	7	30	
bis(2-Chloroethyl) ether	ug/L	ND	100	100	93.5	94.1	94	94	12-158	1	30	
bis(2-Chloroisopropyl) ether	ug/L	ND	100	100	93.1	92.9	93	93	36-166	0	30	
bis(2-Ethylhexyl)phthalate	ug/L	ND	100	100	78.9	86.7	79	87	8-158	9	30	
Butylbenzylphthalate	ug/L	ND	100	100	85.0	92.5	85	93	1-152	8	30	
Chrysene	ug/L	ND	100	100	98.1	101	98	101	17-168	3	30	
Di-n-butylphthalate	ug/L	ND	100	100	88.9	91.3	89	91	1-118	3	30	
Di-n-octylphthalate	ug/L	ND	100	100	93.7	107	94	107	4-146	13	30	
Dibenz(a,h)anthracene	ug/L	ND	100	100	102	103	102	103	1-227	1	30	
Diethylphthalate	ug/L	ND	100	100	85.3	87.1	85	87	1-114	2	30	
Dimethylphthalate	ug/L	ND	100	100	80.7	82.3	81	82	1-112	2	30	
Fluoranthene	ug/L	ND	100	100	108	108	108	108	26-137	0	30	
Fluorene	ug/L	ND	100	100	93.3	91.3	93	91	59-121	2	30	
Hexachloro-1,3-butadiene	ug/L	ND	100	100	69.7	74.6	70	75	24-116	7	30	
Hexachlorobenzene	ug/L	ND	100	100	77.5	78.6	78	79	1-152	1	30	
Hexachlorocyclopentadiene	ug/L	ND	100	100	91.5	89.3	92	89	25-150	2	30	
Hexachloroethane	ug/L	ND	100	100	78.9	76.4	79	76	40-113	3	30	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1133183 1133184

Parameter	Units	92188197001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Indeno(1,2,3-cd)pyrene	ug/L	ND	100	100	102	103	102	103	1-171	0	30	
Isophorone	ug/L	ND	100	100	97.8	107	98	107	21-196	9	30	
N-Nitroso-di-n-propylamine	ug/L	ND	100	100	82.2	82.7	82	83	1-230	1	30	
N-Nitrosodimethylamine	ug/L	ND	100	100	66.0	68.7	66	69	25-150	4	30	
N-Nitrosodiphenylamine	ug/L	ND	100	100	72.4	75.7	72	76	25-150	4	30	
Naphthalene	ug/L	ND	100	100	85.1	92.0	85	92	21-133	8	30	
Nitrobenzene	ug/L	ND	100	100	90.5	94.0	90	94	35-180	4	30	
Phenanthrene	ug/L	ND	100	100	89.2	91.9	89	92	54-120	3	30	
Pyrene	ug/L	ND	100	100	80.9	88.4	81	88	52-115	9	30	
2,4,6-Tribromophenol (S)	%						111	109	10-137			
2-Fluorobiphenyl (S)	%						81	84	15-120			
2-Fluorophenol (S)	%						68	72	10-120			
Nitrobenzene-d5 (S)	%						85	89	10-120			
Phenol-d6 (S)	%						58	67	10-120			
Terphenyl-d14 (S)	%						79	87	11-131			

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: OEXT/25788
QC Batch Method: EPA 3546
Analysis Method: EPA 8015 Modified
Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92188624003

METHOD BLANK: 1133014
Matrix: Solid
Associated Lab Samples: 92188624003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Components	mg/kg	ND	5.0	02/06/14 10:35	
n-Pentacosane (S)	%	72	41-119	02/06/14 10:35	

LABORATORY CONTROL SAMPLE: 1133015

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Components	mg/kg	66.7	49.1	74	49-113	
n-Pentacosane (S)	%			83	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1133016 1133017

Parameter	Units	92188553005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Components	mg/kg	ND	75.6	75.6	54.0	46.1	71	60	10-146	16	30	
n-Pentacosane (S)	%						81	65	41-119			

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: OEXT/25787 | Analysis Method: EPA 8270
QC Batch Method: EPA 3546 | Analysis Description: 8270 Solid MSSV Microwave
Associated Lab Samples: 92188624001, 92188624002

METHOD BLANK: 1133012 | Matrix: Solid
Associated Lab Samples: 92188624001, 92188624002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	ND	330	02/07/14 11:52	
1,2-Dichlorobenzene	ug/kg	ND	330	02/07/14 11:52	
1,3-Dichlorobenzene	ug/kg	ND	330	02/07/14 11:52	
1,4-Dichlorobenzene	ug/kg	ND	330	02/07/14 11:52	
1-Methylnaphthalene	ug/kg	ND	330	02/07/14 11:52	
2,4,5-Trichlorophenol	ug/kg	ND	330	02/07/14 11:52	
2,4,6-Trichlorophenol	ug/kg	ND	330	02/07/14 11:52	
2,4-Dichlorophenol	ug/kg	ND	330	02/07/14 11:52	
2,4-Dimethylphenol	ug/kg	ND	330	02/07/14 11:52	
2,4-Dinitrophenol	ug/kg	ND	1650	02/07/14 11:52	
2,4-Dinitrotoluene	ug/kg	ND	330	02/07/14 11:52	
2,6-Dinitrotoluene	ug/kg	ND	330	02/07/14 11:52	
2-Chloronaphthalene	ug/kg	ND	330	02/07/14 11:52	
2-Chlorophenol	ug/kg	ND	330	02/07/14 11:52	
2-Methylnaphthalene	ug/kg	ND	330	02/07/14 11:52	
2-Methylphenol(o-Cresol)	ug/kg	ND	330	02/07/14 11:52	
2-Nitroaniline	ug/kg	ND	1650	02/07/14 11:52	
2-Nitrophenol	ug/kg	ND	330	02/07/14 11:52	
3&4-Methylphenol(m&p Cresol)	ug/kg	ND	330	02/07/14 11:52	
3,3'-Dichlorobenzidine	ug/kg	ND	1650	02/07/14 11:52	
3-Nitroaniline	ug/kg	ND	1650	02/07/14 11:52	
4,6-Dinitro-2-methylphenol	ug/kg	ND	660	02/07/14 11:52	
4-Bromophenylphenyl ether	ug/kg	ND	330	02/07/14 11:52	
4-Chloro-3-methylphenol	ug/kg	ND	660	02/07/14 11:52	
4-Chloroaniline	ug/kg	ND	1650	02/07/14 11:52	
4-Chlorophenylphenyl ether	ug/kg	ND	330	02/07/14 11:52	
4-Nitroaniline	ug/kg	ND	660	02/07/14 11:52	
4-Nitrophenol	ug/kg	ND	1650	02/07/14 11:52	
Acenaphthene	ug/kg	ND	330	02/07/14 11:52	
Acenaphthylene	ug/kg	ND	330	02/07/14 11:52	
Aniline	ug/kg	ND	330	02/07/14 11:52	
Anthracene	ug/kg	ND	330	02/07/14 11:52	
Benzo(a)anthracene	ug/kg	ND	330	02/07/14 11:52	
Benzo(a)pyrene	ug/kg	ND	330	02/07/14 11:52	
Benzo(b)fluoranthene	ug/kg	ND	330	02/07/14 11:52	
Benzo(g,h,i)perylene	ug/kg	ND	330	02/07/14 11:52	
Benzo(k)fluoranthene	ug/kg	ND	330	02/07/14 11:52	
Benzoic Acid	ug/kg	ND	1650	02/07/14 11:52	
Benzyl alcohol	ug/kg	ND	660	02/07/14 11:52	
bis(2-Chloroethoxy)methane	ug/kg	ND	330	02/07/14 11:52	
bis(2-Chloroethyl) ether	ug/kg	ND	330	02/07/14 11:52	
bis(2-Chloroisopropyl) ether	ug/kg	ND	330	02/07/14 11:52	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	330	02/07/14 11:52	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

METHOD BLANK: 1133012 Matrix: Solid
Associated Lab Samples: 92188624001, 92188624002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/kg	ND	330	02/07/14 11:52	
Chrysene	ug/kg	ND	330	02/07/14 11:52	
Di-n-butylphthalate	ug/kg	ND	330	02/07/14 11:52	
Di-n-octylphthalate	ug/kg	ND	330	02/07/14 11:52	
Dibenz(a,h)anthracene	ug/kg	ND	330	02/07/14 11:52	
Dibenzofuran	ug/kg	ND	330	02/07/14 11:52	
Diethylphthalate	ug/kg	ND	330	02/07/14 11:52	
Dimethylphthalate	ug/kg	ND	330	02/07/14 11:52	
Fluoranthene	ug/kg	ND	330	02/07/14 11:52	
Fluorene	ug/kg	ND	330	02/07/14 11:52	
Hexachloro-1,3-butadiene	ug/kg	ND	330	02/07/14 11:52	
Hexachlorobenzene	ug/kg	ND	330	02/07/14 11:52	
Hexachlorocyclopentadiene	ug/kg	ND	330	02/07/14 11:52	
Hexachloroethane	ug/kg	ND	330	02/07/14 11:52	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	330	02/07/14 11:52	
Isophorone	ug/kg	ND	330	02/07/14 11:52	
N-Nitroso-di-n-propylamine	ug/kg	ND	330	02/07/14 11:52	
N-Nitrosodimethylamine	ug/kg	ND	330	02/07/14 11:52	
N-Nitrosodiphenylamine	ug/kg	ND	330	02/07/14 11:52	
Naphthalene	ug/kg	ND	330	02/07/14 11:52	
Nitrobenzene	ug/kg	ND	330	02/07/14 11:52	
Pentachlorophenol	ug/kg	ND	1650	02/07/14 11:52	
Phenanthrene	ug/kg	ND	330	02/07/14 11:52	
Phenol	ug/kg	ND	330	02/07/14 11:52	
Pyrene	ug/kg	ND	330	02/07/14 11:52	
2,4,6-Tribromophenol (S)	%	87	27-110	02/07/14 11:52	
2-Fluorobiphenyl (S)	%	79	30-110	02/07/14 11:52	
2-Fluorophenol (S)	%	79	13-110	02/07/14 11:52	
Nitrobenzene-d5 (S)	%	74	23-110	02/07/14 11:52	
Phenol-d6 (S)	%	84	22-110	02/07/14 11:52	
Terphenyl-d14 (S)	%	98	28-110	02/07/14 11:52	

LABORATORY CONTROL SAMPLE: 1133013

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	1670	771	46	39-101	
1,2-Dichlorobenzene	ug/kg	1670	950	57	36-110	
1,3-Dichlorobenzene	ug/kg	1670	924	55	35-110	
1,4-Dichlorobenzene	ug/kg	1670	937	56	35-110	
1-Methylnaphthalene	ug/kg	1670	914	55	45-105	
2,4,5-Trichlorophenol	ug/kg	1670	1360	81	48-109	
2,4,6-Trichlorophenol	ug/kg	1670	1220	73	45-111	
2,4-Dichlorophenol	ug/kg	1670	887	53	51-116	
2,4-Dimethylphenol	ug/kg	1670	1010	61	42-103	
2,4-Dinitrophenol	ug/kg	8330	7480	90	28-103	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

LABORATORY CONTROL SAMPLE: 1133013

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dinitrotoluene	ug/kg	1670	1650	99	46-114	
2,6-Dinitrotoluene	ug/kg	1670	1620	97	48-112	
2-Chloronaphthalene	ug/kg	1670	1090	65	44-105	
2-Chlorophenol	ug/kg	1670	1100	66	36-110	
2-Methylnaphthalene	ug/kg	1670	954	57	39-112	
2-Methylphenol(o-Cresol)	ug/kg	1670	1060	64	39-101	
2-Nitroaniline	ug/kg	3330	3070	92	44-111	
2-Nitrophenol	ug/kg	1670	965	58	41-100	
3&4-Methylphenol(m&p Cresol)	ug/kg	1670	1100	66	43-103	
3,3'-Dichlorobenzidine	ug/kg	3330	3310	99	10-150	
3-Nitroaniline	ug/kg	3330	3230	97	35-110	
4,6-Dinitro-2-methylphenol	ug/kg	3330	2870	86	38-118	
4-Bromophenylphenyl ether	ug/kg	1670	1290	77	47-115	
4-Chloro-3-methylphenol	ug/kg	3330	2390	72	43-127	
4-Chloroaniline	ug/kg	3330	2070	62	34-109	
4-Chlorophenylphenyl ether	ug/kg	1670	1360	82	44-115	
4-Nitroaniline	ug/kg	3330	3500	105	37-111	
4-Nitrophenol	ug/kg	8330	8900	107	21-152	
Acenaphthene	ug/kg	1670	1160	69	38-117	
Acenaphthylene	ug/kg	1670	1200	72	46-107	
Aniline	ug/kg	1670	1050	63	29-110	
Anthracene	ug/kg	1670	1360	82	50-110	
Benzo(a)anthracene	ug/kg	1670	1510	90	47-116	
Benzo(a)pyrene	ug/kg	1670	1590	95	47-106	
Benzo(b)fluoranthene	ug/kg	1670	1610	96	47-109	
Benzo(g,h,i)perylene	ug/kg	1670	1430	86	39-115	
Benzo(k)fluoranthene	ug/kg	1670	1500	90	45-117	
Benzoic Acid	ug/kg	8330	5530	66	16-110	
Benzyl alcohol	ug/kg	3330	2060	62	38-105	
bis(2-Chloroethoxy)methane	ug/kg	1670	1170	70	39-110	
bis(2-Chloroethyl) ether	ug/kg	1670	1060	64	19-119	
bis(2-Chloroisopropyl) ether	ug/kg	1670	973	58	21-110	
bis(2-Ethylhexyl)phthalate	ug/kg	1670	1540	92	35-116	
Butylbenzylphthalate	ug/kg	1670	1760	106	38-110	
Chrysene	ug/kg	1670	1480	89	49-110	
Di-n-butylphthalate	ug/kg	1670	1400	84	43-109	
Di-n-octylphthalate	ug/kg	1670	1300	78	37-109	
Dibenz(a,h)anthracene	ug/kg	1670	1510	91	43-116	
Dibenzofuran	ug/kg	1670	1110	67	45-106	
Diethylphthalate	ug/kg	1670	1350	81	41-114	
Dimethylphthalate	ug/kg	1670	1260	76	43-110	
Fluoranthene	ug/kg	1670	1500	90	50-114	
Fluorene	ug/kg	1670	1370	82	46-114	
Hexachloro-1,3-butadiene	ug/kg	1670	742	45	28-111	
Hexachlorobenzene	ug/kg	1670	1190	71	46-120	
Hexachlorocyclopentadiene	ug/kg	1670	1240	74	18-119	
Hexachloroethane	ug/kg	1670	1090	66	33-110	
Indeno(1,2,3-cd)pyrene	ug/kg	1670	1570	94	42-115	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

LABORATORY CONTROL SAMPLE: 1133013

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isophorone	ug/kg	1670	1020	61	44-109	
N-Nitroso-di-n-propylamine	ug/kg	1670	1010	61	43-104	
N-Nitrosodimethylamine	ug/kg	1670	933	56	29-110	
N-Nitrosodiphenylamine	ug/kg	1670	1090	65	48-113	
Naphthalene	ug/kg	1670	887	53	41-110	
Nitrobenzene	ug/kg	1670	927	56	38-110	
Pentachlorophenol	ug/kg	3330	2730	82	32-128	
Phenanthrene	ug/kg	1670	1350	81	50-110	
Phenol	ug/kg	1670	1100	66	28-106	
Pyrene	ug/kg	1670	1460	88	45-114	
2,4,6-Tribromophenol (S)	%			96	27-110	
2-Fluorobiphenyl (S)	%			64	30-110	
2-Fluorophenol (S)	%			66	13-110	
Nitrobenzene-d5 (S)	%			53	23-110	
Phenol-d6 (S)	%			70	22-110	
Terphenyl-d14 (S)	%			89	28-110	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: OEXT/25778 | Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH | Analysis Description: MADEP EPH NC Soil
Associated Lab Samples: 92188624001, 92188624002

