



Kimley-Horn
and Associates, Inc.

April 23, 2012

Ms. Lynda Frost
Project Manager
Chesapeake & Central Appalachians Field Office
Trust for Public Land
660 Pennsylvania Avenue SE, Suite 401
Washington, DC 20003

■
4500 Main Street
Suite 500
Virginia Beach, Virginia
23462

RE: Pleasure House Point Phase II Materials Testing
Marlin Bay Drive at Mystic Cove Drive
Virginia Beach, Virginia 23455
KHA Project No. 116296001

Dear Ms. Frost:

Kimley-Horn and Associates, Inc. (KHA) is pleased to provide the sampling results for the Pleasure House Point property. The purpose of the testing was to classify material to determine suitability for reuse on site and/or proper offsite soil disposal methods.

KHA collected a total of three (3) samples from the site on April 2, 2012. Sample SP-1 was a composite of five (5) borings within the area denoted as "Soil Piles" on the attached figure. The five (5) borings for SP-1 were placed in a plastic bag and composited in order to obtain a representative sample of the soil piles area. Sample SP-2 was a single sample collected from the area denoted as "Rubble Pile" on the figure, and sample SP-3 was a single sample collected from the area denoted as "Asphalt Debris Pile." SP-1 and SP-2 were collected from eight inch deep borings and SP-3 was collected from a six inch deep boring.

All samples were collected using a Dutch style hand auger. The auger was decontaminated before each sample was taken. The decontamination procedure consisted of cleaning the auger first with a mixture of water and Alconox detergent, then with isopropyl alcohol, then with distilled water. The auger was wiped dry after each of the above steps in the cleaning process.

The collected samples were placed in laboratory supplied sample containers, stored in a cooler chilled with ice for preservation, submitted with chain of custody documentation (attached), sealed, and relinquished to Federal Express for overnight shipping to ESC Lab Sciences, Inc. in Mount Juliet, Tennessee.

The soils samples were analyzed for the following parameters:

- o Volatile Organic Compounds via EPA Method 8260
- o Semi-Volatile Organic Compounds via EPA Method 8270
- o RCRA 8 Metals via EPA Method 6000/7000
- o Poly-Chlorinated Biphenyls via EPA Method 8082
- o Herbicides via EPA Method 8081
- o Pesticides via EPA Method 8151



Table 1, below shows the constituents detected above the minimum detection level in the soil piles. Also listed in Table 1 are the Virginia Department of Environmental Quality Voluntary Remediation Program (VRP) Tier II maximum allowable concentrations for residential soils, as well as background concentrations for soils in southeastern Virginia. The below values for soil background concentrations were taken from the United States Geological Survey 1984 publication *Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States*.

Table 1: Materials exceeding detection limits in soil piles (SP-1).

Soil Piles			
Constituent	Concentration (mg/kg)	VRP Tier II Maximum Allowable Concentration (mg/kg)	Southeastern Virginia Soil Background Concentration (mg/kg)
Arsenic	3.7	0.39	4.1
Barium	44	1500	10 - 200
Chromium	12	0.29	100 - 2000
Lead	7.1	270	<10
Mercury	0.028	1.0	0.082 - 0.13
Selenium	1.9	5.1	0.7 - 5.0

Table 2, below shows the constituents detected above the minimum detection levels in the rubble debris pile. Also listed are the VRP Tier II maximum allowable concentrations for residential soils, as well as background concentrations for soils in southeastern Virginia.

Table 2: Materials exceeding detection limits in rubble pile (SP-2).

Rubble Pile			
Constituent	Concentration (mg/kg)	VRP Tier II Maximum Allowable Concentration (mg/kg)	Southeastern Virginia Soil Background Concentration (mg/kg)
Arsenic	2.1	0.39	4.1
Barium	47	1500	10 - 200
Chromium	9.8	0.29	100 - 2000
Lead	7.1	270	<10

As can be seen in Tables 1 and 2, the concentrations of arsenic and chromium in the soil piles and rubble pile exceed the VRP maximum allowable concentrations for residential soils. However, the concentrations of both of these constituents are below the background concentrations for soils in southeastern Virginia. Therefore, if suitable and cleared with the Virginia Department of Environmental Quality Waste Division, this material may be reused onsite.

Table 3, below shows the constituents detected above the minimum detection levels in the asphalt debris pile. Also listed are the VRP Tier II maximum allowable concentrations for residential soils, as well as background concentrations for soils in southeastern Virginia.



**Kimley-Horn
and Associates, Inc.**

Table 3: Materials exceeding detection limits in asphalt pile (SP-3).

Asphalt Debris Pile			
Constituent	Concentration (mg/kg)	VRP Tier II Maximum Allowable Concentration (mg/kg)	Southeastern Virginia Soil Background Concentration (mg/kg)
Arsenic	1.5	0.39	4.1
Barium	36	1500	10 - 200
Chromium	11	0.29	100 - 2000
Lead	38	270	<10
Benzo(a)anthracene	0.95	0.15	NA
Benzo(b)fluoranthene	2.2	0.15	NA
Chrysene	1.1	15	NA
Fluoranthene	1.7	230	NA
Pyrene	1.7	65	NA

As can be seen in Table 3, above, benzo(a)anthracene and benzo(b)fluoranthene exist in the asphalt debris pile at concentrations above those allowed for residential soil. Additionally, these two constituents are not naturally occurring in soils. Therefore, the asphalt debris pile should be disposed of in accordance with all local, state, and federal laws and regulations. Nearby facilities which will accept this material are Hampton Roads Recovery Center in Virginia Beach, Southeastern Public Service Authority in Chesapeake, Virginia, or Holland Landfill in Suffolk, Virginia. You should provide the attached laboratory analytical reports for the asphalt debris pile to the selected disposal facility.

If you have any questions or comments regarding this report, please do not hesitate to contact Patrick Lesley or myself at (757) 231-8600.

Sincerely,

Kimley-Horn and Associates, Inc.

Gregory A. Turner, E.I.

Environmental Engineer

M. Patrick Lesley, P.G.

Geologist

Encl: Figure Depicting Soil Sample Locations
Chain of Custody Documentation
Laboratory Analytical Results
VRP Tier II Maximum Allowable Concentrations



Kimley-Horn
and Associates, Inc.

PROJECT: PLEASURE HOUSE POINT PHASE II MATERIALS TESTING

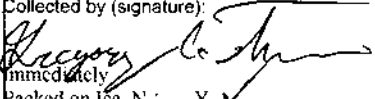
CREATED BY: TURNER

SCALE: 1 INCH = 700 FEET

DATE: 4/11/2012

KHA PROJECT NO.: 116271010

**FIGURE 1:
SAMPLING
LOCATIONS**

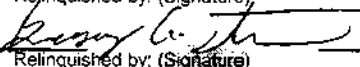
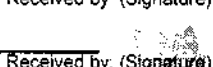
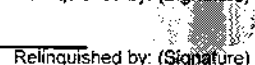
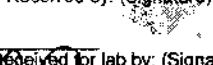
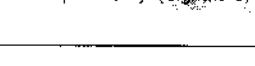
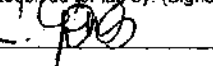
Kimley-Horn & Assoc. - Virginia Beach 4500 Main Street, Suite 500 Virginia Beach, VA 23462				Billing information:				Analysis/Container/Preservative				Chain of Custody Page <u>1</u> of <u>1</u>	
				Attn: Accounts Payable 4500 Main St., Ste. 500 Virginia Beach, VA 23462				D139				 ESC L.A.B. S.C.I.E.N.C.E.S. 12065 Lebanon Road Mt. Juliet, TN 37122 Phone: (800) 767-5859 Phone: (615) 758-5858 Fax: (615) 758-5859 L568018	
Report to: Patrick Lesley				Email: patrick.lesley@kimley-horn.c				Herbicides 4ozClr-NoPres SV8270; RCRA Mtls 4ozClr-NoPres TS; 8081/8082 4ozClr-NoPres V8260 2ozClr-NoPres					
Project Description: Pleasure House Point				City/State Collected: VA. BEACH, VA									
Phone: (757) 213-8600 FAX: (757) 213-8601		Client Project #: 116296001		Lab Project #: KIMHORVBVA-PLHSE									
Collected by (print): GREGORY A. TURNER		Site/Facility ID#:		P.O.#:									
Collected by (signature): 		Rush? (Lab MUST Be Notified) Same Day 200% Next Day 100% Two Day 50% Three Day 25%		Date Results Needed Email? ☐ No ☒ Yes FAX? ☐ No ☐ Yes		No. of Cntrs				Acctnum: KIMHORVBVA (lab use only) Template/Prelogin: T77862/P387569 Cooler #: 32678 Shipped Via: FedEX Ground			
Packed on Ice N ☐ Y ☒										Remarks/Contaminant Sample # (lab only)			
Sample ID	Comp/Grab	Matrix*	Depth	Date	Time								
SP-1		SS	8"	4/2/2012	4:15 PM	4	X	X	X	X	5 DAY TAT - 01		
SP-2		SS	8"	4/2/2012	4:35 PM	4	X	X	X	X	5 DAY TAT - 02		
SP-3		SS	6"	4/2/2012	5:20 PM	4	X	X	X	X	5 DAY TAT - 03		

