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Memo

To:	**David Gould, Environmental Manager, Town of Plymouth**
From:	**Jonathan D. Kitchen, PG, LSP**
CC:	**Joseph P. Salvetti, LSP**
Date:	**May 3, 2012**
Re:	**Stephen's Field Environmental Areas of Concern**

Norfolk has been working with the Town of Plymouth (the Town) to evaluate environmental conditions associated with Stephen's Field and the adjacent former Department of Public Works (DPW) facility. During this investigation, four release conditions were identified. All but one of these release conditions or areas of concern (AOCs) are isolated to the former DPW facility. The four AOCs identified are as follows:

- Historic Fill – AOC-1
- Existing Diesel Fuel Underground Storage Tank (UST) – AOC-2
- Soil Impacts Near Floor Drain Discharge – AOC-3
- Soil and Groundwater Impacts Near Possible Former USTs (Previously Removed) – AOC-4

<u>AOC 1 Historic Fill</u>
The area of the park is shown on historic maps from the late 1800s as a wetland. The wetland was likely filled in the late 1800s or early 1900s. As was typical at that time, the fill consisted of a mix of materials including "borrow" soil from other properties, household waste (including bottles, ceramics, and paper), ash and coal wastes, and construction debris such as brick and wood. This type of material is often referred to as "urban fill" or "historic fill." This material is very common and is typical of fill that could be found in other areas of Plymouth or any other city or town with a similar history of development.

Although urban fill is common, it does have a potential to contain constituents that can present a health risk. Based upon the identification of urban fill during the initial environmental assessment, Norfolk was engaged to further investigate the nature and extent of the fill. Norfolk sampled the area of the park extensively through drilling of dozens of soil borings and found that the historic fill exists under almost the entire park and is covered by several inches of top soil or other non-urban fill material (i.e. cover material). Norfolk collected numerous samples of both the urban fill and the cover material and submitted the samples for laboratory analyses. The data collected

indicated that lead, arsenic, and polynuclear aromatic hydrocarbons (PAHs, compounds often associated with ash and/or coal) were detected in some samples at concentrations which exceed applicable soil standards prepared by the Massachusetts Department of Environmental Protection (DEP) and presented in the Massachusetts Contingency Plan (MCP). Because these constituents relate to coal and ash these concentrations may be exempt from reporting under the MCP. If the concentrations were reported under the MCP, it is Norfolk's opinion based upon available data, that a condition of "no significant risk" (as that term is defined in the MCP) would exist and regulatory closure could be obtained with no additional actions (i.e. no removal of fill or covering of fill). This is because risk assessment under the MCP is based upon average concentrations over an area where a person is likely to be exposed (e.g. the area of the entire park) rather than concentrations at one discrete location or sample.

As we have discussed, the Town will report the fill material as a release to the DEP. The release notification form (RNF) would be filed concurrent with a Class B-1 Response Action Outcome (RAO) Statement. The filing would be due to DEP by June 2, 2012. The Class B-1 RAO Statement is a document which establishes that regulatory closure has been achieved and a condition of no significant risk exists without the need for any remedial actions. This RAO Statement will document that the current use of the park is acceptable under a state established regulatory framework. The document will be available to the public via a DEP website.

In the future the Town could take steps to reduce exposure potential. One option would be the placement of additional clean fill material over the urban fill at the time the park is refurbished.

Norfolk has had dialog with the DEP regarding the approach to the historic fill release condition.

<u>AOC-2 Existing Diesel Fuel Underground Storage Tank (UST)</u>
The existing diesel fuel UST has been located, uncovered, and backfilled for safety. Soil contamination is evident around the UST. Some assessment data is available but it is uncertain the degree to which any contamination extends beneath the former DPW building. The DEP was notified of the reporting condition in regards to the existing diesel fuel UST on January 27, 2012. The Town submitted a Release Notification Form (RNF) on March 26, 2012 and an Immediate Release Action (IRA) Plan on March 27, 2012. The objective of the IRA Plan is to remove the tank and a limited quantity of impacted soil in the vicinity of the tank. Once these remedial actions have been completed and if soil impacts are limited, and no groundwater impacts are identified, the Town will submit a Release Action Outcome (RAO) Report which indicates this release has achieved regulatory closure.