METHOD BLANK: 1132774 | Matrix: Solid
Associated Lab Samples: 92188624001, 92188624002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C09-C18)	mg/kg	ND	10.0	02/06/14 00:33	N2
Aliphatic (C19-C36)	mg/kg	ND	10.0	02/06/14 00:33	N2
Aromatic (C11-C22)	mg/kg	ND	10.0	02/06/14 00:33	N2
2-Bromonaphthalene (S)	%	115	40-140	02/06/14 00:33	
2-Fluorobiphenyl (S)	%	102	40-140	02/06/14 00:33	
Nonatriacontane (S)	%	57	40-140	02/06/14 00:33	
o-Terphenyl (S)	%	86	40-140	02/06/14 00:33	

LABORATORY CONTROL SAMPLE & LCSD: 1132775 1132776

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C09-C18)	mg/kg	10	ND	ND	60	49	40-140		50	N2
Aliphatic (C19-C36)	mg/kg	13.3	ND	ND	62	52	40-140		50	N2
Aromatic (C11-C22)	mg/kg	28.3	21.4	22.4	76	79	40-140	4	50	N2
2-Bromonaphthalene (S)	%				74	83	40-140			
2-Fluorobiphenyl (S)	%				77	82	40-140			
Nonatriacontane (S)	%				56	52	40-140			
o-Terphenyl (S)	%				71	81	40-140			

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: OEXT/25876 | Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH | Analysis Description: MADEP EPH NC Water
Associated Lab Samples: 92188624004

METHOD BLANK: 1136354 | Matrix: Water
Associated Lab Samples: 92188624004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C09-C18)	ug/L	ND	100	02/11/14 16:48	N2
Aliphatic (C19-C36)	ug/L	ND	100	02/11/14 16:48	N2
Aromatic (C11-C22)	ug/L	ND	100	02/11/14 16:48	N2
2-Bromonaphthalene (S)	%	114	40-140	02/11/14 16:48	
2-Fluorobiphenyl (S)	%	102	40-140	02/11/14 16:48	
Nonatriacontane (S)	%	59	40-140	02/11/14 16:48	
o-Terphenyl (S)	%	83	40-140	02/11/14 16:48	

LABORATORY CONTROL SAMPLE & LCSD: 1136355 1136356

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C09-C18)	ug/L	300	141	147	47	49	40-140	5	50	N2
Aliphatic (C19-C36)	ug/L	400	212	215	53	54	40-140	2	50	N2
Aromatic (C11-C22)	ug/L	850	450	485	53	57	40-140	7	50	N2
2-Bromonaphthalene (S)	%				66	67	40-140			
2-Fluorobiphenyl (S)	%				56	60	40-140			
Nonatriacontane (S)	%				66	64	40-140			
o-Terphenyl (S)	%				61	64	40-140			

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

QC Batch: PMST/6226 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92188624001, 92188624002, 92188624003

SAMPLE DUPLICATE: 1133179

Parameter	Units	201159052 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	0.31	0.28	9	25	

SAMPLE DUPLICATE: 1133180

Parameter	Units	92188624003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	14.5	13.9	5	25	

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QUALIFIERS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

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.

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

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

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TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

1g	The internal standard response is below criteria. No hits associated with this internal standard. Results unaffected by high bias.
N2	The lab does not hold TNI accreditation for this parameter.
S0	Surrogate recovery outside laboratory control limits.

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1129 ESSEX DRIVE
Pace Project No.: 92188624

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92188624003	COMP 1	EPA 3546	OEXT/25788	EPA 8015 Modified	GCSV/16596
92188624001	S-1	MADEP EPH	OEXT/25778	MADEP EPH	GCSV/16593
92188624002	S-2	MADEP EPH	OEXT/25778	MADEP EPH	GCSV/16593
92188624004	TW-1	MADEP EPH	OEXT/25876	MADEP EPH	GCSV/16650
92188624003	COMP 1	EPA 5035A/5030B	GCV/7790	EPA 8015 Modified	GCV/7791
92188624001	S-1	MADEP VPH	GCV/7798	MADEP VPH	GCV/7805
92188624002	S-2	MADEP VPH	GCV/7798	MADEP VPH	GCV/7805
92188624004	TW-1	MADEP VPH	GCV/7789		
92188624004	TW-1	EPA 625	OEXT/25797	EPA 625	MSSV/8731
92188624001	S-1	EPA 3546	OEXT/25787	EPA 8270	MSSV/8723
92188624002	S-2	EPA 3546	OEXT/25787	EPA 8270	MSSV/8723
92188624004	TW-1	SM 6200B	MSV/25772		
92188624001	S-1	EPA 8260	MSV/25759		
92188624002	S-2	EPA 8260	MSV/25759		
92188624001	S-1	ASTM D2974-87	PMST/6226		
92188624002	S-2	ASTM D2974-87	PMST/6226		
92188624003	COMP 1	ASTM D2974-87	PMST/6226		

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Pace Analytical	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: December 1, 2 Page 1 of 2
	Document Number: F-CHR-CS-03-rev.13	Issuing Authority: Pace Huntersville Quality Office

Client Name: Arm

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1102 (T1301) **Type of Ice:** (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor **T1102**: No Correction **T1301**: No Correction

Corrected Cooler Temp.: 3.0 °C **Biological Tissue is Frozen:** Yes No N/A

Date and Initials of person examining contents: TM 2/5

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix:_____		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☑Yes ☐No ☐N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review:	AMB	Date:	2-5-14
SRF Review:	AMB	Date:	2-5-14

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)

WO#: 92188624

92188624

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1786072

Section A Required Client Information:

Company: ARM
Address: P.O. Box 882 Hampstead NC
Email To: JOE-ARM@bellsouth.net
Phone: 910-270-2910 Fax: 270-2988
Requested Due Date/TAT: STANDARD

Section B Required Project Information:

Report To: ARM
Copy To:
Purchase Order No.:
Project Name: 1129 ESSEX DRIVE
Project Number:

Section C Invoice Information:

Attention: KAREN CONBETT
Company Name: ARM
Address: SAME
Pace Quote Reference: UST Test Fees
Pace Project Manager: Angela B
Pace Profile #: 5640-4.5

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☑ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): 8260B	8270D	602 w/ Xylenes	625 BN	MADEP EPH	MADEP VPH	TPH 418.1	TPH DRO	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. (92188624)
1	S-1	SL	G	2-3-14	1102				8	✓					✓	✓		X	X			X	X				001
2	S-2	SL	G	2-3-14	1131				8	✓					✓	✓		X	X			X	X				002
3	Comp-1	SL	C	2-3-14	1227				4	✓						✓								X	X		003
4																											
5	TW-1	WT	G	2-4-14	← 1214				10	✓			✓							X	X	X	X				004
6																											
7																											
8																											
9																											
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Analyze soil to below MSCC's. Analyze groundwater to below 2L Groundwater Standards	Joe Zuniga / ARM	2-4-14	1410	J. Dixon / Pace	2/4/14	1530	
				Jmore / Pace	2-5-14	1020	30 4 U 4

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

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: JOE ZUNIGA
SIGNATURE of SAMPLER: Joe Zuniga
DATE Signed (MM/DD/YY): 2-4-14

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

March 21, 2014

Joe Zunich
ARM'S Waterworks
PO Box 882
Hampstead, NC 28443

RE: Project: 1129 ESSEX DRIVE
Pace Project No.: 92193958

Dear Joe Zunich:
Enclosed are the analytical results for sample(s) received by the laboratory on March 20, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

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

Sincerely,

Angela M. Baioni

Angela Baioni
angela.baioni@pacelabs.com
Project Manager

Enclosures

cc: Karen Corbett, ARM's Waterworks
Ellen Cornette, ARM'S Waterworks
James Cornette, ARM'S Waterworks

REPORT OF LABORATORY ANALYSIS

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(704)875-9092

CERTIFICATIONS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92193958

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

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SAMPLE SUMMARY

Project: 1129 ESSEX DRIVE
Pace Project No.: 92193958

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92193958001	**TW-1**	Water	03/17/14 14:39	03/20/14 09:50

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SAMPLE ANALYTE COUNT

Project: 1129 ESSEX DRIVE
Pace Project No.: 92193958

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92193958001	TW-1	SM 6200B	CAH	16	PASI-C

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ANALYTICAL RESULTS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92193958

Sample: TW-1 **Lab ID: 92193958001** Collected: 03/17/14 14:39 Received: 03/20/14 09:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
602 Volatiles by Method 6200	Analytical Method: SM 6200B								
Benzene	ND	ug/L	1.0	1.0	1		03/20/14 23:17	71-43-2	
Chlorobenzene	ND	ug/L	1.0	1.0	1		03/20/14 23:17	108-90-7	
1,2-Dichlorobenzene	ND	ug/L	1.0	1.0	1		03/20/14 23:17	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1.0	1		03/20/14 23:17	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1.0	1		03/20/14 23:17	106-46-7	
Diisopropyl ether	ND	ug/L	1.0	1.0	1		03/20/14 23:17	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1.0	1		03/20/14 23:17	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1.0	1		03/20/14 23:17	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	1.0	1.0	1		03/20/14 23:17	1634-04-4	
Naphthalene	ND	ug/L	2.0	2.0	1		03/20/14 23:17	91-20-3	
Toluene	ND	ug/L	1.0	1.0	1		03/20/14 23:17	108-88-3	
m&p-Xylene	ND	ug/L	2.0	2.0	1		03/20/14 23:17	179601-23-1	
o-Xylene	ND	ug/L	1.0	1.0	1		03/20/14 23:17	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		1		03/20/14 23:17	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		03/20/14 23:17	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		03/20/14 23:17	2037-26-5	

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QUALITY CONTROL DATA

Project: 1129 ESSEX DRIVE
Pace Project No.: 92193958

QC Batch: MSV/26160
QC Batch Method: SM 6200B
Analysis Method: SM 6200B
Analysis Description: 602 by 6200B
Associated Lab Samples: 92193958001

METHOD BLANK: 1161347
Matrix: Water
Associated Lab Samples: 92193958001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichlorobenzene	ug/L	ND	1.0	03/20/14 21:54	
1,3-Dichlorobenzene	ug/L	ND	1.0	03/20/14 21:54	
1,4-Dichlorobenzene	ug/L	ND	1.0	03/20/14 21:54	
Benzene	ug/L	ND	1.0	03/20/14 21:54	
Chlorobenzene	ug/L	ND	1.0	03/20/14 21:54	
Diisopropyl ether	ug/L	ND	1.0	03/20/14 21:54	
Ethylbenzene	ug/L	ND	1.0	03/20/14 21:54	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	03/20/14 21:54	
m&p-Xylene	ug/L	ND	2.0	03/20/14 21:54	
Methyl-tert-butyl ether	ug/L	ND	1.0	03/20/14 21:54	
Naphthalene	ug/L	ND	2.0	03/20/14 21:54	
o-Xylene	ug/L	ND	1.0	03/20/14 21:54	
Toluene	ug/L	ND	1.0	03/20/14 21:54	
1,2-Dichloroethane-d4 (S)	%	100	70-130	03/20/14 21:54	
4-Bromofluorobenzene (S)	%	99	70-130	03/20/14 21:54	
Toluene-d8 (S)	%	99	70-130	03/20/14 21:54	

LABORATORY CONTROL SAMPLE: 1161348

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	50	48.7	97	60-140	
1,3-Dichlorobenzene	ug/L	50	47.1	94	60-140	
1,4-Dichlorobenzene	ug/L	50	47.5	95	60-140	
Benzene	ug/L	50	50.8	102	60-140	
Chlorobenzene	ug/L	50	48.1	96	60-140	
Diisopropyl ether	ug/L	50	48.6	97	60-140	
Ethylbenzene	ug/L	50	49.9	100	60-140	
Isopropylbenzene (Cumene)	ug/L	50	51.7	103	60-140	
m&p-Xylene	ug/L	100	103	103	60-140	
Methyl-tert-butyl ether	ug/L	50	51.9	104	60-140	
Naphthalene	ug/L	50	53.7	107	60-140	
o-Xylene	ug/L	50	51.4	103	60-140	
Toluene	ug/L	50	49.8	100	60-140	
1,2-Dichloroethane-d4 (S)	%			97	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			102	70-130	

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(704)875-9092

QUALIFIERS

Project: 1129 ESSEX DRIVE
Pace Project No.: 92193958

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

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.

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

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1129 ESSEX DRIVE
Pace Project No.: 92193958

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92193958001	TW-1	SM 6200B	MSV/26160		

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Pace Analytical	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: December 16, 2013 Page 1 of 2
	Document Number: **F-CHR-CS-03-rev.13**	Issuing Authority: Pace Huntersville Quality Office

Client Name: ARM

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other_____

Optional
Proj. Due Date:
Proj. Name:

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1102 T1301 (circled) **Type of Ice:** Wet (circled) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor **T1102**: No Correction **T1301**: No Correction

Corrected Cooler Temp.: 1.3 °C **Biological Tissue is Frozen:** Yes No N/A (circled)

Temp should be above freezing to 6°C

Date and Initials of person examining contents: CO 3/20/14

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix:_____		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF Review:	JDB	Date:	3/20/14
SRF Review:	JDB	Date:	3/20/14

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)

WO# : 92193958

92193958

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1666418

Section A Required Client Information:

Company: ARM
Address: P.O. Box 882, Hampstead NC
Email To: joe-arm@bellsouth.net
Phone: 910 270-2919 Fax: 270-2788
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: ARM
Copy To:
Purchase Order No.:
Project Name: 1129 Essex Drive
Project Number: 0669

Section C Invoice Information:

Attention: Karen Corbett
Company Name: ARM
Address: Same
Pace Quote Reference: UST Int Tank Pulls
Pace Project Manager: Angela Baioni
Pace Profile #: 5640-4

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☑ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TW-1	WT	G			3-17-14	1439		3				✓					X		92193958 001
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Analyze for 2L Groundwater Standards.	Joe Zuniga / ARM	3-17-14	1648	J. Dixon / Pace	3-19-14	1430				
				E. Atkins / Pace	3/20/14	0950	1.3	Y	N	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Joe Zuniga
SIGNATURE of SAMPLER: Joe Zuniga
DATE Signed (MM/DD/YY): 3-17-14

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

May 02, 2014

Joe Zunich
ARM'S Waterworks
PO Box 882
Hampstead, NC 28443

RE: Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Dear Joe Zunich:
Enclosed are the analytical results for sample(s) received by the laboratory on April 24, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

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

Sincerely,

Angela M. Baioni

Angela Baioni
angela.baioni@pacelabs.com
Project Manager

Enclosures

cc: Karen Corbett, ARM's Waterworks
Ellen Cornette, ARM'S Waterworks
James Cornette, ARM'S Waterworks

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CERTIFICATIONS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

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SAMPLE SUMMARY

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92198615001	TW-1	Water	04/22/14 15:27	04/24/14 09:20
92198615002	S-3	Solid	04/22/14 15:42	04/24/14 09:20
92198615003	S-4	Solid	04/22/14 16:03	04/24/14 09:20

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SAMPLE ANALYTE COUNT

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92198615001	TW-1	MADEP EPH	RES	7	PASI-C
		MADEP VPH	GAW	5	PASI-C
92198615002	S-3	MADEP EPH	RES	7	PASI-C
		MADEP VPH	GAW	5	PASI-C
		EPA 8270	BPJ	74	PASI-C
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	LLW	1	PASI-C
92198615003	S-4	MADEP EPH	RES	7	PASI-C
		MADEP VPH	GAW	5	PASI-C
		EPA 8270	BPJ	74	PASI-C
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	LLW	1	PASI-C