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature) 	Date: 4/2/2012	Time: 6:28 PM	Received by: (Signature) 	Samples returned via: ☒ UPS ☒ FedEx ☐ Courier ☐	Condition: (J) (lab use only)
Relinquished by: (Signature) 	Date:	Time:	Received by: (Signature) 	Temp: 34°	Bottles Received: 12
Relinquished by: (Signature) 	Date:	Time:	Received by: (Signature) 	Date: 4.3.12	Time: 0900
				COC Seal Intact: ☒ Y ☐ N ☒ NA	pH Checked: _____
				NCF: _____	



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

Report Summary

Thursday April 12, 2012

Report Number: L568018

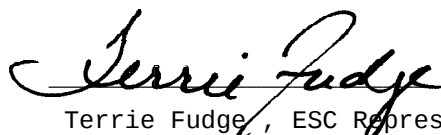
Samples Received: 04/03/12

Client Project: 116296001

Description: Pleasure House Point

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Terrie Fudge, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-1 8IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 16:15

ESC Sample # : L568018-01

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	90.1	0.100	%	2540G	04/04/12	1
Mercury	0.028	0.020	mg/kg	7471	04/06/12	1
Arsenic	3.7	1.0	mg/kg	6010B	04/08/12	1
Barium	44.	0.25	mg/kg	6010B	04/08/12	1
Cadmium	BDL	0.25	mg/kg	6010B	04/08/12	1
Chromium	12.	0.50	mg/kg	6010B	04/08/12	1
Lead	7.1	0.25	mg/kg	6010B	04/08/12	1
Selenium	1.9	1.0	mg/kg	6010B	04/08/12	1
Silver	BDL	0.50	mg/kg	6010B	04/08/12	1
Volatile Organics						
Acetone	BDL	0.25	mg/kg	8260B	04/04/12	5
Acrylonitrile	BDL	0.050	mg/kg	8260B	04/04/12	5
Benzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromodichloromethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromoform	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromomethane	BDL	0.025	mg/kg	8260B	04/04/12	5
n-Butylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
sec-Butylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
tert-Butylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Carbon tetrachloride	BDL	0.0050	mg/kg	8260B	04/04/12	5
Chlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Chlorodibromomethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Chloroethane	BDL	0.025	mg/kg	8260B	04/04/12	5
2-Chloroethyl vinyl ether	BDL	0.25	mg/kg	8260B	04/04/12	5
Chloroform	BDL	0.025	mg/kg	8260B	04/04/12	5
Chloromethane	BDL	0.012	mg/kg	8260B	04/04/12	5
2-Chlorotoluene	BDL	0.0050	mg/kg	8260B	04/04/12	5
4-Chlorotoluene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2-Dibromo-3-Chloropropane	BDL	0.025	mg/kg	8260B	04/04/12	5
1,2-Dibromoethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Dibromomethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2-Dichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,3-Dichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,4-Dichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Dichlorodifluoromethane	BDL	0.025	mg/kg	8260B	04/04/12	5
1,1-Dichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2-Dichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1-Dichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
cis-1,2-Dichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
trans-1,2-Dichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-1 8IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 16:15

ESC Sample # : L568018-01

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
1,2-Dichloropropane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1-Dichloropropene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,3-Dichloropropane	BDL	0.0050	mg/kg	8260B	04/04/12	5
cis-1,3-Dichloropropene	BDL	0.0050	mg/kg	8260B	04/04/12	5
trans-1,3-Dichloropropene	BDL	0.0050	mg/kg	8260B	04/04/12	5
2,2-Dichloropropane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Di-isopropyl ether	BDL	0.0050	mg/kg	8260B	04/04/12	5
Ethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Hexachloro-1,3-butadiene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Isopropylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
p-Isopropyltoluene	BDL	0.0050	mg/kg	8260B	04/04/12	5
2-Butanone (MEK)	BDL	0.050	mg/kg	8260B	04/04/12	5
Methylene Chloride	BDL	0.025	mg/kg	8260B	04/04/12	5
4-Methyl-2-pentanone (MIBK)	BDL	0.050	mg/kg	8260B	04/04/12	5
Methyl tert-butyl ether	BDL	0.0050	mg/kg	8260B	04/04/12	5
Naphthalene	BDL	0.025	mg/kg	8260B	04/04/12	5
n-Propylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Styrene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,1,2-Tetrachloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,2,2-Tetrachloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,2-Trichlorotrifluoroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Tetrachloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Toluene	BDL	0.025	mg/kg	8260B	04/04/12	5
1,2,3-Trichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2,4-Trichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,1-Trichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,2-Trichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Trichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Trichlorofluoromethane	BDL	0.025	mg/kg	8260B	04/04/12	5
1,2,3-Trichloropropane	BDL	0.012	mg/kg	8260B	04/04/12	5
1,2,4-Trimethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2,3-Trimethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,3,5-Trimethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Vinyl chloride	BDL	0.0050	mg/kg	8260B	04/04/12	5
Xylenes, Total	BDL	0.015	mg/kg	8260B	04/04/12	5
Surrogate Recovery						
Toluene-d8	102.		% Rec.	8260B	04/04/12	5
Dibromofluoromethane	99.6		% Rec.	8260B	04/04/12	5
4-Bromofluorobenzene	103.		% Rec.	8260B	04/04/12	5
Pesticide/PCBs						
Aldrin	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Alpha BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Beta BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

REPORT OF ANALYSIS

Patrick Lesley
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501 Independence Pkwy; Ste 300
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Collected By : Gregory A. Turner
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ESC Sample # : L568018-01

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Delta BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Gamma BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Chlordane	BDL	0.20	mg/kg	8081/8082	04/09/12	1
4,4-DDD	BDL	0.020	mg/kg	8081/8082	04/09/12	1
4,4-DDE	BDL	0.020	mg/kg	8081/8082	04/09/12	1
4,4-DDT	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Dieldrin	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endosulfan I	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endosulfan II	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endosulfan sulfate	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endrin	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endrin aldehyde	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endrin ketone	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Heptachlor	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Heptachlor epoxide	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Hexachlorobenzene	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Methoxychlor	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Toxaphene	BDL	0.40	mg/kg	8081/8082	04/09/12	1
PCB 1016	BDL	0.017	mg/kg	8081/8082	04/05/12	1
PCB 1221	BDL	0.017	mg/kg	8081/8082	04/05/12	1
PCB 1232	BDL	0.017	mg/kg	8081/8082	04/05/12	1
PCB 1242	BDL	0.017	mg/kg	8081/8082	04/05/12	1
PCB 1248	BDL	0.017	mg/kg	8081/8082	04/05/12	1
PCB 1254	BDL	0.017	mg/kg	8081/8082	04/05/12	1
PCB 1260	BDL	0.017	mg/kg	8081/8082	04/05/12	1
Pest/PCBs Surrogates						
Decachlorobiphenyl	69.6		% Rec.	8081/8082	04/09/12	1
Decachlorobiphenyl	92.6		% Rec.	8081/8082	04/09/12	1
Tetrachloro-m-xylene	82.2		% Rec.	8081/8082	04/09/12	1
Tetrachloro-m-xylene	90.2		% Rec.	8081/8082	04/09/12	1
Herbicides						
2,4-D	BDL	0.35	mg/kg	8151	04/10/12	5
Dalapon	BDL	4.0	mg/kg	8151	04/10/12	5
2,4-DB	BDL	0.35	mg/kg	8151	04/10/12	5
Dicamba	BDL	0.35	mg/kg	8151	04/10/12	5
Dichloroprop	BDL	0.35	mg/kg	8151	04/10/12	5
Dinoseb	BDL	0.35	mg/kg	8151	04/10/12	5
MCPA	BDL	32.	mg/kg	8151	04/10/12	5
MCPP	BDL	32.	mg/kg	8151	04/10/12	5
2,4,5-T	BDL	0.35	mg/kg	8151	04/10/12	5
2,4,5-TP (Silvex)	BDL	0.35	mg/kg	8151	04/10/12	5
Surrogate Recovery						
2,4-Dichlorophenyl Acetic Acid	88.2		% Rec.	8151	04/10/12	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-1 8IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 16:15