<u>AOC-3 Soil Impacts Near Floor Drain Discharge</u>
The Town is required to report the release conditions related to the soil impacts near the floor drain discharge to the DEP. A RNF needs to be submitted within 120 days of notice of the release. Specifically notification is required by June 2, 2012. Norfolk collected soil samples from this area and submitted the samples for laboratory analyses. The data collected indicated that extractable petroleum hydrocarbon (EPH) fractions, a volatile petroleum hydrocarbon fraction, PAHs, arsenic, cadmium, and nickel were detected in some samples at concentrations which exceed applicable soil standards. The elevated level of arsenic near this area is believed to be attributed to past pesticide applications around the DPW building. Further evaluation and assessment will be

conducted to decide a final remedial approach. Soil removal is likely to be required. The concentration of arsenic at this area may preclude disposal/reuse via asphalt batching, potentially requiring use of more expensive alternatives for transport and disposal.

AOC-4 Soil and Groundwater Impacts Near Possible Former USTs (Previously Removed)

The Town is required to report the release conditions related to the soil and groundwater impacts near possible former USTs to the DEP. A RNF needs to be submitted within 120 days of notice of the release. Specific notification is required by June 2, 2012. Norfolk collected soil samples from this area and submitted the samples for laboratory analyses. The data collected indicated that a VPH fraction was detected in a soil sample at a concentration which exceeded applicable soil standards. Norfolk collected groundwater samples from onsite monitoring wells and submitted the samples for laboratory analyses. The data collected indicated that EPH fractions and PAHs compounds were detected in groundwater samples at concentrations which exceeded applicable groundwater standards. Further evaluation and assessment will be conducted to decide a final remedial approach. Some additional evaluation of soil and groundwater will likely be required. However, it is possible that soil in this area may not require removal.

Norfolk recommends that these two remaining AOCs (3 and 4) be grouped together for the purposes of release reporting. If these releases have not achieved regulatory closure within one year, Norfolk may recommend linking to the release tracking number (RTN) for the existing diesel fuel UST or filing of a Special Project Application for the overall site/project.

FIGURES

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Figure 1
Site Locus Map
132R Sandwich Street
Plymouth, Massachusetts
Source: MassGIS DataViewer
Project No.: 1153.012.01

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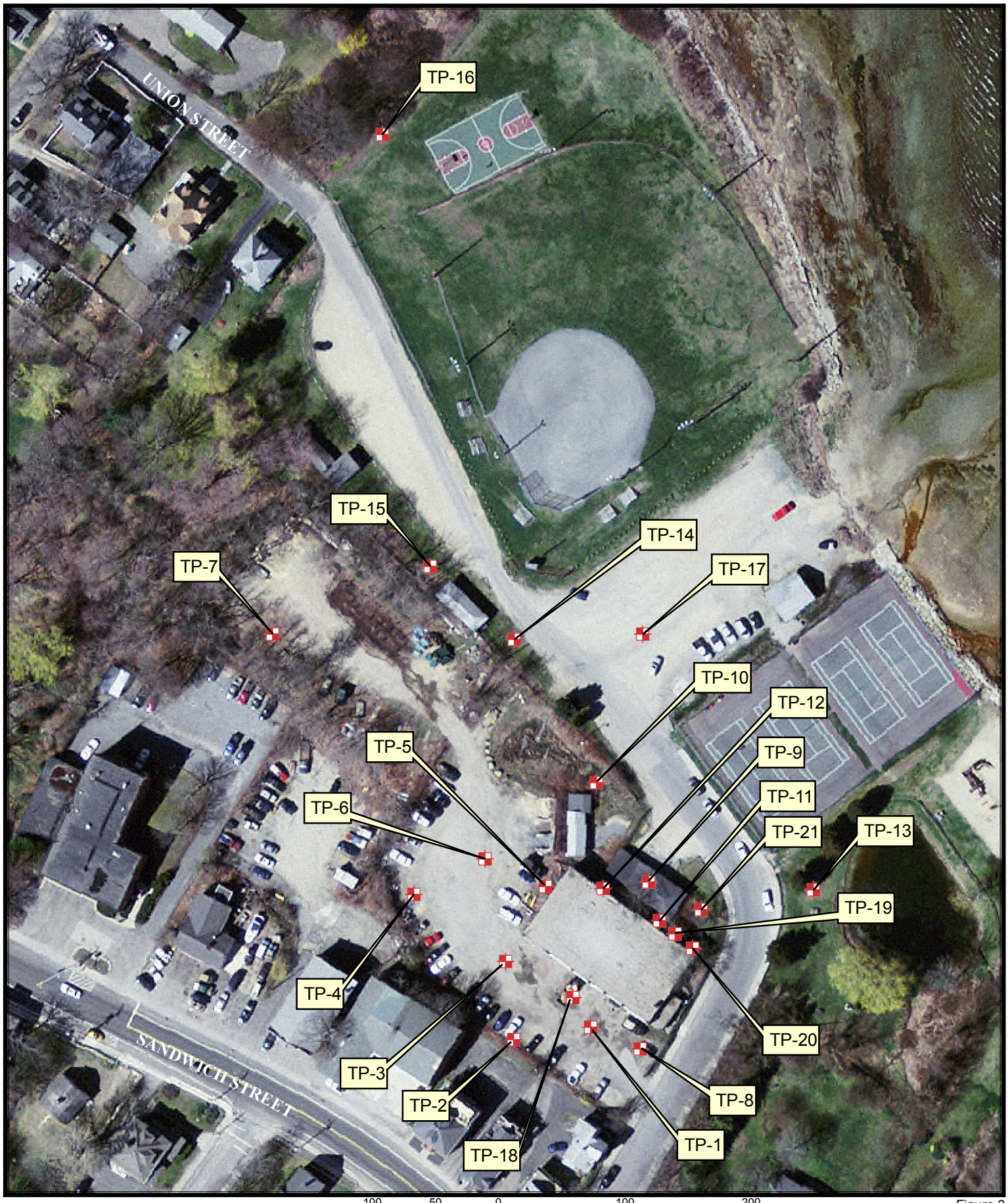
100 50 0 100 200
Scale: 1" = 100'
N