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ANALYTICAL RESULTS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Sample: TW-1 **Lab ID: 92198615001** Collected: 04/22/14 15:27 Received: 04/24/14 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP EPH NC Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C09-C18)	ND	ug/L	100	100	1	04/25/14 13:30	04/29/14 04:00		N2
Aliphatic (C19-C36)	ND	ug/L	100	100	1	04/25/14 13:30	04/29/14 04:00		N2
Aromatic (C11-C22)	ND	ug/L	100	100	1	04/25/14 13:30	04/29/14 04:00		N2
Surrogates									
Nonatriacontane (S)	46	%	40-140		1	04/25/14 13:30	04/29/14 04:00	7194-86-7	
o-Terphenyl (S)	56	%	40-140		1	04/25/14 13:30	04/29/14 04:00	84-15-1	
2-Fluorobiphenyl (S)	83	%	40-140		1	04/25/14 13:30	04/29/14 04:00	321-60-8	
2-Bromonaphthalene (S)	90	%	40-140		1	04/25/14 13:30	04/29/14 04:00	580-13-2	
VPH NC Water	Analytical Method: MADEP VPH								
Aliphatic (C05-C08)	ND	ug/L	50.0	50.0	1		05/02/14 00:39		N2
Aliphatic (C09-C12)	ND	ug/L	50.0	50.0	1		05/02/14 00:39		N2
Aromatic (C09-C10)	ND	ug/L	50.0	50.0	1		05/02/14 00:39		N2
Surrogates									
4-Bromofluorobenzene (FID) (S)	97	%	70-130		1		05/02/14 00:39	460-00-4	
4-Bromofluorobenzene (PID) (S)	92	%	70-130		1		05/02/14 00:39	460-00-4	

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ANALYTICAL RESULTS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Sample: S-3 **Lab ID: 92198615002** Collected: 04/22/14 15:42 Received: 04/24/14 09:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP EPH NC Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C09-C18)	ND	mg/kg	10.8	10.8	1	04/24/14 13:28	04/26/14 05:55		N2
Aliphatic (C19-C36)	ND	mg/kg	10.8	10.8	1	04/24/14 13:28	04/26/14 05:55		N2
Aromatic (C11-C22)	ND	mg/kg	10.8	10.8	1	04/24/14 13:28	04/26/14 05:55		N2
Surrogates									
Nonatriacontane (S)	79	%	40-140		1	04/24/14 13:28	04/26/14 05:55	7194-86-7	
o-Terphenyl (S)	63	%	40-140		1	04/24/14 13:28	04/26/14 05:55	84-15-1	
2-Fluorobiphenyl (S)	81	%	40-140		1	04/24/14 13:28	04/26/14 05:55	321-60-8	
2-Bromonaphthalene (S)	84	%	40-140		1	04/24/14 13:28	04/26/14 05:55	580-13-2	
VPH NC Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Aliphatic (C05-C08)	ND	mg/kg	2.5	2.5	1	04/30/14 04:12	04/30/14 20:32		N2
Aliphatic (C09-C12)	ND	mg/kg	2.5	2.5	1	04/30/14 04:12	04/30/14 20:32		N2
Aromatic (C09-C10)	ND	mg/kg	2.5	2.5	1	04/30/14 04:12	04/30/14 20:32		N2
Surrogates									
4-Bromofluorobenzene (FID) (S)	104	%	70-130		1	04/30/14 04:12	04/30/14 20:32	460-00-4	
4-Bromofluorobenzene (PID) (S)	99	%	70-130		1	04/30/14 04:12	04/30/14 20:32	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Acenaphthene	ND	ug/kg	356	82.1	1	04/24/14 13:10	04/26/14 16:42	83-32-9	
Acenaphthylene	ND	ug/kg	356	84.2	1	04/24/14 13:10	04/26/14 16:42	208-96-8	
Aniline	ND	ug/kg	356	96.1	1	04/24/14 13:10	04/26/14 16:42	62-53-3	
Anthracene	ND	ug/kg	356	79.9	1	04/24/14 13:10	04/26/14 16:42	120-12-7	
Benzo(a)anthracene	ND	ug/kg	356	65.9	1	04/24/14 13:10	04/26/14 16:42	56-55-3	
Benzo(a)pyrene	ND	ug/kg	356	68.0	1	04/24/14 13:10	04/26/14 16:42	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	356	61.6	1	04/24/14 13:10	04/26/14 16:42	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	356	90.7	1	04/24/14 13:10	04/26/14 16:42	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	356	70.2	1	04/24/14 13:10	04/26/14 16:42	207-08-9	
Benzoic Acid	ND	ug/kg	1780	64.8	1	04/24/14 13:10	04/26/14 16:42	65-85-0	
Benzyl alcohol	ND	ug/kg	713	71.3	1	04/24/14 13:10	04/26/14 16:42	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	356	64.8	1	04/24/14 13:10	04/26/14 16:42	101-55-3	
Butylbenzylphthalate	ND	ug/kg	356	75.6	1	04/24/14 13:10	04/26/14 16:42	85-68-7	
4-Chloro-3-methylphenol	ND	ug/kg	713	73.4	1	04/24/14 13:10	04/26/14 16:42	59-50-7	
4-Chloroaniline	ND	ug/kg	1780	99.4	1	04/24/14 13:10	04/26/14 16:42	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	356	83.2	1	04/24/14 13:10	04/26/14 16:42	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	356	90.7	1	04/24/14 13:10	04/26/14 16:42	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	356	95.0	1	04/24/14 13:10	04/26/14 16:42	108-60-1	
2-Chloronaphthalene	ND	ug/kg	356	70.2	1	04/24/14 13:10	04/26/14 16:42	91-58-7	
2-Chlorophenol	ND	ug/kg	356	97.2	1	04/24/14 13:10	04/26/14 16:42	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	356	73.4	1	04/24/14 13:10	04/26/14 16:42	7005-72-3	
Chrysene	ND	ug/kg	356	47.5	1	04/24/14 13:10	04/26/14 16:42	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	356	75.6	1	04/24/14 13:10	04/26/14 16:42	53-70-3	
Dibenzofuran	ND	ug/kg	356	58.3	1	04/24/14 13:10	04/26/14 16:42	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	356	95.0	1	04/24/14 13:10	04/26/14 16:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	356	81.0	1	04/24/14 13:10	04/26/14 16:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	356	100	1	04/24/14 13:10	04/26/14 16:42	106-46-7	

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ANALYTICAL RESULTS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Sample: S-3 **Lab ID: 92198615002** Collected: 04/22/14 15:42 Received: 04/24/14 09:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
3,3'-Dichlorobenzidine	ND	ug/kg	1780	77.8	1	04/24/14 13:10	04/26/14 16:42	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	356	77.8	1	04/24/14 13:10	04/26/14 16:42	120-83-2	
Diethylphthalate	ND	ug/kg	356	55.1	1	04/24/14 13:10	04/26/14 16:42	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	356	140	1	04/24/14 13:10	04/26/14 16:42	105-67-9	
Dimethylphthalate	ND	ug/kg	356	72.4	1	04/24/14 13:10	04/26/14 16:42	131-11-3	
Di-n-butylphthalate	ND	ug/kg	356	58.3	1	04/24/14 13:10	04/26/14 16:42	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	713	71.3	1	04/24/14 13:10	04/26/14 16:42	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1780	58.3	1	04/24/14 13:10	04/26/14 16:42	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	356	67.0	1	04/24/14 13:10	04/26/14 16:42	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	356	74.5	1	04/24/14 13:10	04/26/14 16:42	606-20-2	
Di-n-octylphthalate	ND	ug/kg	356	74.5	1	04/24/14 13:10	04/26/14 16:42	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	356	97.2	1	04/24/14 13:10	04/26/14 16:42	117-81-7	
Fluoranthene	ND	ug/kg	356	51.8	1	04/24/14 13:10	04/26/14 16:42	206-44-0	
Fluorene	ND	ug/kg	356	73.4	1	04/24/14 13:10	04/26/14 16:42	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	356	61.6	1	04/24/14 13:10	04/26/14 16:42	87-68-3	
Hexachlorobenzene	ND	ug/kg	356	45.4	1	04/24/14 13:10	04/26/14 16:42	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	356	65.9	1	04/24/14 13:10	04/26/14 16:42	77-47-4	
Hexachloroethane	ND	ug/kg	356	94.0	1	04/24/14 13:10	04/26/14 16:42	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	356	73.4	1	04/24/14 13:10	04/26/14 16:42	193-39-5	
Isophorone	ND	ug/kg	356	79.9	1	04/24/14 13:10	04/26/14 16:42	78-59-1	
1-Methylnaphthalene	ND	ug/kg	356	92.9	1	04/24/14 13:10	04/26/14 16:42	90-12-0	
2-Methylnaphthalene	ND	ug/kg	356	76.7	1	04/24/14 13:10	04/26/14 16:42	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	356	108	1	04/24/14 13:10	04/26/14 16:42	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	356	140	1	04/24/14 13:10	04/26/14 16:42		
Naphthalene	ND	ug/kg	356	87.5	1	04/24/14 13:10	04/26/14 16:42	91-20-3	
2-Nitroaniline	ND	ug/kg	1780	110	1	04/24/14 13:10	04/26/14 16:42	88-74-4	
3-Nitroaniline	ND	ug/kg	1780	97.2	1	04/24/14 13:10	04/26/14 16:42	99-09-2	
4-Nitroaniline	ND	ug/kg	713	100	1	04/24/14 13:10	04/26/14 16:42	100-01-6	
Nitrobenzene	ND	ug/kg	356	97.2	1	04/24/14 13:10	04/26/14 16:42	98-95-3	
2-Nitrophenol	ND	ug/kg	356	86.4	1	04/24/14 13:10	04/26/14 16:42	88-75-5	
4-Nitrophenol	ND	ug/kg	1780	63.7	1	04/24/14 13:10	04/26/14 16:42	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	356	116	1	04/24/14 13:10	04/26/14 16:42	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	356	68.0	1	04/24/14 13:10	04/26/14 16:42	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	356	106	1	04/24/14 13:10	04/26/14 16:42	86-30-6	
Pentachlorophenol	ND	ug/kg	1780	64.8	1	04/24/14 13:10	04/26/14 16:42	87-86-5	
Phenanthrene	ND	ug/kg	356	59.4	1	04/24/14 13:10	04/26/14 16:42	85-01-8	
Phenol	ND	ug/kg	356	107	1	04/24/14 13:10	04/26/14 16:42	108-95-2	
Pyrene	ND	ug/kg	356	60.5	1	04/24/14 13:10	04/26/14 16:42	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	356	69.1	1	04/24/14 13:10	04/26/14 16:42	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	356	110	1	04/24/14 13:10	04/26/14 16:42	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	356	78.8	1	04/24/14 13:10	04/26/14 16:42	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	60	%	23-110		1	04/24/14 13:10	04/26/14 16:42	4165-60-0	
2-Fluorobiphenyl (S)	63	%	30-110		1	04/24/14 13:10	04/26/14 16:42	321-60-8	
Terphenyl-d14 (S)	64	%	28-110		1	04/24/14 13:10	04/26/14 16:42	1718-51-0	

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ANALYTICAL RESULTS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Sample: S-3 **Lab ID: 92198615002** Collected: 04/22/14 15:42 Received: 04/24/14 09:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Surrogates									
Phenol-d6 (S)	60	%	22-110		1	04/24/14 13:10	04/26/14 16:42	13127-88-3	
2-Fluorophenol (S)	66	%	13-110		1	04/24/14 13:10	04/26/14 16:42	367-12-4	
2,4,6-Tribromophenol (S)	43	%	27-110		1	04/24/14 13:10	04/26/14 16:42	118-79-6	
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Acetone	**28.7J**	ug/kg	89.8	9.0	1		04/25/14 14:42	67-64-1	
Benzene	ND	ug/kg	4.5	1.4	1		04/25/14 14:42	71-43-2	
Bromobenzene	ND	ug/kg	4.5	1.8	1		04/25/14 14:42	108-86-1	
Bromochloromethane	ND	ug/kg	4.5	1.5	1		04/25/14 14:42	74-97-5	
Bromodichloromethane	ND	ug/kg	4.5	1.7	1		04/25/14 14:42	75-27-4	
Bromoform	ND	ug/kg	4.5	2.1	1		04/25/14 14:42	75-25-2	
Bromomethane	ND	ug/kg	9.0	2.2	1		04/25/14 14:42	74-83-9	
2-Butanone (MEK)	ND	ug/kg	89.8	2.6	1		04/25/14 14:42	78-93-3	
n-Butylbenzene	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.5	1.4	1		04/25/14 14:42	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.5	1.8	1		04/25/14 14:42	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.5	2.3	1		04/25/14 14:42	56-23-5	
Chlorobenzene	ND	ug/kg	4.5	1.7	1		04/25/14 14:42	108-90-7	
Chloroethane	ND	ug/kg	9.0	2.2	1		04/25/14 14:42	75-00-3	
Chloroform	ND	ug/kg	4.5	1.4	1		04/25/14 14:42	67-66-3	
Chloromethane	ND	ug/kg	9.0	2.2	1		04/25/14 14:42	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.5	1.5	1		04/25/14 14:42	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.5	3.2	1		04/25/14 14:42	96-12-8	
Dibromochloromethane	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	106-93-4	
Dibromomethane	ND	ug/kg	4.5	2.2	1		04/25/14 14:42	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.5	1.7	1		04/25/14 14:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.5	1.8	1		04/25/14 14:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.5	1.5	1		04/25/14 14:42	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.0	3.2	1		04/25/14 14:42	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.5	1.3	1		04/25/14 14:42	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.5	2.0	1		04/25/14 14:42	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.5	1.3	1		04/25/14 14:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.5	1.7	1		04/25/14 14:42	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.5	1.5	1		04/25/14 14:42	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.5	1.7	1		04/25/14 14:42	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.5	1.5	1		04/25/14 14:42	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.5	1.3	1		04/25/14 14:42	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.5	1.3	1		04/25/14 14:42	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.5	1.5	1		04/25/14 14:42	108-20-3	
Ethylbenzene	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	100-41-4	

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ANALYTICAL RESULTS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Sample: S-3 **Lab ID: 92198615002** Collected: 04/22/14 15:42 Received: 04/24/14 09:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Hexachloro-1,3-butadiene	ND	ug/kg	4.5	1.8	1		04/25/14 14:42	87-68-3	
2-Hexanone	ND	ug/kg	44.9	3.5	1		04/25/14 14:42	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.5	1.7	1		04/25/14 14:42	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.5	1.5	1		04/25/14 14:42	99-87-6	
Methylene Chloride	ND	ug/kg	18.0	2.7	1		04/25/14 14:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	44.9	3.3	1		04/25/14 14:42	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.5	1.3	1		04/25/14 14:42	1634-04-4	
Naphthalene	ND	ug/kg	4.5	1.1	1		04/25/14 14:42	91-20-3	
n-Propylbenzene	ND	ug/kg	4.5	1.5	1		04/25/14 14:42	103-65-1	
Styrene	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.5	1.9	1		04/25/14 14:42	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.5	1.7	1		04/25/14 14:42	79-34-5	
Tetrachloroethene	ND	ug/kg	4.5	1.5	1		04/25/14 14:42	127-18-4	
Toluene	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.5	2.0	1		04/25/14 14:42	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.5	1.4	1		04/25/14 14:42	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.5	1.9	1		04/25/14 14:42	79-00-5	
Trichloroethene	ND	ug/kg	4.5	1.9	1		04/25/14 14:42	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.5	2.0	1		04/25/14 14:42	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.5	1.4	1		04/25/14 14:42	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.5	1.8	1		04/25/14 14:42	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.5	1.6	1		04/25/14 14:42	108-67-8	
Vinyl acetate	ND	ug/kg	44.9	7.9	1		04/25/14 14:42	108-05-4	
Vinyl chloride	ND	ug/kg	9.0	1.6	1		04/25/14 14:42	75-01-4	
Xylene (Total)	ND	ug/kg	9.0	3.2	1		04/25/14 14:42	1330-20-7	
m&p-Xylene	ND	ug/kg	9.0	3.2	1		04/25/14 14:42	179601-23-1	
o-Xylene	ND	ug/kg	4.5	1.7	1		04/25/14 14:42	95-47-6	
Surrogates									
Toluene-d8 (S)	100	%	70-130		1		04/25/14 14:42	2037-26-5	
4-Bromofluorobenzene (S)	104	%	70-130		1		04/25/14 14:42	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-132		1		04/25/14 14:42	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**7.4**	%	0.10	0.10	1		04/25/14 14:53		