ESC Sample # : L568018-01

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Base/Neutral Extractables						
Acenaphthene	BDL	0.033	mg/kg	8270C	04/06/12	1
Acenaphthylene	BDL	0.033	mg/kg	8270C	04/06/12	1
Anthracene	BDL	0.033	mg/kg	8270C	04/06/12	1
Benzidine	BDL	0.33	mg/kg	8270C	04/06/12	1
Benzo(a)anthracene	BDL	0.033	mg/kg	8270C	04/06/12	1
Benzo(b)fluoranthene	BDL	0.033	mg/kg	8270C	04/06/12	1
Benzo(k)fluoranthene	BDL	0.033	mg/kg	8270C	04/06/12	1
Benzo(g,h,i)perylene	BDL	0.033	mg/kg	8270C	04/06/12	1
Benzo(a)pyrene	BDL	0.033	mg/kg	8270C	04/06/12	1
Bis(2-chlorethoxy)methane	BDL	0.33	mg/kg	8270C	04/06/12	1
Bis(2-chloroethyl)ether	BDL	0.33	mg/kg	8270C	04/06/12	1
Bis(2-chloroisopropyl)ether	BDL	0.33	mg/kg	8270C	04/06/12	1
4-Bromophenyl-phenylether	BDL	0.33	mg/kg	8270C	04/06/12	1
2-Chloronaphthalene	BDL	0.033	mg/kg	8270C	04/06/12	1
4-Chlorophenyl-phenylether	BDL	0.33	mg/kg	8270C	04/06/12	1
Chrysene	BDL	0.033	mg/kg	8270C	04/06/12	1
Dibenz(a,h)anthracene	BDL	0.033	mg/kg	8270C	04/06/12	1
3,3-Dichlorobenzidine	BDL	0.33	mg/kg	8270C	04/06/12	1
2,4-Dinitrotoluene	BDL	0.33	mg/kg	8270C	04/06/12	1
2,6-Dinitrotoluene	BDL	0.33	mg/kg	8270C	04/06/12	1
Fluoranthene	BDL	0.033	mg/kg	8270C	04/06/12	1
Fluorene	BDL	0.033	mg/kg	8270C	04/06/12	1
Hexachlorobenzene	BDL	0.33	mg/kg	8270C	04/06/12	1
Hexachloro-1,3-butadiene	BDL	0.33	mg/kg	8270C	04/06/12	1
Hexachlorocyclopentadiene	BDL	0.33	mg/kg	8270C	04/06/12	1
Hexachloroethane	BDL	0.33	mg/kg	8270C	04/06/12	1
Indeno(1,2,3-cd)pyrene	BDL	0.033	mg/kg	8270C	04/06/12	1
Isophorone	BDL	0.33	mg/kg	8270C	04/06/12	1
Naphthalene	BDL	0.033	mg/kg	8270C	04/06/12	1
Nitrobenzene	BDL	0.33	mg/kg	8270C	04/06/12	1
n-Nitrosodimethylamine	BDL	0.33	mg/kg	8270C	04/06/12	1
n-Nitrosodiphenylamine	BDL	0.33	mg/kg	8270C	04/06/12	1
n-Nitrosodi-n-propylamine	BDL	0.33	mg/kg	8270C	04/06/12	1
Phenanthrene	BDL	0.033	mg/kg	8270C	04/06/12	1
Benzylbutyl phthalate	BDL	0.33	mg/kg	8270C	04/06/12	1
Bis(2-ethylhexyl)phthalate	BDL	0.33	mg/kg	8270C	04/06/12	1
Di-n-butyl phthalate	BDL	0.33	mg/kg	8270C	04/06/12	1
Diethyl phthalate	BDL	0.33	mg/kg	8270C	04/06/12	1
Dimethyl phthalate	BDL	0.33	mg/kg	8270C	04/06/12	1
Di-n-octyl phthalate	BDL	0.33	mg/kg	8270C	04/06/12	1
Pyrene	BDL	0.033	mg/kg	8270C	04/06/12	1
1,2,4-Trichlorobenzene	BDL	0.33	mg/kg	8270C	04/06/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-1 8IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 16:15

ESC Sample # : L568018-01

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acid Extractables						
4-Chloro-3-methylphenol	BDL	0.33	mg/kg	8270C	04/06/12	1
2-Chlorophenol	BDL	0.33	mg/kg	8270C	04/06/12	1
2,4-Dichlorophenol	BDL	0.33	mg/kg	8270C	04/06/12	1
2,4-Dimethylphenol	BDL	0.33	mg/kg	8270C	04/06/12	1
4,6-Dinitro-2-methylphenol	BDL	0.33	mg/kg	8270C	04/06/12	1
2,4-Dinitrophenol	BDL	0.33	mg/kg	8270C	04/06/12	1
2-Nitrophenol	BDL	0.33	mg/kg	8270C	04/06/12	1
4-Nitrophenol	BDL	0.33	mg/kg	8270C	04/06/12	1
Pentachlorophenol	BDL	0.33	mg/kg	8270C	04/06/12	1
Phenol	BDL	0.33	mg/kg	8270C	04/06/12	1
2,4,6-Trichlorophenol	BDL	0.33	mg/kg	8270C	04/06/12	1
Surrogate Recovery						
2-Fluorophenol	62.1		% Rec.	8270C	04/06/12	1
Phenol-d5	62.8		% Rec.	8270C	04/06/12	1
Nitrobenzene-d5	59.5		% Rec.	8270C	04/06/12	1
2-Fluorobiphenyl	68.1		% Rec.	8270C	04/06/12	1
2,4,6-Tribromophenol	67.7		% Rec.	8270C	04/06/12	1
p-Terphenyl-d14	60.5		% Rec.	8270C	04/06/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 04/11/12 17:37 Revised: 04/12/12 08:46

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-2 8IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 16:35

ESC Sample # : L568018-02

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	93.0	0.100	%	2540G	04/04/12	1
Mercury	BDL	0.020	mg/kg	7471	04/06/12	1
Arsenic	2.1	1.0	mg/kg	6010B	04/08/12	1
Barium	47.	0.25	mg/kg	6010B	04/08/12	1
Cadmium	BDL	0.25	mg/kg	6010B	04/08/12	1
Chromium	9.8	0.50	mg/kg	6010B	04/08/12	1
Lead	7.1	0.25	mg/kg	6010B	04/08/12	1
Selenium	BDL	1.0	mg/kg	6010B	04/08/12	1
Silver	BDL	0.50	mg/kg	6010B	04/08/12	1
Volatile Organics						
Acetone	BDL	0.25	mg/kg	8260B	04/04/12	5
Acrylonitrile	BDL	0.050	mg/kg	8260B	04/04/12	5
Benzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromodichloromethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromoform	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromomethane	BDL	0.025	mg/kg	8260B	04/04/12	5
n-Butylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
sec-Butylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
tert-Butylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Carbon tetrachloride	BDL	0.0050	mg/kg	8260B	04/04/12	5
Chlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Chlorodibromomethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Chloroethane	BDL	0.025	mg/kg	8260B	04/04/12	5
2-Chloroethyl vinyl ether	BDL	0.25	mg/kg	8260B	04/04/12	5
Chloroform	BDL	0.025	mg/kg	8260B	04/04/12	5
Chloromethane	BDL	0.012	mg/kg	8260B	04/04/12	5
2-Chlorotoluene	BDL	0.0050	mg/kg	8260B	04/04/12	5
4-Chlorotoluene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2-Dibromo-3-Chloropropane	BDL	0.025	mg/kg	8260B	04/04/12	5
1,2-Dibromoethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Dibromomethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2-Dichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,3-Dichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,4-Dichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Dichlorodifluoromethane	BDL	0.025	mg/kg	8260B	04/04/12	5
1,1-Dichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2-Dichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1-Dichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
cis-1,2-Dichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
trans-1,2-Dichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L568018-02 (SV8270BNA) - Dilution due to matrix

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-2 8IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 16:35

ESC Sample # : L568018-02

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
1,2-Dichloropropane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1-Dichloropropene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,3-Dichloropropane	BDL	0.0050	mg/kg	8260B	04/04/12	5
cis-1,3-Dichloropropene	BDL	0.0050	mg/kg	8260B	04/04/12	5
trans-1,3-Dichloropropene	BDL	0.0050	mg/kg	8260B	04/04/12	5
2,2-Dichloropropane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Di-isopropyl ether	BDL	0.0050	mg/kg	8260B	04/04/12	5
Ethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Hexachloro-1,3-butadiene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Isopropylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
p-Isopropyltoluene	BDL	0.0050	mg/kg	8260B	04/04/12	5
2-Butanone (MEK)	BDL	0.050	mg/kg	8260B	04/04/12	5
Methylene Chloride	BDL	0.025	mg/kg	8260B	04/04/12	5
4-Methyl-2-pentanone (MIBK)	BDL	0.050	mg/kg	8260B	04/04/12	5
Methyl tert-butyl ether	BDL	0.0050	mg/kg	8260B	04/04/12	5
Naphthalene	BDL	0.025	mg/kg	8260B	04/04/12	5
n-Propylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Styrene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,1,2-Tetrachloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,2,2-Tetrachloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,2-Trichlorotrifluoroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Tetrachloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Toluene	BDL	0.025	mg/kg	8260B	04/04/12	5
1,2,3-Trichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2,4-Trichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,1-Trichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,2-Trichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Trichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Trichlorofluoromethane	BDL	0.025	mg/kg	8260B	04/04/12	5
1,2,3-Trichloropropane	BDL	0.012	mg/kg	8260B	04/04/12	5
1,2,4-Trimethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2,3-Trimethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,3,5-Trimethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Vinyl chloride	BDL	0.0050	mg/kg	8260B	04/04/12	5
Xylenes, Total	BDL	0.015	mg/kg	8260B	04/04/12	5
Surrogate Recovery						
Toluene-d8	102.		% Rec.	8260B	04/04/12	5
Dibromofluoromethane	96.9		% Rec.	8260B	04/04/12	5
4-Bromofluorobenzene	103.		% Rec.	8260B	04/04/12	5
Pesticide/PCBs						
Aldrin	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Alpha BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Beta BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L568018-02 (SV8270BNA) - Dilution due to matrix

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-2 8IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 16:35