Figure 2
Site Map
132 R Sandwich Street
Stephen's Field
Plymouth, Massachusetts
Source: MassGIS DataViewer
Project#: 1153.012.01



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100 50 0 100 200
Scale: 1" = 100'

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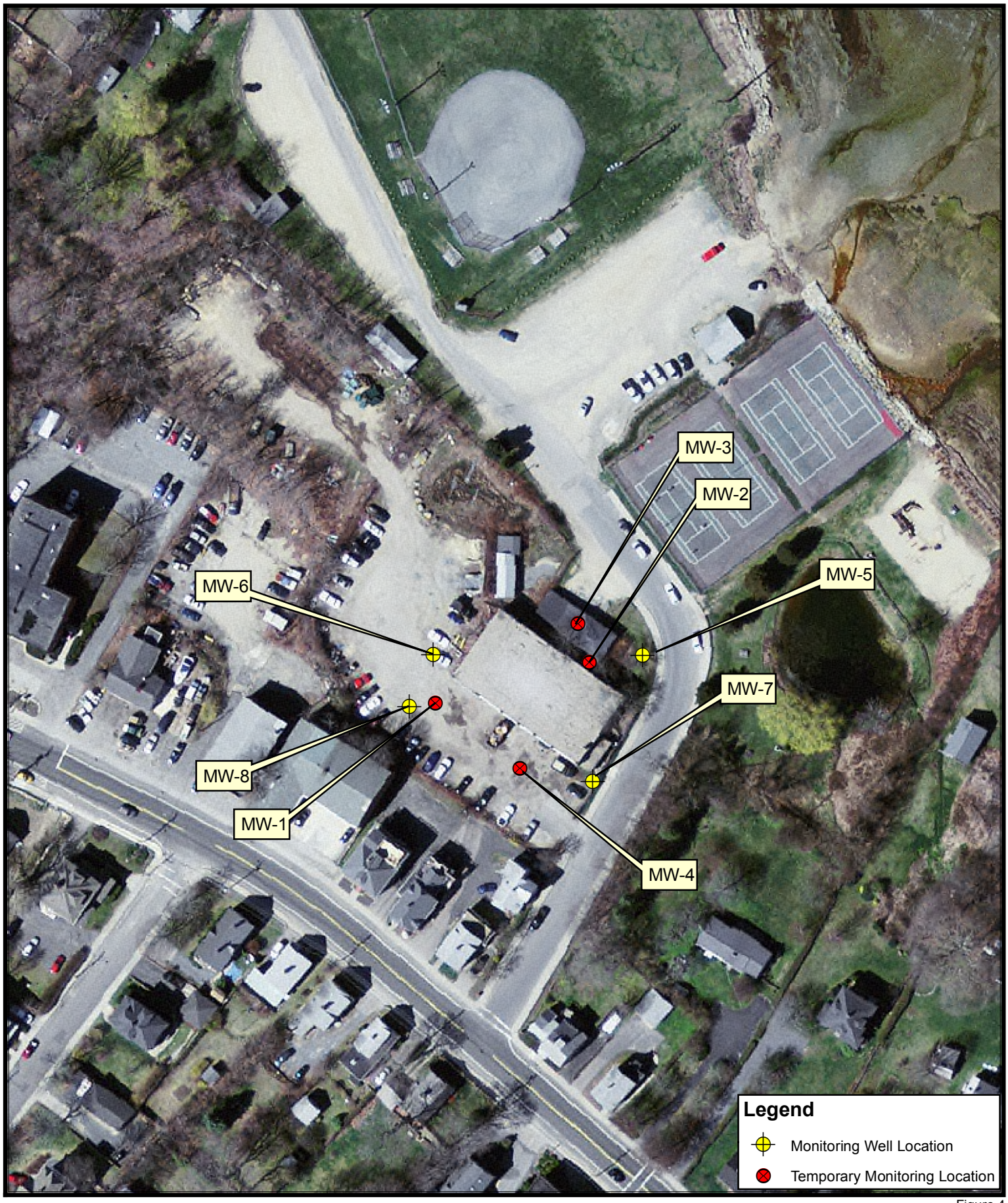
Figure 3
Testpit Locations Aerial Map
132 R Sandwich Street & Stephen's Field
Plymouth, Massachusetts
Source: MassGIS DataViewer
Project#: 1153.012.01