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ANALYTICAL RESULTS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Sample: S-4 **Lab ID: 92198615003** Collected: 04/22/14 16:03 Received: 04/24/14 09:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP EPH NC Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C09-C18)	ND	mg/kg	10.8	10.8	1	04/24/14 13:28	04/26/14 06:27		N2
Aliphatic (C19-C36)	ND	mg/kg	10.8	10.8	1	04/24/14 13:28	04/26/14 06:27		N2
Aromatic (C11-C22)	ND	mg/kg	10.8	10.8	1	04/24/14 13:28	04/26/14 06:27		N2
Surrogates									
Nonatriacontane (S)	57	%	40-140		1	04/24/14 13:28	04/26/14 06:27	7194-86-7	
o-Terphenyl (S)	78	%	40-140		1	04/24/14 13:28	04/26/14 06:27	84-15-1	
2-Fluorobiphenyl (S)	87	%	40-140		1	04/24/14 13:28	04/26/14 06:27	321-60-8	
2-Bromonaphthalene (S)	101	%	40-140		1	04/24/14 13:28	04/26/14 06:27	580-13-2	
VPH NC Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Aliphatic (C05-C08)	ND	mg/kg	2.5	2.5	1	04/30/14 04:12	04/30/14 20:55		N2
Aliphatic (C09-C12)	ND	mg/kg	2.5	2.5	1	04/30/14 04:12	04/30/14 20:55		N2
Aromatic (C09-C10)	ND	mg/kg	2.5	2.5	1	04/30/14 04:12	04/30/14 20:55		N2
Surrogates									
4-Bromofluorobenzene (FID) (S)	109	%	70-130		1	04/30/14 04:12	04/30/14 20:55	460-00-4	
4-Bromofluorobenzene (PID) (S)	104	%	70-130		1	04/30/14 04:12	04/30/14 20:55	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Acenaphthene	ND	ug/kg	357	82.1	1	04/24/14 13:10	04/26/14 17:12	83-32-9	
Acenaphthylene	ND	ug/kg	357	84.3	1	04/24/14 13:10	04/26/14 17:12	208-96-8	
Aniline	ND	ug/kg	357	96.2	1	04/24/14 13:10	04/26/14 17:12	62-53-3	
Anthracene	ND	ug/kg	357	80.0	1	04/24/14 13:10	04/26/14 17:12	120-12-7	
Benzo(a)anthracene	ND	ug/kg	357	65.9	1	04/24/14 13:10	04/26/14 17:12	56-55-3	
Benzo(a)pyrene	ND	ug/kg	357	68.1	1	04/24/14 13:10	04/26/14 17:12	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	357	61.6	1	04/24/14 13:10	04/26/14 17:12	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	357	90.8	1	04/24/14 13:10	04/26/14 17:12	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	357	70.3	1	04/24/14 13:10	04/26/14 17:12	207-08-9	
Benzoic Acid	ND	ug/kg	1780	64.9	1	04/24/14 13:10	04/26/14 17:12	65-85-0	
Benzyl alcohol	ND	ug/kg	713	71.3	1	04/24/14 13:10	04/26/14 17:12	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	357	64.9	1	04/24/14 13:10	04/26/14 17:12	101-55-3	
Butylbenzylphthalate	ND	ug/kg	357	75.7	1	04/24/14 13:10	04/26/14 17:12	85-68-7	
4-Chloro-3-methylphenol	ND	ug/kg	713	73.5	1	04/24/14 13:10	04/26/14 17:12	59-50-7	
4-Chloroaniline	ND	ug/kg	1780	99.4	1	04/24/14 13:10	04/26/14 17:12	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	357	83.2	1	04/24/14 13:10	04/26/14 17:12	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	357	90.8	1	04/24/14 13:10	04/26/14 17:12	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	357	95.1	1	04/24/14 13:10	04/26/14 17:12	108-60-1	
2-Chloronaphthalene	ND	ug/kg	357	70.3	1	04/24/14 13:10	04/26/14 17:12	91-58-7	
2-Chlorophenol	ND	ug/kg	357	97.3	1	04/24/14 13:10	04/26/14 17:12	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	357	73.5	1	04/24/14 13:10	04/26/14 17:12	7005-72-3	
Chrysene	ND	ug/kg	357	47.6	1	04/24/14 13:10	04/26/14 17:12	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	357	75.7	1	04/24/14 13:10	04/26/14 17:12	53-70-3	
Dibenzofuran	ND	ug/kg	357	58.4	1	04/24/14 13:10	04/26/14 17:12	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	357	95.1	1	04/24/14 13:10	04/26/14 17:12	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	357	81.1	1	04/24/14 13:10	04/26/14 17:12	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	357	101	1	04/24/14 13:10	04/26/14 17:12	106-46-7	

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ANALYTICAL RESULTS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Sample: S-4 **Lab ID: 92198615003** Collected: 04/22/14 16:03 Received: 04/24/14 09:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
3,3'-Dichlorobenzidine	ND	ug/kg	1780	77.8	1	04/24/14 13:10	04/26/14 17:12	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	357	77.8	1	04/24/14 13:10	04/26/14 17:12	120-83-2	
Diethylphthalate	ND	ug/kg	357	55.1	1	04/24/14 13:10	04/26/14 17:12	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	357	141	1	04/24/14 13:10	04/26/14 17:12	105-67-9	
Dimethylphthalate	ND	ug/kg	357	72.4	1	04/24/14 13:10	04/26/14 17:12	131-11-3	
Di-n-butylphthalate	ND	ug/kg	357	58.4	1	04/24/14 13:10	04/26/14 17:12	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	713	71.3	1	04/24/14 13:10	04/26/14 17:12	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1780	58.4	1	04/24/14 13:10	04/26/14 17:12	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	357	67.0	1	04/24/14 13:10	04/26/14 17:12	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	357	74.6	1	04/24/14 13:10	04/26/14 17:12	606-20-2	
Di-n-octylphthalate	ND	ug/kg	357	74.6	1	04/24/14 13:10	04/26/14 17:12	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	357	97.3	1	04/24/14 13:10	04/26/14 17:12	117-81-7	
Fluoranthene	ND	ug/kg	357	51.9	1	04/24/14 13:10	04/26/14 17:12	206-44-0	
Fluorene	ND	ug/kg	357	73.5	1	04/24/14 13:10	04/26/14 17:12	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	357	61.6	1	04/24/14 13:10	04/26/14 17:12	87-68-3	
Hexachlorobenzene	ND	ug/kg	357	45.4	1	04/24/14 13:10	04/26/14 17:12	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	357	65.9	1	04/24/14 13:10	04/26/14 17:12	77-47-4	
Hexachloroethane	ND	ug/kg	357	94.0	1	04/24/14 13:10	04/26/14 17:12	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	357	73.5	1	04/24/14 13:10	04/26/14 17:12	193-39-5	
Isophorone	ND	ug/kg	357	80.0	1	04/24/14 13:10	04/26/14 17:12	78-59-1	
1-Methylnaphthalene	ND	ug/kg	357	93.0	1	04/24/14 13:10	04/26/14 17:12	90-12-0	
2-Methylnaphthalene	ND	ug/kg	357	76.7	1	04/24/14 13:10	04/26/14 17:12	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	357	108	1	04/24/14 13:10	04/26/14 17:12	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	357	141	1	04/24/14 13:10	04/26/14 17:12		
Naphthalene	ND	ug/kg	357	87.6	1	04/24/14 13:10	04/26/14 17:12	91-20-3	
2-Nitroaniline	ND	ug/kg	1780	110	1	04/24/14 13:10	04/26/14 17:12	88-74-4	
3-Nitroaniline	ND	ug/kg	1780	97.3	1	04/24/14 13:10	04/26/14 17:12	99-09-2	
4-Nitroaniline	ND	ug/kg	713	101	1	04/24/14 13:10	04/26/14 17:12	100-01-6	
Nitrobenzene	ND	ug/kg	357	97.3	1	04/24/14 13:10	04/26/14 17:12	98-95-3	
2-Nitrophenol	ND	ug/kg	357	86.5	1	04/24/14 13:10	04/26/14 17:12	88-75-5	
4-Nitrophenol	ND	ug/kg	1780	63.8	1	04/24/14 13:10	04/26/14 17:12	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	357	116	1	04/24/14 13:10	04/26/14 17:12	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	357	68.1	1	04/24/14 13:10	04/26/14 17:12	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	357	106	1	04/24/14 13:10	04/26/14 17:12	86-30-6	
Pentachlorophenol	ND	ug/kg	1780	64.9	1	04/24/14 13:10	04/26/14 17:12	87-86-5	
Phenanthrene	ND	ug/kg	357	59.4	1	04/24/14 13:10	04/26/14 17:12	85-01-8	
Phenol	ND	ug/kg	357	107	1	04/24/14 13:10	04/26/14 17:12	108-95-2	
Pyrene	ND	ug/kg	357	60.5	1	04/24/14 13:10	04/26/14 17:12	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	357	69.2	1	04/24/14 13:10	04/26/14 17:12	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	357	110	1	04/24/14 13:10	04/26/14 17:12	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	357	78.9	1	04/24/14 13:10	04/26/14 17:12	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	50	%	23-110		1	04/24/14 13:10	04/26/14 17:12	4165-60-0	
2-Fluorobiphenyl (S)	47	%	30-110		1	04/24/14 13:10	04/26/14 17:12	321-60-8	
Terphenyl-d14 (S)	60	%	28-110		1	04/24/14 13:10	04/26/14 17:12	1718-51-0	

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ANALYTICAL RESULTS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Sample: S-4 **Lab ID: 92198615003** Collected: 04/22/14 16:03 Received: 04/24/14 09:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
Surrogates									
Phenol-d6 (S)	46	%	22-110		1	04/24/14 13:10	04/26/14 17:12	13127-88-3	
2-Fluorophenol (S)	55	%	13-110		1	04/24/14 13:10	04/26/14 17:12	367-12-4	
2,4,6-Tribromophenol (S)	38	%	27-110		1	04/24/14 13:10	04/26/14 17:12	118-79-6	
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Acetone	**16.4J**	ug/kg	92.5	9.3	1		04/25/14 15:01	67-64-1	
Benzene	ND	ug/kg	4.6	1.5	1		04/25/14 15:01	71-43-2	
Bromobenzene	ND	ug/kg	4.6	1.9	1		04/25/14 15:01	108-86-1	
Bromochloromethane	ND	ug/kg	4.6	1.6	1		04/25/14 15:01	74-97-5	
Bromodichloromethane	ND	ug/kg	4.6	1.8	1		04/25/14 15:01	75-27-4	
Bromoform	ND	ug/kg	4.6	2.1	1		04/25/14 15:01	75-25-2	
Bromomethane	ND	ug/kg	9.3	2.3	1		04/25/14 15:01	74-83-9	
2-Butanone (MEK)	ND	ug/kg	92.5	2.7	1		04/25/14 15:01	78-93-3	
n-Butylbenzene	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.6	1.5	1		04/25/14 15:01	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.6	1.9	1		04/25/14 15:01	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.6	2.4	1		04/25/14 15:01	56-23-5	
Chlorobenzene	ND	ug/kg	4.6	1.8	1		04/25/14 15:01	108-90-7	
Chloroethane	ND	ug/kg	9.3	2.2	1		04/25/14 15:01	75-00-3	
Chloroform	ND	ug/kg	4.6	1.5	1		04/25/14 15:01	67-66-3	
Chloromethane	ND	ug/kg	9.3	2.2	1		04/25/14 15:01	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.6	1.6	1		04/25/14 15:01	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.6	3.3	1		04/25/14 15:01	96-12-8	
Dibromochloromethane	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	106-93-4	
Dibromomethane	ND	ug/kg	4.6	2.3	1		04/25/14 15:01	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.6	1.8	1		04/25/14 15:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.6	1.9	1		04/25/14 15:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.6	1.6	1		04/25/14 15:01	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.3	3.3	1		04/25/14 15:01	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.6	1.4	1		04/25/14 15:01	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.6	2.0	1		04/25/14 15:01	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.6	1.3	1		04/25/14 15:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.6	1.8	1		04/25/14 15:01	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.6	1.6	1		04/25/14 15:01	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.6	1.8	1		04/25/14 15:01	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.6	1.6	1		04/25/14 15:01	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.6	1.4	1		04/25/14 15:01	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.6	1.4	1		04/25/14 15:01	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.6	1.6	1		04/25/14 15:01	108-20-3	
Ethylbenzene	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	100-41-4	

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ANALYTICAL RESULTS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Sample: S-4 **Lab ID: 92198615003** Collected: 04/22/14 16:03 Received: 04/24/14 09:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
Hexachloro-1,3-butadiene	ND	ug/kg	4.6	1.9	1		04/25/14 15:01	87-68-3	
2-Hexanone	ND	ug/kg	46.3	3.6	1		04/25/14 15:01	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.6	1.8	1		04/25/14 15:01	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.6	1.6	1		04/25/14 15:01	99-87-6	
Methylene Chloride	ND	ug/kg	18.5	2.8	1		04/25/14 15:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	46.3	3.4	1		04/25/14 15:01	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.6	1.4	1		04/25/14 15:01	1634-04-4	
Naphthalene	ND	ug/kg	4.6	1.1	1		04/25/14 15:01	91-20-3	
n-Propylbenzene	ND	ug/kg	4.6	1.6	1		04/25/14 15:01	103-65-1	
Styrene	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.6	1.9	1		04/25/14 15:01	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.6	1.8	1		04/25/14 15:01	79-34-5	
Tetrachloroethene	ND	ug/kg	4.6	1.6	1		04/25/14 15:01	127-18-4	
Toluene	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.6	2.0	1		04/25/14 15:01	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.6	1.5	1		04/25/14 15:01	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.6	1.9	1		04/25/14 15:01	79-00-5	
Trichloroethene	ND	ug/kg	4.6	1.9	1		04/25/14 15:01	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.6	2.0	1		04/25/14 15:01	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.6	1.5	1		04/25/14 15:01	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.6	1.9	1		04/25/14 15:01	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.6	1.7	1		04/25/14 15:01	108-67-8	
Vinyl acetate	ND	ug/kg	46.3	8.1	1		04/25/14 15:01	108-05-4	
Vinyl chloride	ND	ug/kg	9.3	1.7	1		04/25/14 15:01	75-01-4	
Xylene (Total)	ND	ug/kg	9.3	3.3	1		04/25/14 15:01	1330-20-7	
m&p-Xylene	ND	ug/kg	9.3	3.3	1		04/25/14 15:01	179601-23-1	
o-Xylene	ND	ug/kg	4.6	1.8	1		04/25/14 15:01	95-47-6	
Surrogates									
Toluene-d8 (S)	104	%	70-130		1		04/25/14 15:01	2037-26-5	
4-Bromofluorobenzene (S)	111	%	70-130		1		04/25/14 15:01	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	70-132		1		04/25/14 15:01	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**7.5**	%	0.10	0.10	1		04/25/14 14:53		