ESC Sample # : L568018-02

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Delta BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Gamma BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Chlordane	BDL	0.20	mg/kg	8081/8082	04/09/12	1
4,4-DDD	BDL	0.020	mg/kg	8081/8082	04/09/12	1
4,4-DDE	BDL	0.020	mg/kg	8081/8082	04/09/12	1
4,4-DDT	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Dieldrin	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endosulfan I	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endosulfan II	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endosulfan sulfate	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endrin	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endrin aldehyde	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endrin ketone	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Heptachlor	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Heptachlor epoxide	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Hexachlorobenzene	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Methoxychlor	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Toxaphene	BDL	0.40	mg/kg	8081/8082	04/09/12	1
PCB 1016	BDL	0.34	mg/kg	8081/8082	04/05/12	20
PCB 1221	BDL	0.34	mg/kg	8081/8082	04/05/12	20
PCB 1232	BDL	0.34	mg/kg	8081/8082	04/05/12	20
PCB 1242	BDL	0.34	mg/kg	8081/8082	04/05/12	20
PCB 1248	BDL	0.34	mg/kg	8081/8082	04/05/12	20
PCB 1254	BDL	0.34	mg/kg	8081/8082	04/05/12	20
PCB 1260	BDL	0.34	mg/kg	8081/8082	04/05/12	20
Pest/PCBs Surrogates						
Decachlorobiphenyl	108.		% Rec.	8081/8082	04/09/12	1
Decachlorobiphenyl	98.1		% Rec.	8081/8082	04/09/12	1
Tetrachloro-m-xylene	97.0		% Rec.	8081/8082	04/09/12	1
Tetrachloro-m-xylene	123.		% Rec.	8081/8082	04/09/12	1
Herbicides						
2,4-D	BDL	0.070	mg/kg	8151	04/11/12	1
Dalapon	BDL	0.80	mg/kg	8151	04/11/12	1
2,4-DB	BDL	0.070	mg/kg	8151	04/11/12	1
Dicamba	BDL	0.070	mg/kg	8151	04/11/12	1
Dichloroprop	BDL	0.070	mg/kg	8151	04/11/12	1
Dinoseb	BDL	0.070	mg/kg	8151	04/11/12	1
MCPA	BDL	6.5	mg/kg	8151	04/11/12	1
MCPP	BDL	6.5	mg/kg	8151	04/11/12	1
2,4,5-T	BDL	0.070	mg/kg	8151	04/11/12	1
2,4,5-TP (Silvex)	BDL	0.070	mg/kg	8151	04/11/12	1
Surrogate Recovery						
2,4-Dichlorophenyl Acetic Acid	66.9		% Rec.	8151	04/11/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L568018-02 (SV8270BNA) - Dilution due to matrix

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-2 8IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 16:35

ESC Sample # : L568018-02

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Base/Neutral Extractables						
Acenaphthene	BDL	0.33	mg/kg	8270C	04/06/12	10
Acenaphthylene	BDL	0.33	mg/kg	8270C	04/06/12	10
Anthracene	BDL	0.33	mg/kg	8270C	04/06/12	10
Benzidine	BDL	3.3	mg/kg	8270C	04/06/12	10
Benzo(a)anthracene	BDL	0.33	mg/kg	8270C	04/06/12	10
Benzo(b)fluoranthene	BDL	0.33	mg/kg	8270C	04/06/12	10
Benzo(k)fluoranthene	BDL	0.33	mg/kg	8270C	04/06/12	10
Benzo(g,h,i)perylene	BDL	0.33	mg/kg	8270C	04/06/12	10
Benzo(a)pyrene	BDL	0.33	mg/kg	8270C	04/06/12	10
Bis(2-chloroethoxy)methane	BDL	3.3	mg/kg	8270C	04/06/12	10
Bis(2-chloroethyl)ether	BDL	3.3	mg/kg	8270C	04/06/12	10
Bis(2-chloroisopropyl)ether	BDL	3.3	mg/kg	8270C	04/06/12	10
4-Bromophenyl-phenylether	BDL	3.3	mg/kg	8270C	04/06/12	10
2-Chloronaphthalene	BDL	0.33	mg/kg	8270C	04/06/12	10
4-Chlorophenyl-phenylether	BDL	3.3	mg/kg	8270C	04/06/12	10
Chrysene	BDL	0.33	mg/kg	8270C	04/06/12	10
Dibenz(a,h)anthracene	BDL	0.33	mg/kg	8270C	04/06/12	10
3,3-Dichlorobenzidine	BDL	3.3	mg/kg	8270C	04/06/12	10
2,4-Dinitrotoluene	BDL	3.3	mg/kg	8270C	04/06/12	10
2,6-Dinitrotoluene	BDL	3.3	mg/kg	8270C	04/06/12	10
Fluoranthene	BDL	0.33	mg/kg	8270C	04/06/12	10
Fluorene	BDL	0.33	mg/kg	8270C	04/06/12	10
Hexachlorobenzene	BDL	3.3	mg/kg	8270C	04/06/12	10
Hexachloro-1,3-butadiene	BDL	3.3	mg/kg	8270C	04/06/12	10
Hexachlorocyclopentadiene	BDL	3.3	mg/kg	8270C	04/06/12	10
Hexachloroethane	BDL	3.3	mg/kg	8270C	04/06/12	10
Indeno(1,2,3-cd)pyrene	BDL	0.33	mg/kg	8270C	04/06/12	10
Isophorone	BDL	3.3	mg/kg	8270C	04/06/12	10
Naphthalene	BDL	0.33	mg/kg	8270C	04/06/12	10
Nitrobenzene	BDL	3.3	mg/kg	8270C	04/06/12	10
n-Nitrosodimethylamine	BDL	3.3	mg/kg	8270C	04/06/12	10
n-Nitrosodiphenylamine	BDL	3.3	mg/kg	8270C	04/06/12	10
n-Nitrosodi-n-propylamine	BDL	3.3	mg/kg	8270C	04/06/12	10
Phenanthrene	BDL	0.33	mg/kg	8270C	04/06/12	10
Benzylbutyl phthalate	BDL	3.3	mg/kg	8270C	04/06/12	10
Bis(2-ethylhexyl)phthalate	BDL	3.3	mg/kg	8270C	04/06/12	10
Di-n-butyl phthalate	BDL	3.3	mg/kg	8270C	04/06/12	10
Diethyl phthalate	BDL	3.3	mg/kg	8270C	04/06/12	10
Dimethyl phthalate	BDL	3.3	mg/kg	8270C	04/06/12	10
Di-n-octyl phthalate	BDL	3.3	mg/kg	8270C	04/06/12	10
Pyrene	BDL	0.33	mg/kg	8270C	04/06/12	10
1,2,4-Trichlorobenzene	BDL	3.3	mg/kg	8270C	04/06/12	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L568018-02 (SV8270BNA) - Dilution due to matrix

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-2 8IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 16:35

ESC Sample # : L568018-02

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acid Extractables						
4-Chloro-3-methylphenol	BDL	3.3	mg/kg	8270C	04/06/12	10
2-Chlorophenol	BDL	3.3	mg/kg	8270C	04/06/12	10
2,4-Dichlorophenol	BDL	3.3	mg/kg	8270C	04/06/12	10
2,4-Dimethylphenol	BDL	3.3	mg/kg	8270C	04/06/12	10
4,6-Dinitro-2-methylphenol	BDL	3.3	mg/kg	8270C	04/06/12	10
2,4-Dinitrophenol	BDL	3.3	mg/kg	8270C	04/06/12	10
2-Nitrophenol	BDL	3.3	mg/kg	8270C	04/06/12	10
4-Nitrophenol	BDL	3.3	mg/kg	8270C	04/06/12	10
Pentachlorophenol	BDL	3.3	mg/kg	8270C	04/06/12	10
Phenol	BDL	3.3	mg/kg	8270C	04/06/12	10
2,4,6-Trichlorophenol	BDL	3.3	mg/kg	8270C	04/06/12	10
Surrogate Recovery						
2-Fluorophenol	35.0		% Rec.	8270C	04/06/12	10
Phenol-d5	32.6		% Rec.	8270C	04/06/12	10
Nitrobenzene-d5	34.0		% Rec.	8270C	04/06/12	10
2-Fluorobiphenyl	32.4		% Rec.	8270C	04/06/12	10
2,4,6-Tribromophenol	20.6		% Rec.	8270C	04/06/12	10
p-Terphenyl-d14	47.0		% Rec.	8270C	04/06/12	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 04/11/12 17:37 Revised: 04/12/12 08:46
L568018-02 (SV8270BNA) - Dilution due to matrix

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-3 6IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 17:20