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100 50 0 100 200
Scale: 1" = 100'
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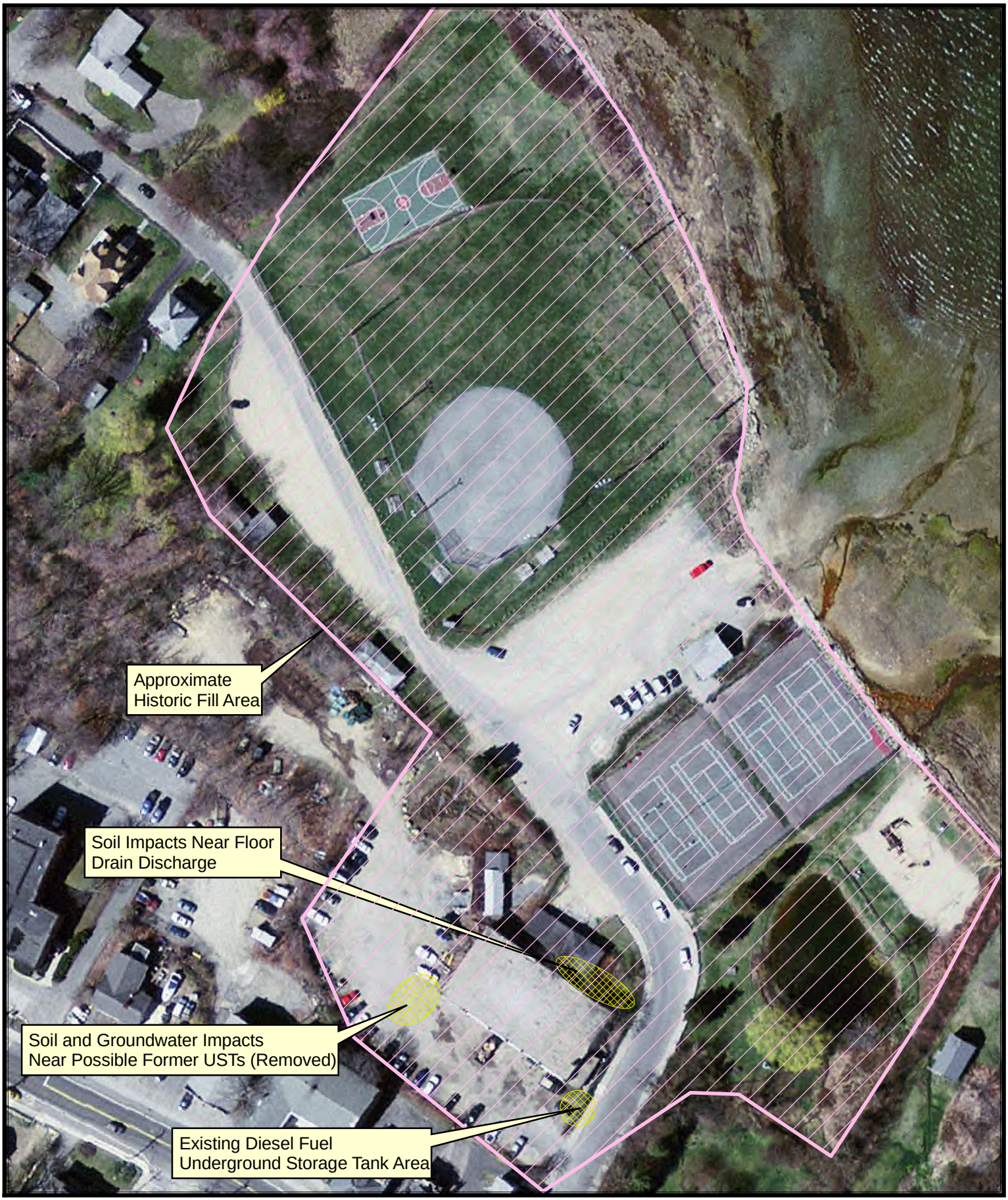
Figure 4
Groundwater Monitoring Wells Map
132 R Sandwich Street & Stephen's Field
Plymouth, Massachusetts
Source: MassGIS DataViewer
Project#: 1153.012.01