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

QC Batch: GCV/8034 | Analysis Method: MADEP VPH
QC Batch Method: MADEP VPH | Analysis Description: VPH NC Soil
Associated Lab Samples: 92198615002, 92198615003

METHOD BLANK: 1188919 | Matrix: Solid
Associated Lab Samples: 92198615002, 92198615003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C05-C08)	mg/kg	ND	2.5	05/01/14 01:55	N2
Aliphatic (C09-C12)	mg/kg	ND	2.5	05/01/14 01:55	N2
Aromatic (C09-C10)	mg/kg	ND	2.5	05/01/14 01:55	N2
4-Bromofluorobenzene (FID) (S)	%	95	70-130	05/01/14 01:55	
4-Bromofluorobenzene (PID) (S)	%	92	70-130	05/01/14 01:55	

LABORATORY CONTROL SAMPLE & LCSD: 1188920 1188921

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08)	mg/kg	15	14.5	13.8	97	92	70-130	5	25	N2
Aliphatic (C09-C12)	mg/kg	15	12.4	15.0	83	100	30-130	19	25	N2
Aromatic (C09-C10)	mg/kg	5	4.3	4.3	85	86	70-130	1	25	N2
4-Bromofluorobenzene (FID) (S)	%				99	99	70-130			
4-Bromofluorobenzene (PID) (S)	%				94	95	70-130			

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

QC Batch: GCV/8037
QC Batch Method: MADEP VPH
Analysis Method: MADEP VPH
Analysis Description: VPH NC Water
Associated Lab Samples: 92198615001

METHOD BLANK: 1189987
Matrix: Water
Associated Lab Samples: 92198615001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C05-C08)	ug/L	ND	50.0	05/01/14 19:17	N2
Aliphatic (C09-C12)	ug/L	ND	50.0	05/01/14 19:17	N2
Aromatic (C09-C10)	ug/L	ND	50.0	05/01/14 19:17	N2
4-Bromofluorobenzene (FID) (S)	%	98	70-130	05/01/14 19:17	
4-Bromofluorobenzene (PID) (S)	%	91	70-130	05/01/14 19:17	

LABORATORY CONTROL SAMPLE & LCSD: 1189988 1189989

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08)	ug/L	300	267	282	89	94	70-130	6	25	N2
Aliphatic (C09-C12)	ug/L	300	279	306	93	102	30-130	9	25	N2
Aromatic (C09-C10)	ug/L	100	80.4	87.2	80	87	70-130	8	25	N2
4-Bromofluorobenzene (FID) (S)	%				97	102	70-130			
4-Bromofluorobenzene (PID) (S)	%				90	95	70-130			

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

QC Batch: MSV/26577
Analysis Method: EPA 8260
QC Batch Method: EPA 8260
Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92198615002, 92198615003

METHOD BLANK: 1185621
Matrix: Solid
Associated Lab Samples: 92198615002, 92198615003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	4.2	04/25/14 12:41	
1,1,1-Trichloroethane	ug/kg	ND	4.2	04/25/14 12:41	
1,1,2,2-Tetrachloroethane	ug/kg	ND	4.2	04/25/14 12:41	
1,1,2-Trichloroethane	ug/kg	ND	4.2	04/25/14 12:41	
1,1-Dichloroethane	ug/kg	ND	4.2	04/25/14 12:41	
1,1-Dichloroethene	ug/kg	ND	4.2	04/25/14 12:41	
1,1-Dichloropropene	ug/kg	ND	4.2	04/25/14 12:41	
1,2,3-Trichlorobenzene	ug/kg	ND	4.2	04/25/14 12:41	
1,2,3-Trichloropropane	ug/kg	ND	4.2	04/25/14 12:41	
1,2,4-Trichlorobenzene	ug/kg	ND	4.2	04/25/14 12:41	
1,2,4-Trimethylbenzene	ug/kg	ND	4.2	04/25/14 12:41	
1,2-Dibromo-3-chloropropane	ug/kg	ND	4.2	04/25/14 12:41	
1,2-Dibromoethane (EDB)	ug/kg	ND	4.2	04/25/14 12:41	
1,2-Dichlorobenzene	ug/kg	ND	4.2	04/25/14 12:41	
1,2-Dichloroethane	ug/kg	ND	4.2	04/25/14 12:41	
1,2-Dichloropropane	ug/kg	ND	4.2	04/25/14 12:41	
1,3,5-Trimethylbenzene	ug/kg	ND	4.2	04/25/14 12:41	
1,3-Dichlorobenzene	ug/kg	ND	4.2	04/25/14 12:41	
1,3-Dichloropropane	ug/kg	ND	4.2	04/25/14 12:41	
1,4-Dichlorobenzene	ug/kg	ND	4.2	04/25/14 12:41	
2,2-Dichloropropane	ug/kg	ND	4.2	04/25/14 12:41	
2-Butanone (MEK)	ug/kg	ND	83.6	04/25/14 12:41	
2-Chlorotoluene	ug/kg	ND	4.2	04/25/14 12:41	
2-Hexanone	ug/kg	ND	41.8	04/25/14 12:41	
4-Chlorotoluene	ug/kg	ND	4.2	04/25/14 12:41	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	41.8	04/25/14 12:41	
Acetone	ug/kg	ND	83.6	04/25/14 12:41	
Benzene	ug/kg	ND	4.2	04/25/14 12:41	
Bromobenzene	ug/kg	ND	4.2	04/25/14 12:41	
Bromochloromethane	ug/kg	ND	4.2	04/25/14 12:41	
Bromodichloromethane	ug/kg	ND	4.2	04/25/14 12:41	
Bromoform	ug/kg	ND	4.2	04/25/14 12:41	
Bromomethane	ug/kg	ND	8.4	04/25/14 12:41	
Carbon tetrachloride	ug/kg	ND	4.2	04/25/14 12:41	
Chlorobenzene	ug/kg	ND	4.2	04/25/14 12:41	
Chloroethane	ug/kg	ND	8.4	04/25/14 12:41	
Chloroform	ug/kg	ND	4.2	04/25/14 12:41	
Chloromethane	ug/kg	ND	8.4	04/25/14 12:41	
cis-1,2-Dichloroethene	ug/kg	ND	4.2	04/25/14 12:41	
cis-1,3-Dichloropropene	ug/kg	ND	4.2	04/25/14 12:41	
Dibromochloromethane	ug/kg	ND	4.2	04/25/14 12:41	
Dibromomethane	ug/kg	ND	4.2	04/25/14 12:41	
Dichlorodifluoromethane	ug/kg	ND	8.4	04/25/14 12:41	

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

METHOD BLANK: 1185621 Matrix: Solid
Associated Lab Samples: 92198615002, 92198615003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/kg	ND	4.2	04/25/14 12:41	
Ethylbenzene	ug/kg	ND	4.2	04/25/14 12:41	
Hexachloro-1,3-butadiene	ug/kg	ND	4.2	04/25/14 12:41	
Isopropylbenzene (Cumene)	ug/kg	ND	4.2	04/25/14 12:41	
m&p-Xylene	ug/kg	ND	8.4	04/25/14 12:41	
Methyl-tert-butyl ether	ug/kg	ND	4.2	04/25/14 12:41	
Methylene Chloride	ug/kg	ND	16.7	04/25/14 12:41	
n-Butylbenzene	ug/kg	ND	4.2	04/25/14 12:41	
n-Propylbenzene	ug/kg	ND	4.2	04/25/14 12:41	
Naphthalene	ug/kg	ND	4.2	04/25/14 12:41	
o-Xylene	ug/kg	ND	4.2	04/25/14 12:41	
p-Isopropyltoluene	ug/kg	ND	4.2	04/25/14 12:41	
sec-Butylbenzene	ug/kg	ND	4.2	04/25/14 12:41	
Styrene	ug/kg	ND	4.2	04/25/14 12:41	
tert-Butylbenzene	ug/kg	ND	4.2	04/25/14 12:41	
Tetrachloroethene	ug/kg	ND	4.2	04/25/14 12:41	
Toluene	ug/kg	ND	4.2	04/25/14 12:41	
trans-1,2-Dichloroethene	ug/kg	ND	4.2	04/25/14 12:41	
trans-1,3-Dichloropropene	ug/kg	ND	4.2	04/25/14 12:41	
Trichloroethene	ug/kg	ND	4.2	04/25/14 12:41	
Trichlorofluoromethane	ug/kg	ND	4.2	04/25/14 12:41	
Vinyl acetate	ug/kg	ND	41.8	04/25/14 12:41	
Vinyl chloride	ug/kg	ND	8.4	04/25/14 12:41	
Xylene (Total)	ug/kg	ND	8.4	04/25/14 12:41	
1,2-Dichloroethane-d4 (S)	%	98	70-132	04/25/14 12:41	
4-Bromofluorobenzene (S)	%	114	70-130	04/25/14 12:41	
Toluene-d8 (S)	%	101	70-130	04/25/14 12:41	

LABORATORY CONTROL SAMPLE: 1185623

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	43.9	48.8	111	70-131	
1,1,1-Trichloroethane	ug/kg	43.9	43.4	99	70-141	
1,1,2,2-Tetrachloroethane	ug/kg	43.9	37.8	86	70-130	
1,1,2-Trichloroethane	ug/kg	43.9	45.5	104	70-132	
1,1-Dichloroethane	ug/kg	43.9	38.2	87	70-143	
1,1-Dichloroethene	ug/kg	43.9	42.7	97	70-137	
1,1-Dichloropropene	ug/kg	43.9	40.6	92	70-135	
1,2,3-Trichlorobenzene	ug/kg	43.9	46.2	105	69-153	
1,2,3-Trichloropropane	ug/kg	43.9	47.0	107	70-130	
1,2,4-Trichlorobenzene	ug/kg	43.9	45.9	104	55-171	
1,2,4-Trimethylbenzene	ug/kg	43.9	46.8	106	70-149	
1,2-Dibromo-3-chloropropane	ug/kg	43.9	41.5	95	68-141	
1,2-Dibromoethane (EDB)	ug/kg	43.9	44.8	102	70-130	
1,2-Dichlorobenzene	ug/kg	43.9	43.7	100	70-140	

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

LABORATORY CONTROL SAMPLE: 1185623

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/kg	43.9	42.1	96	70-137	
1,2-Dichloropropane	ug/kg	43.9	47.0	107	70-133	
1,3,5-Trimethylbenzene	ug/kg	43.9	46.6	106	70-143	
1,3-Dichlorobenzene	ug/kg	43.9	44.7	102	70-144	
1,3-Dichloropropane	ug/kg	43.9	45.6	104	70-132	
1,4-Dichlorobenzene	ug/kg	43.9	45.4	103	70-142	
2,2-Dichloropropane	ug/kg	43.9	44.2	101	68-152	
2-Butanone (MEK)	ug/kg	87.9	75.6J	86	70-149	
2-Chlorotoluene	ug/kg	43.9	42.9	98	70-141	
2-Hexanone	ug/kg	87.9	84.8	97	70-149	
4-Chlorotoluene	ug/kg	43.9	45.6	104	70-149	
4-Methyl-2-pentanone (MIBK)	ug/kg	87.9	89.5	102	70-153	
Acetone	ug/kg	87.9	92.4	105	70-157	
Benzene	ug/kg	43.9	45.1	103	70-130	
Bromobenzene	ug/kg	43.9	44.7	102	70-141	
Bromochloromethane	ug/kg	43.9	39.8	91	70-149	
Bromodichloromethane	ug/kg	43.9	46.7	106	70-130	
Bromoform	ug/kg	43.9	48.1	109	70-131	
Bromomethane	ug/kg	43.9	45.9	105	64-136	
Carbon tetrachloride	ug/kg	43.9	49.0	111	70-154	
Chlorobenzene	ug/kg	43.9	43.9	100	70-135	
Chloroethane	ug/kg	43.9	40.4	92	68-151	
Chloroform	ug/kg	43.9	41.1	94	70-130	
Chloromethane	ug/kg	43.9	44.7	102	70-132	
cis-1,2-Dichloroethene	ug/kg	43.9	41.2	94	70-140	
cis-1,3-Dichloropropene	ug/kg	43.9	45.7	104	70-137	
Dibromochloromethane	ug/kg	43.9	42.9	98	70-130	
Dibromomethane	ug/kg	43.9	44.6	101	70-136	
Dichlorodifluoromethane	ug/kg	43.9	47.8	109	36-148	
Diisopropyl ether	ug/kg	43.9	37.7	86	70-139	
Ethylbenzene	ug/kg	43.9	45.9	104	70-137	
Hexachloro-1,3-butadiene	ug/kg	43.9	43.9	100	70-145	
Isopropylbenzene (Cumene)	ug/kg	43.9	47.3	108	70-141	
m&p-Xylene	ug/kg	87.9	94.1	107	70-140	
Methyl-tert-butyl ether	ug/kg	43.9	37.7	86	45-150	
Methylene Chloride	ug/kg	43.9	39.0	89	70-133	
n-Butylbenzene	ug/kg	43.9	47.5	108	65-155	
n-Propylbenzene	ug/kg	43.9	46.8	107	70-148	
Naphthalene	ug/kg	43.9	45.2	103	70-148	
o-Xylene	ug/kg	43.9	46.2	105	70-141	
p-Isopropyltoluene	ug/kg	43.9	45.8	104	70-148	
sec-Butylbenzene	ug/kg	43.9	46.4	106	70-145	
Styrene	ug/kg	43.9	46.4	106	70-138	
tert-Butylbenzene	ug/kg	43.9	46.3	105	70-143	
Tetrachloroethene	ug/kg	43.9	44.7	102	70-140	
Toluene	ug/kg	43.9	45.2	103	70-130	
trans-1,2-Dichloroethene	ug/kg	43.9	39.9	91	70-136	
trans-1,3-Dichloropropene	ug/kg	43.9	47.0	107	70-138	

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

LABORATORY CONTROL SAMPLE: 1185623

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/kg	43.9	52.7	120	70-132	
Trichlorofluoromethane	ug/kg	43.9	46.6	106	69-134	
Vinyl acetate	ug/kg	87.9	48.6	55	24-161	F3
Vinyl chloride	ug/kg	43.9	48.0	109	55-140	
Xylene (Total)	ug/kg	132	140	106	70-141	
1,2-Dichloroethane-d4 (S)	%			97	70-132	
4-Bromofluorobenzene (S)	%			105	70-130	
Toluene-d8 (S)	%			103	70-130	

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

QC Batch: OEXT/27237 | Analysis Method: EPA 8270
QC Batch Method: EPA 3546 | Analysis Description: 8270 Solid MSSV Microwave
Associated Lab Samples: 92198615002, 92198615003