ESC Sample # : L568018-03

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Total Solids	96.9	0.100	%	2540G	04/04/12	1
Mercury	BDL	0.020	mg/kg	7471	04/06/12	1
Arsenic	1.5	1.0	mg/kg	6010B	04/08/12	1
Barium	36.	0.25	mg/kg	6010B	04/08/12	1
Cadmium	BDL	0.25	mg/kg	6010B	04/08/12	1
Chromium	11.	0.50	mg/kg	6010B	04/08/12	1
Lead	38.	0.25	mg/kg	6010B	04/08/12	1
Selenium	BDL	1.0	mg/kg	6010B	04/08/12	1
Silver	BDL	0.50	mg/kg	6010B	04/08/12	1
Volatile Organics						
Acetone	BDL	0.25	mg/kg	8260B	04/04/12	5
Acrylonitrile	BDL	0.050	mg/kg	8260B	04/04/12	5
Benzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromodichloromethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromoform	BDL	0.0050	mg/kg	8260B	04/04/12	5
Bromomethane	BDL	0.025	mg/kg	8260B	04/04/12	5
n-Butylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
sec-Butylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
tert-Butylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Carbon tetrachloride	BDL	0.0050	mg/kg	8260B	04/04/12	5
Chlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Chlorodibromomethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Chloroethane	BDL	0.025	mg/kg	8260B	04/04/12	5
2-Chloroethyl vinyl ether	BDL	0.25	mg/kg	8260B	04/04/12	5
Chloroform	BDL	0.025	mg/kg	8260B	04/04/12	5
Chloromethane	BDL	0.012	mg/kg	8260B	04/04/12	5
2-Chlorotoluene	BDL	0.0050	mg/kg	8260B	04/04/12	5
4-Chlorotoluene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2-Dibromo-3-Chloropropane	BDL	0.025	mg/kg	8260B	04/04/12	5
1,2-Dibromoethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Dibromomethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2-Dichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,3-Dichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,4-Dichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Dichlorodifluoromethane	BDL	0.025	mg/kg	8260B	04/04/12	5
1,1-Dichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2-Dichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1-Dichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
cis-1,2-Dichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
trans-1,2-Dichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L568018-03 (PESTICIDES/PCBS) - Dilution due to matrix

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-3 6IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 17:20

ESC Sample # : L568018-03

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
1,2-Dichloropropane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1-Dichloropropene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,3-Dichloropropane	BDL	0.0050	mg/kg	8260B	04/04/12	5
cis-1,3-Dichloropropene	BDL	0.0050	mg/kg	8260B	04/04/12	5
trans-1,3-Dichloropropene	BDL	0.0050	mg/kg	8260B	04/04/12	5
2,2-Dichloropropane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Di-isopropyl ether	BDL	0.0050	mg/kg	8260B	04/04/12	5
Ethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Hexachloro-1,3-butadiene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Isopropylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
p-Isopropyltoluene	BDL	0.0050	mg/kg	8260B	04/04/12	5
2-Butanone (MEK)	BDL	0.050	mg/kg	8260B	04/04/12	5
Methylene Chloride	BDL	0.025	mg/kg	8260B	04/04/12	5
4-Methyl-2-pentanone (MIBK)	BDL	0.050	mg/kg	8260B	04/04/12	5
Methyl tert-butyl ether	BDL	0.0050	mg/kg	8260B	04/04/12	5
Naphthalene	BDL	0.025	mg/kg	8260B	04/04/12	5
n-Propylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Styrene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,1,2-Tetrachloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,2,2-Tetrachloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,2-Trichlorotrifluoroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Tetrachloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Toluene	BDL	0.025	mg/kg	8260B	04/04/12	5
1,2,3-Trichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2,4-Trichlorobenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,1-Trichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,1,2-Trichloroethane	BDL	0.0050	mg/kg	8260B	04/04/12	5
Trichloroethene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Trichlorofluoromethane	BDL	0.025	mg/kg	8260B	04/04/12	5
1,2,3-Trichloropropane	BDL	0.012	mg/kg	8260B	04/04/12	5
1,2,4-Trimethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,2,3-Trimethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
1,3,5-Trimethylbenzene	BDL	0.0050	mg/kg	8260B	04/04/12	5
Vinyl chloride	BDL	0.0050	mg/kg	8260B	04/04/12	5
Xylenes, Total	BDL	0.015	mg/kg	8260B	04/04/12	5
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	04/04/12	5
Dibromofluoromethane	94.6		% Rec.	8260B	04/04/12	5
4-Bromofluorobenzene	97.2		% Rec.	8260B	04/04/12	5
Pesticide/PCBs						
Aldrin	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Alpha BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Beta BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L568018-03 (PESTICIDES/PCBS) - Dilution due to matrix

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-3 6IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 17:20

ESC Sample # : L568018-03

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Delta BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Gamma BHC	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Chlordane	BDL	0.20	mg/kg	8081/8082	04/09/12	1
4,4-DDD	BDL	0.020	mg/kg	8081/8082	04/09/12	1
4,4-DDE	BDL	0.020	mg/kg	8081/8082	04/09/12	1
4,4-DDT	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Dieldrin	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endosulfan I	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endosulfan II	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endosulfan sulfate	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endrin	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endrin aldehyde	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Endrin ketone	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Heptachlor	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Heptachlor epoxide	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Hexachlorobenzene	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Methoxychlor	BDL	0.020	mg/kg	8081/8082	04/09/12	1
Toxaphene	BDL	0.40	mg/kg	8081/8082	04/09/12	1
PCB 1016	BDL	0.085	mg/kg	8081/8082	04/10/12	5
PCB 1221	BDL	0.085	mg/kg	8081/8082	04/10/12	5
PCB 1232	BDL	0.085	mg/kg	8081/8082	04/10/12	5
PCB 1242	BDL	0.085	mg/kg	8081/8082	04/10/12	5
PCB 1248	BDL	0.085	mg/kg	8081/8082	04/10/12	5
PCB 1254	BDL	0.085	mg/kg	8081/8082	04/10/12	5
PCB 1260	BDL	0.085	mg/kg	8081/8082	04/10/12	5
Pest/PCBs Surrogates						
Decachlorobiphenyl	37.1		% Rec.	8081/8082	04/09/12	1
Tetrachloro-m-xylene	52.1		% Rec.	8081/8082	04/09/12	1
Herbicides						
2,4-D	BDL	0.070	mg/kg	8151	04/11/12	1
Dalapon	BDL	0.80	mg/kg	8151	04/11/12	1
2,4-DB	BDL	0.070	mg/kg	8151	04/11/12	1
Dicamba	BDL	0.070	mg/kg	8151	04/11/12	1
Dichloroprop	BDL	0.070	mg/kg	8151	04/11/12	1
Dinoseb	BDL	0.070	mg/kg	8151	04/11/12	1
MCPA	BDL	6.5	mg/kg	8151	04/11/12	1
MCPP	BDL	6.5	mg/kg	8151	04/11/12	1
2,4,5-T	BDL	0.070	mg/kg	8151	04/11/12	1
2,4,5-TP (Silvex)	BDL	0.070	mg/kg	8151	04/11/12	1
Surrogate Recovery						
2,4-Dichlorophenyl Acetic Acid	68.6		% Rec.	8151	04/11/12	1

Base/Neutral Extractables

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L568018-03 (PESTICIDES/PCBS) - Dilution due to matrix

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-3 6IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 17:20

ESC Sample # : L568018-03

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acenaphthene	BDL	0.66	mg/kg	8270C	04/06/12	20
Acenaphthylene	BDL	0.66	mg/kg	8270C	04/06/12	20
Anthracene	BDL	0.66	mg/kg	8270C	04/06/12	20
Benzidine	BDL	6.7	mg/kg	8270C	04/06/12	20
Benzo(a)anthracene	0.95	0.66	mg/kg	8270C	04/06/12	20
Benzo(b)fluoranthene	2.2	1.6	mg/kg	8270C	04/06/12	50
Benzo(k)fluoranthene	BDL	1.6	mg/kg	8270C	04/06/12	50
Benzo(g,h,i)perylene	BDL	1.6	mg/kg	8270C	04/06/12	50
Benzo(a)pyrene	BDL	1.6	mg/kg	8270C	04/06/12	50
Bis(2-chlorethoxy)methane	BDL	6.7	mg/kg	8270C	04/06/12	20
Bis(2-chloroethyl)ether	BDL	6.7	mg/kg	8270C	04/06/12	20
Bis(2-chloroisopropyl)ether	BDL	6.7	mg/kg	8270C	04/06/12	20
4-Bromophenyl-phenylether	BDL	6.7	mg/kg	8270C	04/06/12	20
2-Chloronaphthalene	BDL	0.66	mg/kg	8270C	04/06/12	20
4-Chlorophenyl-phenylether	BDL	6.7	mg/kg	8270C	04/06/12	20
Chrysene	1.1	0.66	mg/kg	8270C	04/06/12	20
Dibenz(a,h)anthracene	BDL	1.6	mg/kg	8270C	04/06/12	50
3,3-Dichlorobenzidine	BDL	6.7	mg/kg	8270C	04/06/12	20
2,4-Dinitrotoluene	BDL	6.7	mg/kg	8270C	04/06/12	20
2,6-Dinitrotoluene	BDL	6.7	mg/kg	8270C	04/06/12	20
Fluoranthene	1.7	0.66	mg/kg	8270C	04/06/12	20
Fluorene	BDL	0.66	mg/kg	8270C	04/06/12	20
Hexachlorobenzene	BDL	6.7	mg/kg	8270C	04/06/12	20
Hexachloro-1,3-butadiene	BDL	6.7	mg/kg	8270C	04/06/12	20
Hexachlorocyclopentadiene	BDL	6.7	mg/kg	8270C	04/06/12	20
Hexachloroethane	BDL	6.7	mg/kg	8270C	04/06/12	20
Indeno(1,2,3-cd)pyrene	BDL	1.6	mg/kg	8270C	04/06/12	50
Isophorone	BDL	6.7	mg/kg	8270C	04/06/12	20
Naphthalene	BDL	0.66	mg/kg	8270C	04/06/12	20
Nitrobenzene	BDL	6.7	mg/kg	8270C	04/06/12	20
n-Nitrosodimethylamine	BDL	6.7	mg/kg	8270C	04/06/12	20
n-Nitrosodiphenylamine	BDL	6.7	mg/kg	8270C	04/06/12	20
n-Nitrosodi-n-propylamine	BDL	6.7	mg/kg	8270C	04/06/12	20
Phenanthrene	BDL	0.66	mg/kg	8270C	04/06/12	20
Benzylbutyl phthalate	BDL	6.7	mg/kg	8270C	04/06/12	20
Bis(2-ethylhexyl)phthalate	BDL	6.7	mg/kg	8270C	04/06/12	20
Di-n-butyl phthalate	BDL	6.7	mg/kg	8270C	04/06/12	20
Diethyl phthalate	BDL	6.7	mg/kg	8270C	04/06/12	20
Dimethyl phthalate	BDL	6.7	mg/kg	8270C	04/06/12	20
Di-n-octyl phthalate	BDL	6.7	mg/kg	8270C	04/06/12	20
Pyrene	1.7	0.66	mg/kg	8270C	04/06/12	20
1,2,4-Trichlorobenzene	BDL	6.7	mg/kg	8270C	04/06/12	20
Acid Extractables						
4-Chloro-3-methylphenol	BDL	6.7	mg/kg	8270C	04/06/12	20