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Scale: 1" = 100'
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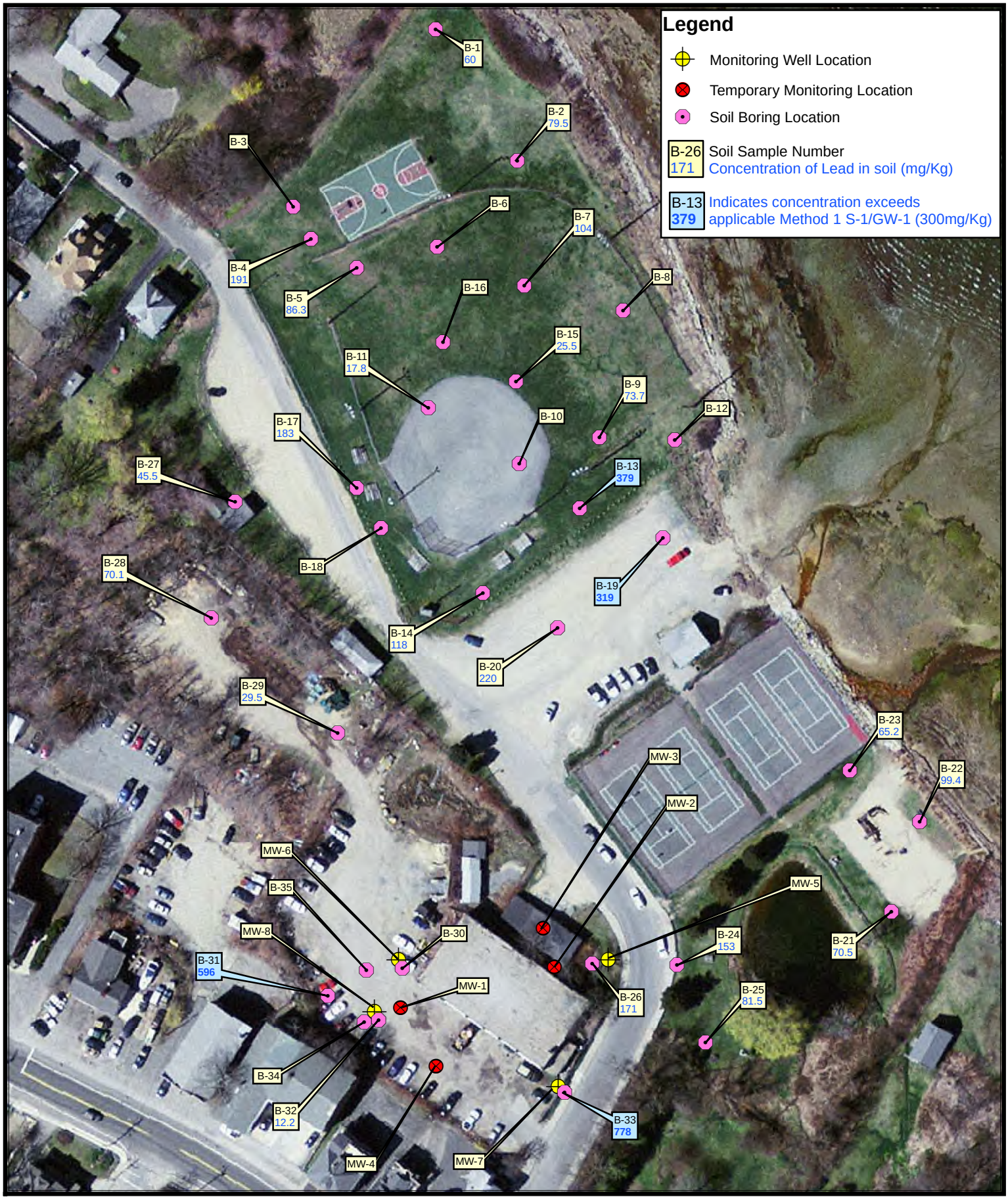
Figure 5
Areas of Concern Map
Stephen's Field
Plymouth, Massachusetts
Source: MassGIS DataViewer
Project#: 1153.012.01