METHOD BLANK: 1184470 | Matrix: Solid
Associated Lab Samples: 92198615002, 92198615003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	ND	330	04/25/14 17:45	
1,2-Dichlorobenzene	ug/kg	ND	330	04/25/14 17:45	
1,3-Dichlorobenzene	ug/kg	ND	330	04/25/14 17:45	
1,4-Dichlorobenzene	ug/kg	ND	330	04/25/14 17:45	
1-Methylnaphthalene	ug/kg	ND	330	04/25/14 17:45	
2,4,5-Trichlorophenol	ug/kg	ND	330	04/25/14 17:45	
2,4,6-Trichlorophenol	ug/kg	ND	330	04/25/14 17:45	
2,4-Dichlorophenol	ug/kg	ND	330	04/25/14 17:45	
2,4-Dimethylphenol	ug/kg	ND	330	04/25/14 17:45	
2,4-Dinitrophenol	ug/kg	ND	1650	04/25/14 17:45	
2,4-Dinitrotoluene	ug/kg	ND	330	04/25/14 17:45	
2,6-Dinitrotoluene	ug/kg	ND	330	04/25/14 17:45	
2-Chloronaphthalene	ug/kg	ND	330	04/25/14 17:45	
2-Chlorophenol	ug/kg	ND	330	04/25/14 17:45	
2-Methylnaphthalene	ug/kg	ND	330	04/25/14 17:45	
2-Methylphenol(o-Cresol)	ug/kg	ND	330	04/25/14 17:45	
2-Nitroaniline	ug/kg	ND	1650	04/25/14 17:45	
2-Nitrophenol	ug/kg	ND	330	04/25/14 17:45	
3&4-Methylphenol(m&p Cresol)	ug/kg	ND	330	04/25/14 17:45	
3,3'-Dichlorobenzidine	ug/kg	ND	1650	04/25/14 17:45	
3-Nitroaniline	ug/kg	ND	1650	04/25/14 17:45	
4,6-Dinitro-2-methylphenol	ug/kg	ND	660	04/25/14 17:45	
4-Bromophenylphenyl ether	ug/kg	ND	330	04/25/14 17:45	
4-Chloro-3-methylphenol	ug/kg	ND	660	04/25/14 17:45	
4-Chloroaniline	ug/kg	ND	1650	04/25/14 17:45	
4-Chlorophenylphenyl ether	ug/kg	ND	330	04/25/14 17:45	
4-Nitroaniline	ug/kg	ND	660	04/25/14 17:45	
4-Nitrophenol	ug/kg	ND	1650	04/25/14 17:45	
Acenaphthene	ug/kg	ND	330	04/25/14 17:45	
Acenaphthylene	ug/kg	ND	330	04/25/14 17:45	
Aniline	ug/kg	ND	330	04/25/14 17:45	
Anthracene	ug/kg	ND	330	04/25/14 17:45	
Benzo(a)anthracene	ug/kg	ND	330	04/25/14 17:45	
Benzo(a)pyrene	ug/kg	ND	330	04/25/14 17:45	
Benzo(b)fluoranthene	ug/kg	ND	330	04/25/14 17:45	
Benzo(g,h,i)perylene	ug/kg	ND	330	04/25/14 17:45	
Benzo(k)fluoranthene	ug/kg	ND	330	04/25/14 17:45	
Benzoic Acid	ug/kg	ND	1650	04/25/14 17:45	
Benzyl alcohol	ug/kg	ND	660	04/25/14 17:45	
bis(2-Chloroethoxy)methane	ug/kg	ND	330	04/25/14 17:45	
bis(2-Chloroethyl) ether	ug/kg	ND	330	04/25/14 17:45	
bis(2-Chloroisopropyl) ether	ug/kg	ND	330	04/25/14 17:45	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	330	04/25/14 17:45	

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

METHOD BLANK: 1184470 Matrix: Solid
Associated Lab Samples: 92198615002, 92198615003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/kg	ND	330	04/25/14 17:45	
Chrysene	ug/kg	ND	330	04/25/14 17:45	
Di-n-butylphthalate	ug/kg	ND	330	04/25/14 17:45	
Di-n-octylphthalate	ug/kg	ND	330	04/25/14 17:45	
Dibenz(a,h)anthracene	ug/kg	ND	330	04/25/14 17:45	
Dibenzofuran	ug/kg	ND	330	04/25/14 17:45	
Diethylphthalate	ug/kg	ND	330	04/25/14 17:45	
Dimethylphthalate	ug/kg	ND	330	04/25/14 17:45	
Fluoranthene	ug/kg	ND	330	04/25/14 17:45	
Fluorene	ug/kg	ND	330	04/25/14 17:45	
Hexachloro-1,3-butadiene	ug/kg	ND	330	04/25/14 17:45	
Hexachlorobenzene	ug/kg	ND	330	04/25/14 17:45	
Hexachlorocyclopentadiene	ug/kg	ND	330	04/25/14 17:45	
Hexachloroethane	ug/kg	ND	330	04/25/14 17:45	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	330	04/25/14 17:45	
Isophorone	ug/kg	ND	330	04/25/14 17:45	
N-Nitroso-di-n-propylamine	ug/kg	ND	330	04/25/14 17:45	
N-Nitrosodimethylamine	ug/kg	ND	330	04/25/14 17:45	
N-Nitrosodiphenylamine	ug/kg	ND	330	04/25/14 17:45	
Naphthalene	ug/kg	ND	330	04/25/14 17:45	
Nitrobenzene	ug/kg	ND	330	04/25/14 17:45	
Pentachlorophenol	ug/kg	ND	1650	04/25/14 17:45	
Phenanthrene	ug/kg	ND	330	04/25/14 17:45	
Phenol	ug/kg	ND	330	04/25/14 17:45	
Pyrene	ug/kg	ND	330	04/25/14 17:45	
2,4,6-Tribromophenol (S)	%	50	27-110	04/25/14 17:45	
2-Fluorobiphenyl (S)	%	70	30-110	04/25/14 17:45	
2-Fluorophenol (S)	%	74	13-110	04/25/14 17:45	
Nitrobenzene-d5 (S)	%	68	23-110	04/25/14 17:45	
Phenol-d6 (S)	%	69	22-110	04/25/14 17:45	
Terphenyl-d14 (S)	%	86	28-110	04/25/14 17:45	

LABORATORY CONTROL SAMPLE: 1184471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	1670	1000	60	39-101	
1,2-Dichlorobenzene	ug/kg	1670	934	56	36-110	
1,3-Dichlorobenzene	ug/kg	1670	922	55	35-110	
1,4-Dichlorobenzene	ug/kg	1670	958	57	35-110	
1-Methylnaphthalene	ug/kg	1670	913	55	45-105	
2,4,5-Trichlorophenol	ug/kg	1670	1030	62	48-109	
2,4,6-Trichlorophenol	ug/kg	1670	923	55	45-111	
2,4-Dichlorophenol	ug/kg	1670	909	55	51-116	
2,4-Dimethylphenol	ug/kg	1670	919	55	42-103	
2,4-Dinitrophenol	ug/kg	8330	4530	54	28-103	

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

LABORATORY CONTROL SAMPLE: 1184471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dinitrotoluene	ug/kg	1670	1310	79	46-114	
2,6-Dinitrotoluene	ug/kg	1670	1190	71	48-112	
2-Chloronaphthalene	ug/kg	1670	923	55	44-105	
2-Chlorophenol	ug/kg	1670	971	58	36-110	
2-Methylnaphthalene	ug/kg	1670	950	57	39-112	
2-Methylphenol(o-Cresol)	ug/kg	1670	972	58	39-101	
2-Nitroaniline	ug/kg	3330	2620	79	44-111	
2-Nitrophenol	ug/kg	1670	908	54	41-100	
3&4-Methylphenol(m&p Cresol)	ug/kg	1670	995	60	43-103	
3,3'-Dichlorobenzidine	ug/kg	3330	2270	68	10-150	
3-Nitroaniline	ug/kg	3330	2580	77	35-110	
4,6-Dinitro-2-methylphenol	ug/kg	3330	2250	68	38-118	
4-Bromophenylphenyl ether	ug/kg	1670	1060	63	47-115	
4-Chloro-3-methylphenol	ug/kg	3330	2280	68	43-127	
4-Chloroaniline	ug/kg	3330	1990	60	34-109	
4-Chlorophenylphenyl ether	ug/kg	1670	1120	67	44-115	
4-Nitroaniline	ug/kg	3330	2810	84	37-111	
4-Nitrophenol	ug/kg	8330	5440	65	21-152	
Acenaphthene	ug/kg	1670	955	57	38-117	
Acenaphthylene	ug/kg	1670	992	59	46-107	
Aniline	ug/kg	1670	955	57	29-110	
Anthracene	ug/kg	1670	1190	71	50-110	
Benzo(a)anthracene	ug/kg	1670	1280	77	47-116	
Benzo(a)pyrene	ug/kg	1670	1360	81	47-106	
Benzo(b)fluoranthene	ug/kg	1670	1240	74	47-109	
Benzo(g,h,i)perylene	ug/kg	1670	1420	85	39-115	
Benzo(k)fluoranthene	ug/kg	1670	1290	77	45-117	
Benzoic Acid	ug/kg	8330	2840	34	16-110	
Benzyl alcohol	ug/kg	3330	2120	64	38-105	
bis(2-Chloroethoxy)methane	ug/kg	1670	976	59	39-110	
bis(2-Chloroethyl) ether	ug/kg	1670	920	55	19-119	
bis(2-Chloroisopropyl) ether	ug/kg	1670	956	57	21-110	
bis(2-Ethylhexyl)phthalate	ug/kg	1670	1240	74	35-116	
Butylbenzylphthalate	ug/kg	1670	1210	72	38-110	
Chrysene	ug/kg	1670	1320	79	49-110	
Di-n-butylphthalate	ug/kg	1670	1080	65	43-109	
Di-n-octylphthalate	ug/kg	1670	1170	70	37-109	
Dibenz(a,h)anthracene	ug/kg	1670	1410	85	43-116	
Dibenzofuran	ug/kg	1670	1140	68	45-106	
Diethylphthalate	ug/kg	1670	1160	69	41-114	
Dimethylphthalate	ug/kg	1670	1160	69	43-110	
Fluoranthene	ug/kg	1670	1190	72	50-114	
Fluorene	ug/kg	1670	1140	68	46-114	
Hexachloro-1,3-butadiene	ug/kg	1670	932	56	28-111	
Hexachlorobenzene	ug/kg	1670	1050	63	46-120	
Hexachlorocyclopentadiene	ug/kg	1670	593	36	18-119	
Hexachloroethane	ug/kg	1670	920	55	33-110	
Indeno(1,2,3-cd)pyrene	ug/kg	1670	1450	87	42-115	

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

LABORATORY CONTROL SAMPLE: 1184471

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isophorone	ug/kg	1670	1080	65	44-109	
N-Nitroso-di-n-propylamine	ug/kg	1670	889	53	43-104	
N-Nitrosodimethylamine	ug/kg	1670	991	59	29-110	
N-Nitrosodiphenylamine	ug/kg	1670	918	55	48-113	
Naphthalene	ug/kg	1670	948	57	41-110	
Nitrobenzene	ug/kg	1670	1020	61	38-110	
Pentachlorophenol	ug/kg	3330	1420J	43	32-128	
Phenanthrene	ug/kg	1670	1180	71	50-110	
Phenol	ug/kg	1670	1170	70	28-106	
Pyrene	ug/kg	1670	1420	85	45-114	
2,4,6-Tribromophenol (S)	%			58	27-110	
2-Fluorobiphenyl (S)	%			55	30-110	
2-Fluorophenol (S)	%			62	13-110	
Nitrobenzene-d5 (S)	%			58	23-110	
Phenol-d6 (S)	%			63	22-110	
Terphenyl-d14 (S)	%			83	28-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1184472 1184473

Parameter	Units	92198442014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trichlorobenzene	ug/kg	<395	2000	2000	1460	1430	73	72	18-119	2	30	
1,2-Dichlorobenzene	ug/kg	<395	2000	2000	1500	1450	75	73	50-110	4	30	
1,3-Dichlorobenzene	ug/kg	<395	2000	2000	1440	1390	72	69	27-110	4	30	
1,4-Dichlorobenzene	ug/kg	<395	2000	2000	1480	1440	74	72	28-110	3	30	
1-Methylnaphthalene	ug/kg	<395	2000	2000	1480	1440	74	72	24-116	3	30	
2,4,5-Trichlorophenol	ug/kg	<395	2000	2000	1490	1460	74	73	28-110	2	30	
2,4,6-Trichlorophenol	ug/kg	<395	2000	2000	1410	1390	71	69	17-117	2	30	
2,4-Dichlorophenol	ug/kg	<395	2000	2000	1510	1540	76	77	21-128	2	30	
2,4-Dimethylphenol	ug/kg	<395	2000	2000	1520	1500	76	75	10-120	1	30	
2,4-Dinitrophenol	ug/kg	<1980	9980	9980	2130	2140	21	21	10-107	0	30	
2,4-Dinitrotoluene	ug/kg	<395	2000	2000	1600	1620	80	81	36-109	1	30	
2,6-Dinitrotoluene	ug/kg	<395	2000	2000	1560	1640	78	82	32-110	5	30	
2-Chloronaphthalene	ug/kg	<395	2000	2000	1400	1400	70	70	30-107	0	30	
2-Chlorophenol	ug/kg	<395	2000	2000	1620	1550	81	78	14-106	4	30	
2-Methylnaphthalene	ug/kg	<395	2000	2000	1510	1480	76	74	10-135	2	30	
2-Methylphenol(o-Cresol)	ug/kg	<395	2000	2000	1570	1480	79	74	10-124	6	30	
2-Nitroaniline	ug/kg	<1980	3990	3990	2990	3010	75	75	26-116	1	30	
2-Nitrophenol	ug/kg	<395	2000	2000	1490	1440	74	72	28-103	3	30	
3&4-Methylphenol(m&p Cresol)	ug/kg	<395	2000	2000	1520	1460	76	73	10-109	4	30	
3,3'-Dichlorobenzidine	ug/kg	<1980	3990	3990	2920	2910	73	73	10-150	0	30	
3-Nitroaniline	ug/kg	<1980	3990	3990	2870	3040	72	76	22-110	6	30	
4,6-Dinitro-2-methylphenol	ug/kg	<791	3990	3990	2560	2600	64	65	13-121	1	30	
4-Bromophenylphenyl ether	ug/kg	<395	2000	2000	1400	1430	70	72	31-109	2	30	
4-Chloro-3-methylphenol	ug/kg	<791	3990	3990	3270	3180	82	80	13-128	3	30	
4-Chloroaniline	ug/kg	<1980	3990	3990	3100	3060	78	77	18-102	1	30	