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L568018-03 (PESTICIDES/PCBS) - Dilution due to matrix

REPORT OF ANALYSIS

Patrick Lesley
Kimley-Horn & Associates, Inc
501 Independence Pkwy; Ste 300
Chesapeake, VA 23320

April 12, 2012

Date Received : April 03, 2012
Description : Pleasure House Point

Sample ID : SP-3 6IN

Collected By : Gregory A. Turner
Collection Date : 04/02/12 17:20

ESC Sample # : L568018-03

Site ID : VIRGINIA BEACH, VA

Project # : 116296001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
2-Chlorophenol	BDL	6.7	mg/kg	8270C	04/06/12	20
2,4-Dichlorophenol	BDL	6.7	mg/kg	8270C	04/06/12	20
2,4-Dimethylphenol	BDL	6.7	mg/kg	8270C	04/06/12	20
4,6-Dinitro-2-methylphenol	BDL	6.7	mg/kg	8270C	04/06/12	20
2,4-Dinitrophenol	BDL	6.7	mg/kg	8270C	04/06/12	20
2-Nitrophenol	BDL	6.7	mg/kg	8270C	04/06/12	20
4-Nitrophenol	BDL	6.7	mg/kg	8270C	04/06/12	20
Pentachlorophenol	BDL	6.7	mg/kg	8270C	04/06/12	20
Phenol	BDL	6.7	mg/kg	8270C	04/06/12	20
2,4,6-Trichlorophenol	BDL	6.7	mg/kg	8270C	04/06/12	20
Surrogate Recovery						
2-Fluorophenol	19.5		% Rec.	8270C	04/06/12	20
Phenol-d5	16.9		% Rec.	8270C	04/06/12	20
Nitrobenzene-d5	21.2		% Rec.	8270C	04/06/12	20
2-Fluorobiphenyl	23.0		% Rec.	8270C	04/06/12	20
2,4,6-Tribromophenol	16.5		% Rec.	8270C	04/06/12	20
p-Terphenyl-d14	26.9		% Rec.	8270C	04/06/12	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 04/11/12 17:37 Revised: 04/12/12 08:46
L568018-03 (PESTICIDES/PCBS) - Dilution due to matrix

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L568018-01	WG586249	SAMP	Benzidine	R2109153	J4
	WG586667	SAMP	Hexachlorobenzene	R2111517	J4
	WG586593	SAMP	Dicamba	R2116573	J6
	WG586593	SAMP	MCP	R2116573	L1
	WG586593	SAMP	2,4,5-T	R2116573	J6
L568018-02	WG586249	SAMP	Acenaphthene	R2109153	0
	WG586249	SAMP	Acenaphthylene	R2109153	0
	WG586249	SAMP	Anthracene	R2109153	0
	WG586249	SAMP	Benzidine	R2109153	J40
	WG586249	SAMP	Benzo(a)anthracene	R2109153	0
	WG586249	SAMP	Benzo(b)fluoranthene	R2109153	0
	WG586249	SAMP	Benzo(k)fluoranthene	R2109153	0
	WG586249	SAMP	Benzo(g,h,i)perylene	R2109153	0
	WG586249	SAMP	Benzo(a)pyrene	R2109153	0
	WG586249	SAMP	Bis(2-chloroethoxy)methane	R2109153	0
	WG586249	SAMP	Bis(2-chloroethyl)ether	R2109153	0
	WG586249	SAMP	Bis(2-chloroisopropyl)ether	R2109153	0
	WG586249	SAMP	4-Bromophenyl-phenylether	R2109153	0
	WG586249	SAMP	2-Chloronaphthalene	R2109153	0
	WG586249	SAMP	4-Chlorophenyl-phenylether	R2109153	0
	WG586249	SAMP	Chrysene	R2109153	0
	WG586249	SAMP	Dibenz(a,h)anthracene	R2109153	0
	WG586249	SAMP	3,3-Dichlorobenzidine	R2109153	0
	WG586249	SAMP	2,4-Dinitrotoluene	R2109153	0
	WG586249	SAMP	2,6-Dinitrotoluene	R2109153	0
	WG586249	SAMP	Fluoranthene	R2109153	0
	WG586249	SAMP	Fluorene	R2109153	0
	WG586249	SAMP	Hexachlorobenzene	R2109153	0
	WG586249	SAMP	Hexachloro-1,3-butadiene	R2109153	0
	WG586249	SAMP	Hexachlorocyclopentadiene	R2109153	0
	WG586249	SAMP	Hexachloroethane	R2109153	0
	WG586249	SAMP	Indeno(1,2,3-cd)pyrene	R2109153	0
	WG586249	SAMP	Isophorone	R2109153	0
	WG586249	SAMP	Naphthalene	R2109153	0
	WG586249	SAMP	Nitrobenzene	R2109153	0
	WG586249	SAMP	n-Nitrosodimethylamine	R2109153	0
	WG586249	SAMP	n-Nitrosodiphenylamine	R2109153	0
	WG586249	SAMP	n-Nitrosodi-n-propylamine	R2109153	0
	WG586249	SAMP	Phenanthrene	R2109153	0
	WG586249	SAMP	Benzylbutyl phthalate	R2109153	0
	WG586249	SAMP	Bis(2-ethylhexyl)phthalate	R2109153	0
	WG586249	SAMP	Di-n-butyl phthalate	R2109153	0
	WG586249	SAMP	Diethyl phthalate	R2109153	0
	WG586249	SAMP	Dimethyl phthalate	R2109153	0
	WG586249	SAMP	Di-n-octyl phthalate	R2109153	0
	WG586249	SAMP	Pyrene	R2109153	0
	WG586249	SAMP	1,2,4-Trichlorobenzene	R2109153	0
	WG586249	SAMP	4-Chloro-3-methylphenol	R2109153	0
	WG586249	SAMP	2-Chlorophenol	R2109153	0
	WG586249	SAMP	2,4-Dichlorophenol	R2109153	0
	WG586249	SAMP	2,4-Dimethylphenol	R2109153	0
	WG586249	SAMP	4,6-Dinitro-2-methylphenol	R2109153	0
	WG586249	SAMP	2,4-Dinitrophenol	R2109153	0
	WG586249	SAMP	2-Nitrophenol	R2109153	0
	WG586249	SAMP	4-Nitrophenol	R2109153	0
	WG586249	SAMP	Pentachlorophenol	R2109153	0
	WG586249	SAMP	Phenol	R2109153	0
	WG586249	SAMP	2,4,6-Trichlorophenol	R2109153	0
	WG586249	SAMP	2-Fluorobiphenyl	R2109153	J2
	WG586667	SAMP	Hexachlorobenzene	R2111517	J4
	WG586248	SAMP	PCB 1016	R2106993	0
	WG586248	SAMP	PCB 1221	R2106993	0
	WG586248	SAMP	PCB 1232	R2106993	0
	WG586248	SAMP	PCB 1242	R2106993	0
	WG586248	SAMP	PCB 1248	R2106993	0
	WG586248	SAMP	PCB 1254	R2106993	0
	WG586248	SAMP	PCB 1260	R2106993	0
	WG586248	SAMP	Decachlorobiphenyl	R2106993	J7
	WG586248	SAMP	Tetrachloro-m-xylene	R2106993	J7

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L568018-03	WG586593	SAMP	MCP	R2116573	L1
	WG586249	SAMP	Benzidine	R2109153	J4
	WG586249	SAMP	2-Fluorophenol	R2109153	J7
	WG586249	SAMP	Phenol-d5	R2109153	J7
	WG586249	SAMP	Nitrobenzene-d5	R2109153	J7
	WG586249	SAMP	2-Fluorobiphenyl	R2109153	J7
	WG586249	SAMP	2,4,6-Tribromophenol	R2109153	J7
	WG586249	SAMP	p-Terphenyl-d14	R2109153	J7
	WG586667	SAMP	Hexachlorobenzene	R2111517	J4
	WG586667	SAMP	PCB 1016	R2111517	0
	WG586667	SAMP	PCB 1221	R2111517	0
	WG586667	SAMP	PCB 1232	R2111517	0
	WG586667	SAMP	PCB 1242	R2111517	0
	WG586667	SAMP	PCB 1248	R2111517	0
	WG586667	SAMP	PCB 1254	R2111517	0
	WG586667	SAMP	PCB 1260	R2111517	0
	WG586593	SAMP	MCP	R2116573	J1