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100 50 0 100 200
Scale: 1" = 100'

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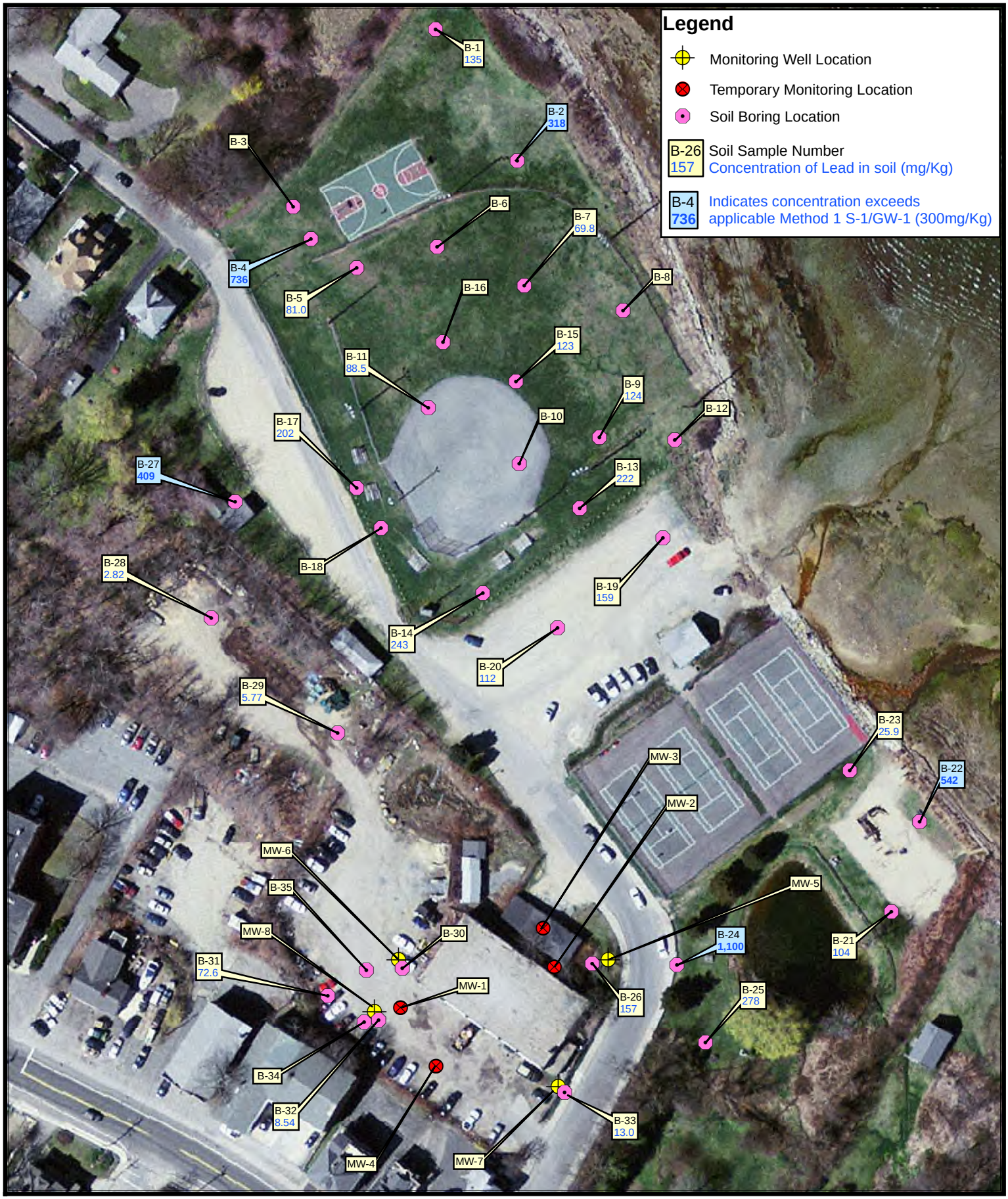
Figure 6
Soil Boring Location Map
Shallow Soil Samples
Stephen's Field
Plymouth, Massachusetts
Source: MassGIS DataViewer
Project#: 1153.012.01



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100 50 0 100 200
Scale: 1" = 100'

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Figure 7
Soil Boring Location Map
Deep Soil Samples
Stephen's Field
Plymouth, Massachusetts
Source: MassGIS DataViewer
Project#: 1153.012.01