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1184472 1184473

Parameter	Units	92198442014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
4-Chlorophenylphenyl ether	ug/kg	<395	2000	2000	1440	1490	72	75	29-112	3	30	
4-Nitroaniline	ug/kg	<791	3990	3990	3050	3170	76	79	16-111	4	30	
4-Nitrophenol	ug/kg	<1980	9980	9980	6690	6780	67	68	14-135	1	30	
Acenaphthene	ug/kg	<395	2000	2000	1360	1390	68	69	26-114	2	30	
Acenaphthylene	ug/kg	<395	2000	2000	1440	1420	72	71	32-108	2	30	
Aniline	ug/kg	<395	2000	2000	1310	1240	66	62	10-107	5	30	
Anthracene	ug/kg	<395	2000	2000	1470	1520	73	76	32-111	4	30	
Benzo(a)anthracene	ug/kg	<395	2000	2000	1420	1490	71	75	25-117	5	30	
Benzo(a)pyrene	ug/kg	<395	2000	2000	1550	1600	77	80	25-106	3	30	
Benzo(b)fluoranthene	ug/kg	<395	2000	2000	1420	1440	71	72	24-110	1	30	
Benzo(g,h,i)perylene	ug/kg	<395	2000	2000	1480	1600	74	80	19-112	8	30	
Benzo(k)fluoranthene	ug/kg	<395	2000	2000	1460	1530	73	77	24-114	5	30	
Benzoic Acid	ug/kg	<1980	9980	9980	1270J	1630J	13	16	10-110		30	
Benzyl alcohol	ug/kg	<791	3990	3990	3170	3010	79	75	24-106	5	30	
bis(2-Chloroethoxy)methane	ug/kg	<395	2000	2000	1330	1250	66	63	13-119	6	30	
bis(2-Chloroethyl) ether	ug/kg	<395	2000	2000	1350	1290	67	64	10-134	4	30	
bis(2-Chloroisopropyl) ether	ug/kg	<395	2000	2000	1370	1290	68	64	10-113	6	30	
bis(2-Ethylhexyl)phthalate	ug/kg	<395	2000	2000	1370	1380	69	69	10-125	1	30	
Butylbenzylphthalate	ug/kg	<395	2000	2000	1370	1410	69	71	18-110	3	30	
Chrysene	ug/kg	<395	2000	2000	1470	1530	73	77	30-110	4	30	
Di-n-butylphthalate	ug/kg	<395	2000	2000	1390	1400	70	70	19-112	1	30	
Di-n-octylphthalate	ug/kg	<395	2000	2000	1300	1280	65	64	17-105	1	30	
Dibenz(a,h)anthracene	ug/kg	<395	2000	2000	1520	1640	76	82	23-111	7	30	
Dibenzofuran	ug/kg	<395	2000	2000	1560	1570	78	79	35-103	1	30	
Diethylphthalate	ug/kg	<395	2000	2000	1450	1460	73	73	27-113	1	30	
Dimethylphthalate	ug/kg	<395	2000	2000	1460	1470	73	74	26-111	1	30	
Fluoranthene	ug/kg	<395	2000	2000	1520	1520	76	76	33-109	0	30	
Fluorene	ug/kg	<395	2000	2000	1500	1520	75	76	32-113	2	30	
Hexachloro-1,3-butadiene	ug/kg	<395	2000	2000	1510	1460	76	73	16-116	4	30	
Hexachlorobenzene	ug/kg	<395	2000	2000	1520	1580	76	79	27-120	4	30	
Hexachlorocyclopentadiene	ug/kg	<395	2000	2000	1240	1270	62	64	10-108	2	30	
Hexachloroethane	ug/kg	<395	2000	2000	1430	1370	72	69	10-117	4	30	
Indeno(1,2,3-cd)pyrene	ug/kg	<395	2000	2000	1530	1660	76	83	10-122	8	30	
Isophorone	ug/kg	<395	2000	2000	1460	1420	73	71	28-114	3	30	
N-Nitroso-di-n-propylamine	ug/kg	<395	2000	2000	1280	1200	64	60	27-113	6	30	
N-Nitrosodimethylamine	ug/kg	<395	2000	2000	1050	1060	53	53	10-109	1	30	
N-Nitrosodiphenylamine	ug/kg	<395	2000	2000	1240	1270	62	63	10-128	2	30	
Naphthalene	ug/kg	<395	2000	2000	1490	1490	75	74	25-110	0	30	
Nitrobenzene	ug/kg	<395	2000	2000	1360	1320	68	66	18-114	3	30	
Pentachlorophenol	ug/kg	<1980	3990	3990	2720	2620	68	66	10-122	4	30	
Phenanthrene	ug/kg	<395	2000	2000	1410	1490	71	74	30-114	5	30	
Phenol	ug/kg	<395	2000	2000	1600	1550	80	78	11-102	3	30	
Pyrene	ug/kg	<395	2000	2000	1470	1560	73	78	25-116	6	30	
2,4,6-Tribromophenol (S)	%						87	88	27-110			
2-Fluorobiphenyl (S)	%						67	69	30-110			
2-Fluorophenol (S)	%						74	71	13-110			
Nitrobenzene-d5 (S)	%						60	61	23-110			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1184472 1184473

Parameter	Units	92198442014 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phenol-d6 (S)	%						74	73	22-110			
Terphenyl-d14 (S)	%						76	80	28-110			

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

QC Batch: OEXT/27233 Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH Analysis Description: MADEP EPH NC Soil
Associated Lab Samples: 92198615002, 92198615003

METHOD BLANK: 1184338 Matrix: Solid
Associated Lab Samples: 92198615002, 92198615003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C09-C18)	mg/kg	ND	10.0	04/25/14 22:56	N2
Aliphatic (C19-C36)	mg/kg	ND	10.0	04/25/14 22:56	N2
Aromatic (C11-C22)	mg/kg	ND	10.0	04/25/14 22:56	N2
2-Bromonaphthalene (S)	%	98	40-140	04/25/14 22:56	
2-Fluorobiphenyl (S)	%	89	40-140	04/25/14 22:56	
Nonatriacontane (S)	%	59	40-140	04/25/14 22:56	
o-Terphenyl (S)	%	80	40-140	04/25/14 22:56	

LABORATORY CONTROL SAMPLE & LCSD: 1184339 1184340

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C09-C18)	mg/kg	10	ND	ND	79	67	40-140		50	N2
Aliphatic (C19-C36)	mg/kg	13.3	11.6	10.1	87	76	40-140	14	50	N2
Aromatic (C11-C22)	mg/kg	28.3	21.6	19.8	76	70	40-140	9	50	N2
2-Bromonaphthalene (S)	%				84	76	40-140			
2-Fluorobiphenyl (S)	%				79	75	40-140			
Nonatriacontane (S)	%				79	67	40-140			
o-Terphenyl (S)	%				71	61	40-140			

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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

QC Batch: OEXT/27265 | Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH | Analysis Description: MADEP EPH NC Water
Associated Lab Samples: 92198615001

METHOD BLANK: 1185702 | Matrix: Water
Associated Lab Samples: 92198615001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C09-C18)	ug/L	ND	100	04/28/14 22:37	N2
Aliphatic (C19-C36)	ug/L	ND	100	04/28/14 22:37	N2
Aromatic (C11-C22)	ug/L	ND	100	04/28/14 22:37	N2
2-Bromonaphthalene (S)	%	69	40-140	04/28/14 22:37	
2-Fluorobiphenyl (S)	%	62	40-140	04/28/14 22:37	
Nonatriacontane (S)	%	50	40-140	04/28/14 22:37	
o-Terphenyl (S)	%	57	40-140	04/28/14 22:37	

LABORATORY CONTROL SAMPLE & LCSD: 1185703 1185704

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C09-C18)	ug/L	300	227	281	76	94	40-140	21	50	N2
Aliphatic (C19-C36)	ug/L	400	346	423	87	106	40-140	20	50	N2
Aromatic (C11-C22)	ug/L	850	474	629	56	74	40-140	28	50	N2
2-Bromonaphthalene (S)	%				61	78	40-140			
2-Fluorobiphenyl (S)	%				59	75	40-140			
Nonatriacontane (S)	%				72	87	40-140			
o-Terphenyl (S)	%				53	64	40-140			

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QUALITY CONTROL DATA

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

QC Batch: PMST/6500
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92198615002, 92198615003

SAMPLE DUPLICATE: 1185099

Parameter	Units	92198253001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	15.5	15.8	2	25	

SAMPLE DUPLICATE: 1185100

Parameter	Units	92198615003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	7.5	7.4	1	25	

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QUALIFIERS

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

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.

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

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

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

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

F3	The recovery of the second source standard used to verify the initial calibration curve for this analyte is outside the laboratory's control limits. The result is estimated.
N2	The lab does not hold TNI accreditation for this parameter.

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Huntersville, NC 28078
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: KING RESIDENCE 0669
Pace Project No.: 92198615

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92198615002	S-3	MADEP EPH	OEXT/27233	MADEP EPH	GCSV/17383
92198615003	S-4	MADEP EPH	OEXT/27233	MADEP EPH	GCSV/17383
92198615001	TW-1	MADEP EPH	OEXT/27265	MADEP EPH	GCSV/17412
92198615002	S-3	MADEP VPH	GCV/8034	MADEP VPH	GCV/8038
92198615003	S-4	MADEP VPH	GCV/8034	MADEP VPH	GCV/8038
92198615001	TW-1	MADEP VPH	GCV/8037		
92198615002	S-3	EPA 3546	OEXT/27237	EPA 8270	MSSV/9036
92198615003	S-4	EPA 3546	OEXT/27237	EPA 8270	MSSV/9036
92198615002	S-3	EPA 8260	MSV/26577		
92198615003	S-4	EPA 8260	MSV/26577		
92198615002	S-3	ASTM D2974-87	PMST/6500		
92198615003	S-4	ASTM D2974-87	PMST/6500		

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Pace Analytical	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: April 07, 2014 Page 1 of 2
	Document Number: **F-CHR-CS-003-rev.14**	Issuing Authority: Pace Huntersville Quality Office

Client Name: ARM

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1102 T1401 **Type of Ice:** (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor **T1102**: No Correction **T1301**: No Correction

Corrected Cooler Temp.: 3.1 °C **Biological Tissue is Frozen:** Yes No (N/A)

Date and Initials of person examining contents: EA 4/24/14

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix:_____		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No EA 4/24/14	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☑N/A EA 4/24/14	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review:	AMB	Date:	4-24-14
SRF Review:	AMB	Date:	4-24-14

Place label here

WO#: 92198615

92198615

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)

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1785519

Section A Required Client Information:
Company: ARM
Address: PO Box 882 Hampstead, NC
Email To: JOE@ARMobilesoft.net
Phone: 910 270-2919 Fax: 270-2988
Requested Due Date/TAT: Standard

Section B Required Project Information:
Report To: ARM
Copy To:
Purchase Order No.:
Project Name: KING Residence
Project Number: 0669

Section C Invoice Information:
Attention: Karen Corbett
Company Name: ARM
Address: Same
Pace Quote Reference: VST TNST FND RATES
Pace Project Manager: Angela Bajoni
Pace Profile #: 5640-4

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☑ UST ☐ RCRA ☐ OTHER

Site Location STATE: NC

Requested Analysis Filtered (Y/N)

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): 8260B	8270D	MADEP EPH	MADEP VPH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TW-1	WT	G			4-22-14	1520						1							X	X		01
2	S-3	SL	G			↓	1542		9	1						1		X	X	X	X		02
3	S-4	SL	G			↓	1603		9	1						1		X	X	X	X		03
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

02198615

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Analyze water to 2L Groundwater Standards	Joe Funch / ARM	4/23/14	1:55	J. Dixon / Pace	4-23-14	1:05
Analyze soil to below MSCC's				[signature]	4/24/14	0920

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	3.1	Y	N	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Joe Funch
SIGNATURE of SAMPLER: Joe Funch
DATE Signed (MM/DD/YY): 4/22/14

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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APPENDIX D LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS

INITIAL ABATEMENT ACTION REPORT

FOR THE

ESTATE OF ELIZABETH KING

WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

ARM PROJECT NO. 0669

MAY 9, 2014

A. SITE IDENTIFICATION AND RELEASE INFORMATION

Facility I.D.:	Noncommercial-Residential Heating Oil UST
Site Name:	Estate of Elizabeth King
Site Location:	1129 Essex Drive
Nearest City/Town:	Wilmington
County:	New Hanover
UST Owner:	Ms. Virgina Wells, Executor
Address:	570 Red Fox Trail, Hampstead, NC, 28443
Phone:	(910) 270-2391
UST Operator (Last):	Estate of Elizabeth King
Address:	1129 Essex Drive, Wilmington, NC
Phone:	(910) 270-2391
Property Owner:	Ms. Elizabeth King
Address:	1129 Essex Drive, Wilmington, NC 28405
Phone:	(910) 270-2391
Property Occupant:	Ms. Elizabeth King
Address:	1129 Essex Drive, Wilmington, NC 28405
Phone:	(910) 270-2391
Consultant/Contractor:	Applied Resource Management, PC
Address:	257 Transfer Station Rd, PO Box 882, Hampstead, NC 28443
Phone:	(910) 270-2919

May 9, 2014

RELEASE INFORMATION

Date Discovered:	February 13, 2014 (Confirmed by laboratory results)
Site Coordinates:	Latitude: 34°13' 27.80" N Longitude: 77° 54' 31.42" W
Estimated Quantity of Release:	Unknown
Cause of Release:	Unknown
Source of Release:	Heating Oil Underground Storage Tank (UST)

Sizes and contents of UST system(s) from which the release occurred: The Underground Storage Tank (UST) was an estimated 560 gallon tank. The tank was found to be cut open and filled with sand. The fill sand was removed during tank cleaning operations. Fill sand from the tank and approximately 49 tons of petroleum impacted soil were excavated, loaded, and transported to Soil Recovery in Navassa, NC for thermal treatment. The tank was hauled off-site and disposed by Holden's Backhoe Service.

I, James L. Cornette a Professional Geologist for Applied Resource Management, P.C., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

James L. Cornette, PG
Project Manager

NORTH CAROLINA LICENSED SEAL 1214 GEOLOGIST JAMES L. CORNETTE

B. SITE HISTORY AND CHARACTERIZATION

The site is located at 1129 Essex Drive in Wilmington, North Carolina. Figure 1 is a Site Vicinity Map showing the project location. The subject property is residential with a two story dwelling. Applied Resource Management, PC, was contracted to remove the approximate 560 gallon heating oil underground storage tank (UST) located on the subject property. The date of tank installation is unknown. The release was confirmed by laboratory results on 2/13/14.

C. SITE CHECK

One estimated 560 gallon fuel oil UST was excavated and removed from the subject property. As part of the site check and UST closure activities, a total of four soil samples were collected. S-1 and S-2 were collected during the tank removal from the sidewall of each tank end. S-3 and S-4 were later collected from the east and west sidewall of the excavation area. All of the soil samples were collected at approximately three to four feet below ground surface and submitted for laboratory analysis under RBCA guidelines per EPA Methods 8260, 8270 BN, and MADEP EPH/VPH. Analytical results from the confirmation soil samples revealed no remaining impacts to the soil. Due to the presence of groundwater encountered within the excavation pit, one Type II monitoring well, identified as TW-1, was installed within the excavation area. After gauging and verifying that no free product was present in the well, the well was purged and developed. An initial groundwater sample was collected from the well and analyzed per RBCA guidelines for EPA Methods 602 with xylenes, 625BN, and MADEP EPH/VPH. Contaminant concentrations (naphthalene at 125 ppb, C9-C12 aliphatics at 1,280 ppb, C11-C22 Aliphatics at 821 ppb, and C9-C10 aromatics at 702 ppb) were identified above NCAC 02L Groundwater Quality Standards. None of the compounds revealed concentrations above NC Gross Contaminant Levels. A 24 Hour Release Notification Form with supporting documentation was submitted to the Division for review.

D. UST CLOSURE DOCUMENTATION

One UST was located at the northeast side of the residential building structure. The former tank basin location is shown on Figure 2. Tank specifics are as follows:

Tank No.	Date Installed	Size (gals.)	Tank Dimensions	Last Contents
UST-1	Unknown	Approx 560	Approx 42" x 92"	Fuel Oil

1.0 SITE CHARACTERISTICS

1.1 Describe Any Past Releases at this Site.

No previous known releases have been reported at this site.

1.2 Is the Facility Active or Inactive at this Time?

The facility is residential and was occupied at the time of the UST closure activities.

1.3 Describe Surrounding Property Use

Surrounding property usage is primarily residential with surrounding neighborhood development. Commercial activity is prevalent approximately 1,300 feet toward the northeast and east along Wrightsville Avenue and Independence Boulevard.

1.4 Describe Site Geology/Hydrogeology

The sediments underlying the site were found to be represented by tan-gray to brown, slightly clayey sands to approximately four feet deep changing to silty/very fine grained sands to approximately nine feet below ground surface. Groundwater was initially measured at approximately 4.12 feet below ground surface.

2.0 CLOSURE PROCEDURES

2.1 Describe Preparations for Closure Including the Steps Taken to Notify Authorities, Permits Obtained, and the Steps Taken to Clean and Purge the Tank

No notifications were required to remove the residential fuel oil UST. A utility locate was conducted prior to UST closure activities.

2.2 Amount of Residual Material Pumped from the Tank

The tank was found to be filled with sand from previous closure in-place activities. No fuel oil was found inside of the tank; therefore, no residual material was pumped out of the tank.