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
L1	(ESC) The associated batch LCS exceeded the upper control limit, which indicates a high bias; The sample analyte was "not detected" and is therefore unaffected.
0	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

VRP Tier II Maximum Allowable Concentrations (Revised 2/10/12)

Selection of Contaminants of Concern Soil: Unrestricted (Residential)	CAS No.	SSL soil to groundwater 20 DAF mg/kg	Regional Screening Level (RSL)* Residential mg/kg	VRP Tier II Screening Concentration mg/kg
changes in red				
TAL Inorganics				
Aluminum	7429-90-5	4.80E+04	7.70E+03	7.70E+03
Antimony	7440-36-0	5.41E+00	3.10E+00	3.10E+00
Arsenic	7440-38-2	5.82E+00	3.90E-01	3.90E-01
Barium	7440-39-3	1.64E+03	1.50E+03	1.50E+03
Beryllium	7440-41-7	6.32E+01	1.60E+01	1.60E+01
Cadmium (food, soil)	7440-43-9	7.51E+00	7.00E+00	7.00E+00
Calcium	7440-70-2			
Chromium	7440-47-3	3.82E+01	2.90E-01	2.90E-01
Cobalt	7440-48-4	4.24E-01	2.30E+00	4.24E-01
Copper	7440-50-8	1.11E+04	3.10E+02	3.10E+02
Cyanide	57-12-5	4.00E+01	1.60E+02	4.00E+01
Iron	7439-89-6	5.52E+02	5.50E+03	5.52E+02
Lead	7439-92-1	2.70E+02	4.00E+02	2.70E+02
Magnesium	7439-95-4			
Manganese (nonfood)	7439-96-5	4.17E+01	1.80E+02	4.17E+01
Mercury, inorganic salts	7487-94-7		2.30E+00	2.30E+00
Mercury	7439-97-6	2.09E+00	1.00E+00	1.00E+00
Methylmercury	22967-92-6		7.80E-01	7.80E-01
Nickel	7440-02-0	3.91E+01	1.50E+02	3.91E+01
Potassium	7440-09-7			
Selenium	7782-49-2	5.10E+00	3.90E+01	5.10E+00
Silver	7440-22-4	1.19E+00	3.90E+01	1.19E+00
Sodium	7440-23-5			
Thallium	7440-28-0	2.84E+00	7.80E-02	7.80E-02
Vanadium	NA	1.56E+02	3.90E+01	3.90E+01
Zinc	7440-66-6	5.84E+02	2.30E+03	5.84E+02
Other Inorganics				
Perchlorate			5.50E+00	5.50E+00
TCL Volatile Organic Compounds (VOCs)				
Acetone	67-64-1	2.49E+00	6.10E+03	2.49E+00
Benzene	71-43-2	4.93E-02	1.10E+00	4.93E-02
Bromochloromethane	74-97-5	3.41E-02	1.60E+01	3.41E-02
Bromodichloromethane	75-27-4	7.00E-01	2.70E-01	2.70E-01
Bromoform	75-25-2	1.03E+00	6.20E+01	1.03E+00
Bromomethane	74-83-9	2.96E-03	7.30E-01	2.96E-03
2-Butanone (methyl ethyl ketone)	78-93-3	1.10E+00	2.80E+03	1.10E+00
Carbon disulfide	75-15-0	1.10E+00	8.20E+01	1.10E+00
Carbon tetrachloride	56-23-5	1.59E-01	6.10E-01	1.59E-01
Chlorobenzene	108-90-7	2.81E+00	2.90E+01	2.81E+00
Chloroethane	75-00-3	1.12E+01	1.50E+03	1.12E+01
Chloroform	67-66-3	6.23E-01	2.90E-01	2.90E-01
Chloromethane	74-87-3	7.84E-02	1.20E+01	7.84E-02
Cyclohexane	110-82-7	1.41E+02	7.00E+02	1.41E+02
1,2-Dibromo-3-chloropropane	96-12-8	2.18E-03	5.40E-03	2.18E-03
Dibromochloromethane	124-48-1	8.41E-01	6.80E-01	6.80E-01
1,2-Dibromoethane	106-93-4	3.62E-04	3.40E-02	3.62E-04
1,2-Dichlorobenzene (ortho)	95-50-1	4.23E+01	1.90E+02	4.23E+01
1,3-Dichlorobenzene (meta)	541-73-1	4.49E-02		4.49E-02

1,4-Dichlorobenzene (para)	106-46-7	6.79E+00	2.40E+00	2.40E+00
Dichlorodifluoromethane	75-71-8	1.19E+00	9.40E+00	1.19E+00
1,1-Dichloroethane	75-34-3	1.59E-02	3.30E+00	1.59E-02
1,2-Dichloroethane	107-06-2	2.14E-02	4.30E-01	2.14E-02
1,1-Dichloroethene	75-35-4	9.13E-02	2.40E+01	9.13E-02
1,2-Dichloroethene (total)	540-59-0	1.04E-01	7.00E+01	1.04E-01
cis-1,2-Dichloroethene	156-59-2	4.83E-01	1.60E+01	4.83E-01
trans-1,2-Dichloroethene	156-60-5	9.95E-01	1.50E+01	9.95E-01
1,2-Dichloropropane	78-87-5	3.97E-02	9.40E-01	3.97E-02
1,3-Dichloropropene (total)	542-75-6	3.04E-03	1.70E+00	3.04E-03
cis-1,3-Dichloropropene	10061-01-5	3.31E-03	1.70E+00	3.31E-03
trans-1,3-Dichloropropene	10061-02-6	3.28E-03	1.70E+00	3.28E-03
1,4-dioxane	123-91-1	1.42E-03	4.90E+00	1.42E-03
Ethylbenzene	100-41-4	3.37E+01	5.40E+00	5.40E+00
Hexane	110-54-3		5.70E+01	5.70E+01
2-Hexanone	591-78-6	1.29E-02	2.10E+01	1.29E-02
Isopropylbenzene (cumene)	98-82-8	1.15E+01	2.10E+02	1.15E+01
4-Methyl-2-pentanone (methyl isobutyl ketone)	108-10-1	3.28E-01	5.30E+02	3.28E-01
Methyl acetate	79-20-9	3.55E+00	7.80E+03	3.55E+00
Methyl tert-butyl ether	1634-04-4	4.16E-02	4.30E+01	4.16E-02
Methylcyclohexane	108-87-2	1.09E+02		1.09E+02
Methylene chloride	75-09-2	1.87E-02	1.10E+01	1.87E-02
Styrene	100-42-5	9.78E+00	6.30E+02	9.78E+00
1,1,2,2-Tetrachloroethane	79-34-5	8.76E-04	5.60E-01	8.76E-04
Tetrachloroethene	127-18-4	3.78E-01	5.50E-01	3.78E-01
Toluene	108-88-3	2.39E+01	5.00E+02	2.39E+01
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	6.49E+02	4.30E+03	6.49E+02
1,2,3-Trichlorobenzene	87-61-6	1.22E-01	4.90E+00	1.22E-01
1,2,4-Trichlorobenzene	120-82-1	1.44E+01	2.20E+01	1.44E+01
1,1,1-Trichloroethane	71-55-6	3.63E+00	8.70E+02	3.63E+00
1,1,2-Trichloroethane	79-00-5	4.09E-02	1.10E+00	4.09E-02
Trichloroethene	79-01-6	7.73E-02	9.10E-01	7.73E-02
Trichlorofluoromethane	75-69-4	3.47E+00	7.90E+01	3.47E+00
Vinyl Chloride	75-01-4	1.58E-02	6.00E-02	1.58E-02
Total Xylenes	1330-20-7	4.85E+02	6.30E+01	6.30E+01
Other VOCs				
n-butylbenzene	104-51-8	3.33E+01	3.90E+02	3.33E+01
sec-butylbenzene	135-98-8			
tert-butylbenzene	98-06-6			
isopropyltoluene	99-87-6	1.75E+01		1.75E+01
n-propylbenzene	103-65-1	5.31E+00	3.40E+02	5.31E+00
1,1,1,2-tetrachloroethane	630-20-6	2.00E-02	1.90E+00	2.00E-02
1,2,4-trimethylbenzene	95-63-6	2.17E-01	6.20E+00	2.17E-01
1,3,5-trimethylbenzene	108-67-8	6.68E-01	7.80E+01	6.68E-01
m-xylene	108-38-3	5.23E+02	5.90E+01	5.90E+01
o-xylene	95-47-6	4.53E+02	6.90E+01	6.90E+01
p-xylene	106-42-3	4.81E+02	6.00E+01	6.00E+01
TCL Semivolatile Organic Compounds (SVOCs)				
Acenaphthene	83-32-9	3.43E+01	3.40E+02	3.43E+01
Acenaphthylene	208-96-8	1.33E+02	1.70E+02	1.33E+02
Acetophenone	98-86-2	9.44E-01	7.80E+02	9.44E-01
Anthracene	120-12-7	3.70E+02	1.70E+03	3.70E+02
Atrazine	1912-24-9	1.36E-01	2.10E+00	1.36E-01
Benzaldehyde	100-52-7	8.14E-01	7.80E+02	8.14E-01
Benzo(a)anthracene	56-55-3	1.29E+00	1.50E-01	1.50E-01
Benzo(a)pyrene	50-32-8	1.77E+01	1.50E-02	1.50E-02
Benzo(b)fluoranthene	205-99-2	3.65E+00	1.50E-01	1.50E-01
Benzo(g,h,i)perylene	191-24-2	3.88E+04	1.70E+02	1.70E+02
Benzo(k)fluoranthene	207-08-9	3.65E+01	1.50E+00	1.50E+00