TABLES

Table 1
Extractable Petroleum Hydrocarbons and Polynuclear Aromatic Hydrocarbons Detected in Soil
Stephen's Field
Plymouth, Massachusetts
(mg/Kg)

Sample ID	Date Sampled	Sample Depth Below Grade	Extractable Petroleum Hydrocarbons			Polynuclear Aromatic Hydrocarbons																
			C_9-C_{18} Aliphatics	C_{19}-C_{36} Aliphatics	C_{11}-C_{22} Aromatics	Naphthalene	2-Methylnaphthalene	Acenaphthene	Phenanthrene	Acenaphthylene	Fluorene	Anthracene	Fluoranthene	Pyrene	Benzo(a)Anthracene	Chrysene	Benzo(b)Fluoranthene	Benzo(k)Fluoranthene	Benzo(a)Pyrene	Indeno(1,2,3-c,d)Pyrene	Dibenzo(a,h)Anthracene	Benzo(g,h,i)Perylene
TP-11 Fill	1/19/2012	3'	**2,500**	**12,000**	**4,400**	**24**	**12**	1.0	6.9	0.8	1.4	1.5	6.3	8.2	3.9	1.1	BRL<0.4	BRL<0.4	1.2	0.9	BRL<0.4	0.6
TP-8 Fill	1/19/2012	2-3'	BRL<28	32	56	1.5	0.5	BRL<0.5	1.3	BRL<0.5	BRL<0.5	BRL<0.5	1.5	1.4	0.8	0.9	0.7	1.5	0.8	BRL<0.5	BRL<0.5	0.8
TP-3 Fill	1/19/2012	3'	BRL<25	BRL<25	83	BRL<0.4	BRL<0.4	BRL<0.4	2.5	BRL<0.4	BRL<0.4	0.9	5.9	5.7	3.7	3.6	2.4	3.2	**2.9**	1.3	0.7	1.1
TP-12 Fill	1/19/2012	0-3'	BRL<28	BRL<28	BRL<28	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5	BRL<0.5
TP-16 Fill	1/19/2012	0-3'	BRL<25	28	BRL<25	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	0.4	0.5	BRL<0.4	BRL<0.4	BRL<0.4	0.5	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4
TP-13 Fill	1/19/2012	0-3'	BRL<25	50	67	BRL<0.4	BRL<0.4	BRL<0.4	1.3	BRL<0.4	BRL<0.4	BRL<0.4	3.8	4.0	2.3	2.4	1.8	2.3	**2.3**	1.2	0.4	1.1
TP-6 Fill	1/19/2012	3'	BRL<25	49	BRL<25	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4	BRL<0.4
TP-19 Fill	1/24/2012	3'	**2,800**	1,200	**4,900**	1.3	**1.1**	1.3	**13**	**1.1**	1.3	1.6	10	12	4.7	5.8	2.7	3.6	**3.0**	0.9	BRL<0.5	1.0
B-4 Topsoil	2/14/2012	0-4"	NA	NA	NA	BRL<0.252	BRL<0.252	BRL<0.252	.256	BRL<0.252	BRL<0.252	BRL<0.252	.598	.551	.332	.359	.362	.451	.407	BRL<0.252	BRL<0.252	BRL<0.252
B-4 Fill	2/14/2012	4-25"	NA	NA	NA	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217	BRL<0.217
B-15 Topsoil	2/14/2012	0-20"	NA	NA	NA	BRL<0.202	BRL<0.202	BRL<0.202	BRL<0.202	BRL<0.202	BRL<0.202	BRL<0.202	.511	.431	.303	.322	.278	.297	.327	.204	BRL<0.202	BRL<0.202
B-15 Fill	2/14/2012	20-36"	NA	NA	NA	BRL<0.212	BRL<0.212	BRL<0.212	.470	BRL<0.212	BRL<0.212	BRL<0.212	.795	.721	.445	.383	.332	.345	.367	.224	BRL<0.212	BRL<0.212
B-22 Topsoil	2/14/2012	0-8"	NA	NA	NA	BRL<0.208	BRL<0.208	BRL<0.208	.292	BRL<0.208	BRL<0.208	BRL<0.208	.528	.512	.407	.268	.333	.379	.512	BRL<0.208	BRL<0.208	BRL<0.208
B-22 Fill	2/14/2012	19-33"	NA	NA	NA	BRL<0.234	BRL<0.234	BRL<0.234	3.7	BRL<0.234	BRL<0.234	.323	4.69	4.09	1.95	1.67	1.5	1.33	1.21	.661	BRL<0.234	.537
B-30 Fill	2/14/2012	3-4'	BRL<24	68	200	0.4	BRL<0.4	0.9	9.8	BRL<0.4	2.1	3.3	13	11	6.4	6.3	4.5	4.5	**4.9**	1.7	0.8	1.5
B-32 Fill	2/14/2012	3-4'	BRL<23	BRL<23	81	BRL<0.4	BRL<0.4	BRL<0.4	5	BRL<0.4	0.5	1.3	6	5.9	3	2.9	2.1	2.4	**2.9**	1.1	0.5	1.1
Average Concentration in Topsoil (Shallow Interval)			NA	NA	NA	0.1	0.11	0.11	0.17	0.11	0.11	0.11	0.55	0.50	0.35	0.32	0.32	0.38	0.42	1.35	0.11	0.11
Average Concentration in Fill (Deeper Interval)			540.15	1,346.5	982.6	2.2	**1.18**	0.38	3.44	0.3	0.53	0.79	4.07	4.16	2.15	1.99	1.31	1.57	1.56	0.69	0.31	0.66
Method 1 Soil Standards (310 CMR 40.0975(6)); 2/14/2008																						
S-1 & GW-1			1000	3000	1000	4	0.7	4	10	1	1000	1000	1000	1000	7	70	7	70	2	7	0.7	1000
S-1 & GW-2			1000	3000	1000	40	80	1000	500	600	1000	1000	1000	1000	7	70	7	70	2	7	0.7	1000
S-1 & GW-3			1000	3000	1000	500	300	1000	500	10	1000	1000	1000	1000	7	70	7	70	2	7	0.7	1000
Background Levels in Soil Containing Coal Ash or Wood Ash Associated with Fill Material, *MADEP Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil, May 2002*																						
			NS	NS	NS	1	1	2	20	1	2	4	10	20	9	7	8	4	7	3	1	3