2.3 Describe the Storage, Sampling and Disposal of the Residual Material

No residual fluids were found in the tank during closure activities.

2.4 Removal Closure Procedures

Prior to tank removal activities, the UST was screened using a Gastech GT201 to confirm the absence of explosive vapors. After removing fill sand from the tank, field screening revealed less than 10% LEL. The tank was excavated, removed from the site, and properly disposed by Holden's Backhoe Service. A Tank Disposal Manifest is provided in Appendix A.

2.5 Contaminated Soil

Petroleum hydrocarbon odors were identified during the UST closure activities. Approximately 49.33 tons of petroleum contaminated soil was excavated, loaded, and transported to Soil Recovery Inc. in Navassa, NC for treatment. Non-Hazardous Soil Disposal Manifests and NC Certified Weight Tickets are provided in Appendix B. A waste composite soil sample identified as Comp-1 was collected from the excavated material and analyzed per EPA Methods 5030 and 3550 for Total Petroleum Hydrocarbons. Laboratory results revealed the waste material to contain 28 ppm Gasoline Range Organics (GRO) and 594 ppm Diesel Range Organics (DRO).

3.0 SITE INVESTIGATION

3.1 Provide Information on Field Screening and Observations, Include Methods Used to Calibrate Field Screening Instruments
(Refer to Figure 2)

The following summarizes tank observations subsequent to closure activities:

Tank	Material	Product	% LEL/O_2	Observations
T-1	Steel	Fuel Oil	<10/20.9	Tank surface in poor condition, moderate rust, and several holes observed.

3.2 Describe Soil Sampling Points and Sampling Procedures Used
(Refer to Figure 2, Appendices C, and D)

After the fuel oil tank was removed, the excavation sidewalls were checked for the presence of hydrocarbon odors. Additional soils were removed until no

odors or minimal odors were detected. As required, soil samples S-1 through S-4 were collected from each sidewall of the fuel oil UST excavation area at approximately three to four feet deep and immediately above the groundwater table. Soil sampling locations are depicted on Figure 2. All of the soil samples were submitted for laboratory analysis per EPA Methods 8260, 8270 BN, and MADEP EPH/VPH. In addition, one composite soil sample, identified as Comp-1, was collected from the excavated waste material and analyzed per EPA Methods 3550 and 5030 for Total Petroleum Hydrocarbons. The following summarizes the soil sample locations and analyses specifics:

Sample Designation	Sample Location	Sample Analyses
S-1	West end sidewall of UST at approximately 3-4 feet deep.	8260, 8270 BN, MADEP EPH and MADEP VPH
S-2	East end sidewall of UST at approximately 3-4 feet deep.	EPA 8260, 8270, MADEP EPH and MADEP VPH
S-3	North end sidewall of UST at approximately 3-4 feet deep.	8260, 8270 BN, MADEP EPH and MADEP VPH
S-4	South end sidewall of UST at approximately 3-4 feet deep.	8260, 8270 BN, MADEP EPH and MADEP VPH
Comp-1	Composite sample from soil stockpile waste material.	EPA 3550 and 5030

The soil samples were packed in proper laboratory glassware, fitted with a Teflon lid, and maintained at approximately four degrees Centigrade for transport to the laboratory. Proper chain-of-custody records were maintained throughout possession of the samples.

3.3 Describe Groundwater or Surface Water Sampling

Groundwater was encountered at approximately four to five feet deep within the excavation pit during the UST closure activities. One Type II monitoring well, TW-1, was installed within the excavation area. A Boring Log, NC Well Construction Record, and As-Built Well Detail are provided in Appendix C. After gauging, purging, and well development, one groundwater sample was collected from the well and submitted for laboratory analysis per EPA Methods 602 with xylenes, 625BN, and MADEP EPH/VPH.

3.4 Quality Control Measures

Soil samples were obtained from the hand auger or backhoe bucket from each sidewall of the fuel oil UST excavation area as part of closure activities. In addition, a decontaminated hand auger bucket was utilized to install monitoring well TW-1, located within the excavation area and immediately adjacent to the former tank location. Sampling employed the following procedures:

1. The samples were obtained from the hand auger or backhoe bucket.

2. The samples were obtained from the bucket using new, latex gloves, placed into glass sample jars, and fitted with Teflon lids.

3. The samples were labeled with the date, location, time, and analysis required prior to being individually sealed in a plastic bag and placed on ice for transport to the laboratory. Temperatures were maintained at or below four degrees Centigrade from sampling time to receipt at the laboratory.

4. The entire Chain-of-Custody record was maintained to ensure sample integrity during transport. The entire custody chain is presented in Appendix D.

3.5 Soil Investigation Results
(Refer to Table 1 and Appendix D)

UST closure soil samples S-1 and S-2 were collected during the tank removal from the east and west sidewalls of the excavation at approximately three to four feet below ground surface. Two additional soil samples, identified as S-3 and S-4, were later collected from the north and south sidewall locations of the former excavation area at the same depths. The soil samples were submitted for laboratory analysis per EPA Methods 8260, 8270 BN, and after the MADEP for EPH and VPH. As shown in Table 1, low level acetone concentrations were identified in all four soil samples, although none of the concentrations were found to exceed NC Soil-to-Groundwater Maximum Contaminant Concentration Limits. Laboratory results are provided in Appendix D.

E. FREE PRODUCT INVESTIGATION

No free product was observed on the groundwater surface within the tank pit area during UST closure activities. Also, no evidence of sheen or free product was identified within the test well constructed within the former UST basin excavation area.

F. GROUNDWATER INVESTIGATION

(Refer to Table 2 and Appendix D)

Due to the fact that groundwater was encountered within the excavation area during UST closure, one Type II monitoring well was installed. The well was gauged for the presence of free product. No measurable thickness was found. The well was purged, developed, and initially sampled under the RBCA guidelines per EPA Methods 602 with xylenes, 625 BN, and MADEP EPH/VPH. As shown in Table 2, petroleum hydrocarbon compounds naphthalene, C9-C12 aliphatics, C11-C22 Aliphatics, and C9-C10 aromatics were found at concentrations above NCAC 02L Groundwater Quality Standards. No chemical compounds were identified above the NC Gross Contaminant Levels. The test well was resampled on March 17, 2014 for EPA Method 602 plus naphthalene to confirm if the volatile organic compound naphthalene was present. Laboratory results revealed all volatile organic compounds to be compliant with non-detect levels. On April 22, 2014, a final groundwater sample was collected from test well TW-1 and analyzed for MADEP EPH and VPH compounds to confirm previous results. Analytical results for the confirmation sampling revealed all MADEP EPH and VPH compounds to be compliant as compared to NCAC 02L Groundwater Quality Standards. Laboratory results are provided in Appendix D.

G. INITIAL RESPONSE AND ABATEMENT ACTIVITIES

Residential fuel oil UST closure activities were recently conducted at the property. The fuel oil tank was excavated, removed from the site and disposed. In addition, approximately 49.33 tons of petroleum contaminated soil was excavated and removed from the site as part of initial abatement activities.

H. CONCLUSIONS AND RECOMMENDATIONS

One estimated 560 gallon fuel oil UST was excavated and removed from the subject property. As part of the site check and UST closure activities, a total of four soil samples (S-1 thru S-4) were collected from each sidewall of the fuel oil UST excavation area and submitted for laboratory analysis under RBCA guidelines. Analytical results for the confirmation soil samples revealed no remaining non-compliant impacts to the soil.

Due to the presence of groundwater encountered within the excavation pit, one Type II monitoring well, TW-1, was installed within the excavation area. After gauging and verifying that no free product was present in the well, the well was purged, developed, and one groundwater sample collected and analyzed. Initial groundwater sampling results revealed non-compliant naphthalene , C9-C12 aliphatics, C11-C22 Aliphatics, and C9-C10 aromatics concentrations above NCAC 02L Groundwater Quality Standards. No chemical compounds were identified above the NC Gross Contaminant

Levels. As part of the Initial Abatement Action phase, the test well was resampled twice to confirm the presence of hydrocarbon compounds. The 3/17/14 sampling event revealed all EPA Method 602 plus naphthalene hydrocarbon compounds to be compliant. Also, the resampling event on 4/22/14 revealed all MADEP EPH and VPH compounds to be complaint as compared to NCAC 02L Groundwater Quality Standards.

Based on findings of this investigation and success of the abatement activities, it is recommended that no further assessment or remediation be conducted and the site be issued a No Further Action letter.

TABLES

TABLE 1 (Page 1 Of 2)
SOIL SAMPLE RESULTS SUMMARY

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NORTH CAROLINA

ANALYTE	SOIL-TO-GROUNDWATER MAXIMUM CONTAMINANT CONCENTRATION	S-1 2/3/14	S-2 2/3/14	S-3 4/22/14	S-4 4/22/14	COMP-1 2/3/14
EPA METHOD 8260 (concentrations in ppb)						
ACETONE	24,000	29.3 J	24.6 J	28.7 J	16.4 J	NA
METHYLENE CHLORIDE	20	ND	ND	ND	ND	NA
BENZENE	5.6	ND	ND	ND	ND	NA
TOLUENE	4,300	ND	ND	ND	ND	NA
ETHYLBENZENE	4,900	ND	ND	ND	ND	NA
XYLENES	4,600	ND	ND	ND	ND	NA
1,3,5-TRIMETHYLBENZENE	8,300	ND	ND	ND	ND	NA
1,2,4-TRIMETHYLBENZENE	8,500	ND	ND	ND	ND	NA
P-ISOPROPYLTOLUENE	120	ND	ND	ND	ND	NA
NAPHTHALENE	160	ND	ND	ND	ND	NA
ALL OTHER COMPOUNDS	Varies	ND	ND	ND	ND	NA
EPA METHOD 8270 BN (concentrations in ppb)						
NAPHTHALENE	160	ND	ND	ND	ND	NA
2-METHYLNAPHTHALENE	3,600	ND	ND	ND	ND	NA
PHENANTHRENE	56,000	ND	ND	ND	ND	NA
ALL OTHER COMPOUNDS	Varies	ND	ND	ND	ND	NA
TOTAL PETROLEUM HYDROCARBONS (concentrations in ppm)						
GASOLINE RANGE ORGANICS	10	NA	NA	NA	NA	28.0
DIESEL RANGE ORGANICS	10	NA	NA	NA	NA	594

Shaded areas present non-compliant hydrocarbon concentrations.
ND = Not Detected
NA = Not Analyzed
ppb = parts per billion
J = Estimated concentration, below calibration range and above Method Detection limit
Note: Comp-1 collected as a waste composite stockpile soil sample

TABLE 1 (Page 2 Of 2)
SOIL SAMPLE RESULTS SUMMARY

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NORTH CAROLINA

HYDROCARBON FRACTION STANDARD RANGES	ANALYTICAL HYDROCARBON FRACTION RANGE	SOIL-TO-GROUND-WATER MSCC	S-1 2/3/14		S-2 2/3/14		S-3 4/22/14		S-4 4/22/14	
			LAB. RESULT CONC.	FINAL CONC.	LAB. RESULT CONC.	FINAL CONC.	LAB. RESULT CONC.	FINAL CONC.	LAB. RESULT CONC.	FINAL CONC.
MADEP VPH FOR LOW BOILING POINT FUELS (Concentrations in ppm)										
C5-C8 ALIPHATICS	C5-C8 ALIPHATICS (VPH)	68	ND	ND	ND	ND	ND	ND	ND	ND
C9-C18 ALIPHATICS	C9-C12 ALIPHATICS (VPH)	540	ND	ND	ND	ND	ND	ND	ND	ND
C9-C22 AROMATICS	C9-C10 AROMATICS (VPH)	31	ND	ND	ND	ND	ND	ND	ND	ND
MADEP EPH FOR MEDIUM TO HIGH BOILING POINT FUELS (Concentrations in ppm)										
C5-C8 ALIPHATICS	C5-C8 ALIPHATICS (VPH)	68	ND	ND	ND	ND	ND	ND	ND	ND
C9-C18 ALIPHATICS	C9-C12 ALIPHATICS (VPH)	540	ND	ND	ND	ND	ND	ND	ND	ND
	C9-C18 ALIPHATICS (EPH)		ND		ND		ND		ND	
C19-C36 ALIPHATICS	C19-C36 ALIPHATICS (EPH)	Considered Immobile	ND	ND	ND	ND	ND	ND	ND	ND
C9-C22 AROMATICS	C9-C10 AROMATICS (VPH)	31	ND	ND	ND	ND	ND	ND	ND	ND
	C11-C22 ALIPHATICS (EPH)		ND		ND		ND		ND	

Shaded areas represent non compliant hydrocarbon concentrations.
ND = Not Detected
ppm = parts per million

TABLE 2 (Page 1 of 2)
GROUNDWATER SAMPLE RESULTS SUMMARY

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NORTH CAROLINA

ANALYTE	GROSS CONTAMINANT LIMIT	STATE ACTION LIMIT	TW-1	
DATE SAMPLED			2/4/14	3/17/14
EPA METHOD 602/ 6200B (Concentrations in ppb)				
BENZENE	5,000	1	ND	ND
DIISOPROPYL ETHER	70,000	70	ND	ND
TOLUENE	260,000	600	ND	ND
ETHYLBENZENE	84,500	600	26.2	ND
XYLENES	85,500	500	57.7	ND
MTBE	20,000	20	ND	ND
NAPHTHALENE	6,000	6	125	ND
ALL OTHER COMPOUNDS	Varies	Varies	ND	ND
EPA METHOD 625 BN (Concentrations in ppb)				
NAPHTHALENE	6,000	6	38.2	NA
PHENANTHRENE	410	200	6.4 J	NA
FLUORENE	990	300	5.9 J	NA
ALL OTHER COMPOUNDS	Varies	Varies	ND	NA

ppb = parts per million
Shaded gray areas represent non-compliant hydrocarbon concentrations above NC State action limits
ND = Not Detected
J = Estimated Concentration

TABLE 2 (Page 2 of 2)
GROUNDWATER SAMPLE RESULTS SUMMARY

ESTATE OF ELIZABETH KING
1129 ESSEX DRIVE
WILMINGTON, NORTH CAROLINA

HYDROCARBON FRACTION STANDARD RANGES	ANALYTICAL HYDROCARBON FRACTION RANGE	02L STANDARD	TW-1			
			LAB. RESULT CONC.	FINAL CONC.	LAB. RESULT CONC.	FINAL CONC.
		DATE SAMPLED	2/4/14		4/22/14	
MADEP VPH FOR LOW BOILING POINT FUELS (Concentrations in ppb)						
C5-C8 ALIPHATICS	C5-C8 ALIPHATICS (VPH)	400	ND	ND	ND	ND
C9-C18 ALIPHATICS	C9-C12 ALIPHATICS (VPH)	700	1,280	1,280	ND	ND
C9-C22 AROMATICS	C9-C-10 AROMATICS (VPH)	200	702	702	ND	ND
MADEP EPH FOR MEDIUM TO HIGH BOILING POINT FUELS (Concentrations in ppb)						
C5-C8 ALIPHATICS	C5-C8 ALIPHATICS (VPH)	400	ND	ND	ND	ND
C9-C18 ALIPHATICS	C9-C12 ALIPHATICS (VPH)	700	1,280	1,280	ND	
	C9-C18 ALIPHATICS (EPH)		ND		ND	
C19-C36 ALIPHATICS	C19-C36 ALIPHATICS (EPH)	10,000	ND	ND	ND	ND
C9-C22 AROMATICS	C9-C10 AROMATICS (VPH)	200	702	1,523	ND	ND
	C11-C22 ALIPHATICS (EPH)		821		ND	

Shaded gray areas present non-compliant hydrocarbon concentrations
ppb = parts per billion
ND = Not detected
NA = Not analyzed

FIGURES