1,1'-Biphenyl	92-52-4	1.05E-01	5.10E+00	1.05E-01
bis(2-Chloroethoxy)methane	111-91-1	1.25E-02	1.80E+01	1.25E-02
bis(2-chloroethyl)ether	111-44-4	5.07E-05	2.10E-01	5.07E-05
bis-(2-Ethylhexyl)phthalate	117-81-7	7.60E+01	3.50E+01	3.50E+01
4-Bromophenyl-phenylether	101-55-3			
Butylbenzylphthalate	85-68-7	1.13E+02	2.60E+02	1.13E+02
Caprolactam	105-60-2	1.60E+00	3.10E+03	1.60E+00
Carbazole	86-74-8	1.86E+00		1.86E+00
4-Chloro-3-methylphenol	59-50-7	1.49E+01	6.10E+02	1.49E+01
4-Chloroaniline	106-47-8	3.17E-03	2.40E+00	3.17E-03
2-Chloronaphthalene	91-58-7	1.40E+01	6.30E+02	1.40E+01
2-Chlorophenol	95-57-8	3.46E-01	3.90E+01	3.46E-01
4-Chlorophenyl-phenylether	7005-72-3			
Chrysene	218-01-9	1.29E+02	1.50E+01	1.50E+01
Dibutyl phthalate	84-74-2	3.51E+02	6.10E+02	3.51E+02
Di-n-octylphthalate	117-84-0			
Dibenzo(a,h)anthracene	53-70-3	8.54E-01	1.50E-02	1.50E-02
Dibenzofuran	132-64-9	7.83E-01	7.80E+00	7.83E-01
3,3'-Dichlorobenzidine	91-94-1	3.75E-02	1.10E+00	3.75E-02
2,4-Dichlorophenol	120-83-2	6.89E-02	1.80E+01	6.89E-02
Diethylphthalate	84-66-2	3.76E+01	4.90E+03	3.76E+01
2,4-Dimethylphenol	105-67-9	6.45E-01	1.20E+02	6.45E-01
Dimethylphthalate	131-11-3			
4,6-Dinitro-2-methylphenol	534-52-1	2.72E-04	4.90E-01	2.72E-04
2,4-Dinitrophenol	51-28-5	6.00E-03	1.20E+01	6.00E-03
2,4-Dinitrotoluene	121-14-2	2.77E-03	1.60E+00	2.77E-03
2,6-Dinitrotoluene	606-20-2	1.18E-02	6.10E+00	1.18E-02
Fluoranthene	206-44-0	5.56E+02	2.30E+02	2.30E+02
Fluorene	86-73-7	3.40E+01	2.30E+02	3.40E+01
Hexachlorobenzene	118-74-1	1.99E+01	3.00E-01	3.00E-01
Hexachlorobutadiene	87-68-3	1.56E+00	6.20E+00	1.56E+00
Hexachlorocyclopentadiene	77-47-4	5.41E+02	3.70E+01	3.70E+01
Hexachloroethane	67-72-1	6.94E-01	1.20E+01	6.94E-01
Indeno(1,2,3-cd)pyrene	193-39-5	1.03E+01	1.50E-01	1.50E-01
Isophorone	78-59-1	4.87E-01	5.10E+02	4.87E-01
2-Methylnaphthalene	91-57-6	2.02E+00	3.10E+01	2.02E+00
2-Methylphenol	95-48-7	8.58E-01	3.10E+02	8.58E-01
3-Methylphenol	108-39-4	8.74E-01	3.10E+02	8.74E-01
4-Methylphenol	106-44-5	8.42E-02	3.10E+01	8.42E-02
N-Nitroso-di-n-propylamine	621-64-7	4.29E-05	6.90E-02	4.29E-05
N-Nitrosodiphenylamine	86-30-6	1.45E+00	9.90E+01	1.45E+00
Naphthalene	91-20-3	2.98E-02	3.60E+00	2.98E-02
2-Nitroaniline	88-74-4	1.49E-01	6.10E+01	1.49E-01
3-Nitroaniline	99-09-2			
4-Nitroaniline	100-01-6	1.58E-02	2.40E+01	1.58E-02
Nitrobenzene	98-95-3	1.19E-03	4.80E+00	1.19E-03
2-Nitrophenol	88-75-5			
4-Nitrophenol	100-02-7			
2,2'-Oxybis(1-chloropropane)	108-60-1	1.08E-02	4.60E+00	1.08E-02
Pentachlorophenol	87-86-5	7.30E-02	8.90E-01	7.30E-02
Phenanthrene	85-01-8	3.20E+02	1.70E+02	1.70E+02
Phenol	108-95-2	2.37E+00	1.80E+03	2.37E+00
Pyrene	129-00-0	6.55E+01	1.70E+02	6.55E+01
1,2,4,5-Tetrachlorobenzene	95-94-3	7.89E-01	1.80E+00	7.89E-01
2,3,4,6-Tetrachlorophenol	58-90-2		1.80E+02	1.80E+02
2,4,5-Trichlorophenol	95-95-4	1.72E+01	6.10E+02	1.72E+01
2,4,6-Trichlorophenol	88-06-2	1.67E-01	4.40E+01	1.67E-01
Semivolatile Organic Compounds (SVOCs)				
Benzoic Acid	65-85-0	1.20E+01	2.40E+04	1.20E+01

TCL Polychlorinated Biphenyls (PCBs)				
Aroclor-1016	12674-11-2	1.92E+01	3.90E-01	3.90E-01
Aroclor-1221	11104-28-2	2.50E+00	1.40E-01	1.40E-01
Aroclor-1232	11141-16-5	6.19E+00	1.40E-01	1.40E-01
Aroclor-1242	53469-21-9	1.92E+01	2.20E-01	2.20E-01
Aroclor-1248	12672-29-6	7.47E+01	2.20E-01	2.20E-01
Aroclor-1254	11097-69-1	1.47E+02	2.20E-01	2.20E-01
Aroclor-1260	11096-82-5	2.90E+02	2.20E-01	2.20E-01
Aroclor-1262	37324-23-5	2.90E+02	2.20E-01	2.20E-01
Aroclor-1268	11100-14-4	2.90E+02	2.20E-01	2.20E-01
Total PCBs	1336-36-3		2.20E-01	2.20E-01
TCL Pesticides				
Aldrin	309-00-2	6.73E-03	2.90E-02	6.73E-03
alpha-BHC	319-84-6	9.23E-04	7.70E-02	9.23E-04
beta-BHC	319-85-7	3.16E-03	2.70E-01	3.16E-03
delta-BHC	319-86-8	3.02E-03	7.70E-02	3.02E-03
gamma-BHC (lindane)	58-89-9	2.12E-02	5.20E-01	2.12E-02
Chlordane	12789-03-6	2.91E+01	1.60E+00	1.60E+00
alpha-Chlordane	5103-71-9	1.57E+00	1.60E+00	1.57E+00
gamma-Chlordane	5103-74-2	3.25E+00	1.60E+00	1.60E+00
4,4'-DDD	72-54-8	2.78E+01	2.00E+00	2.00E+00
4,4'-DDE	72-55-9	9.41E+00	1.40E+00	1.40E+00
4,4'-DDT	50-29-3	4.29E+01	1.70E+00	1.70E+00
Dieldrin	60-57-1	8.68E-04	3.00E-02	8.68E-04
Endosulfan	115-29-7	1.99E+00	3.70E+01	1.99E+00
Endosulfan I	959-98-8	3.46E+00	3.70E+01	3.46E+00
Endosulfan II	33213-65-9	3.46E+00	3.70E+01	3.46E+00
Endosulfan Sulfate	1031-07-8	2.55E+00	3.70E+01	2.55E+00
Endrin	72-20-8	1.18E+00	1.80E+00	1.18E+00
Endrin Aldehyde	7421-93-4	4.61E-01	1.80E+00	4.61E-01
Endrin Ketone	53494-70-5	1.42E+00	1.80E+00	1.42E+00
Heptachlor	76-44-8	8.49E-01	1.10E-01	1.10E-01
Heptachlor epoxide	1024-57-3	4.88E+00	5.30E-02	5.30E-02
Methoxychlor	72-43-5	2.69E+02	3.10E+01	3.10E+01
Toxaphene	8001-35-2	1.97E+01	4.40E-01	4.40E-01
Chlorinated dioxins/dibenzofurans (CDDs/CDFs)				
2,3,7,8-TCDD	1746-01-6	1.21E-02	4.50E-06	4.50E-06
2,3,7,8-TCDF	51207-31-9			

[\(a\) See Risk-Based Screening Levels Proxy Values](#)

! Carcinogenic RSL < noncarcinogenic RSL @ THQ=1.0

(b) The risk-based screening level for arsenic is usually below the naturally occurring background concentration.

VDEQ recommends that a site-specific background concentration be used as the screening concentration for arsenic.

* Non-carcinogenic RSLs from USEPA's RSL table have been divided by 10 to account for multiple constituents.