Notes:
mg/Kg - milligrams per kilogram dry weight.
BRL<34 indicates concentration, if any, is below reporting limit for analyte.
NA - sample not analyzed for this analyte.
NS - no standard available.
Bold indicates concentration exceeds one or more Method 1 Soil Standards.
Average Concentrations were calculated using the average of analyzed samples (analytes which were below the detection limit; half the detction limit was used)

Table 2
Volatile Petroleum Hydrocarbons and Volatile Organic Compounds Detected in Soil
Stephen's Field
Plymouth, Massachusetts
(mg/Kg)

Sample ID	Date Sampled	Sample Depth (feet below grade)	Volatile Petroleum Hydrocarbons			Volatile Organic Compounds					
			C_5-C_8 Aliphatics	C_9-C_{12} Aliphatics	C_9-C_{10} Aromatics	Methyl tert-Butyl Ether (MTBE)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
TP-11	1/19/2012	3	85	310	**300**	BRL<0.05	BRL<0.27	0.08	2.6	0.48	1.7
TP-8	1/19/2012	2-3	8.7	34	20	BRL<0.08	BRL<0.38	0.61	BRL<0.38	0.61	0.57
TP-3	1/19/2012	3	**110**	4.4	BRL<3.7	BRL<0.07	BRL<0.37	BRL<0.37	BRL<0.37	BRL<0.37	BRL<0.37
TP-12	1/19/2012	0-3	BRL<4.4	BRL<4.4	BRL<4.4	BRL<0.09	BRL<0.45	BRL<0.45	BRL<0.45	BRL<0.45	BRL<0.45
TP-4	1/19/2012	3	BRL<4.4	BRL<4.4	BRL<4.4	BRL<0.09	BRL<0.44	BRL<0.44	BRL<0.44	BRL<0.44	BRL<0.44
TP-19	1/24/2012	3	**430**	150	73	**BRL<0.19**	BRL<0.95	BRL<0.95	BRL<0.95	BRL<0.95	BRL<0.2
B-30	2/14/2012	3-4	BRL<5	BRL<5	BRL<5	BRL<0.10	BRL<0.50	BRL<0.50	BRL<0.50	BRL<0.50	BRL<0.50
B-32	2/14/2012	3-4	**115**	208	87	BRL<0.05	BRL<0.27	BRL<0.27	0.9	0.34	0.65
Method 1 Soil Standards (310 CMR 40.0975(6)); 2/14/2008											
S-1 & GW-1			100	1000	100	0.1	2	30	40	400	4
S-1 & GW-2			100	1000	100	100	30	300	500	300	40
S-1 & GW-3			100	1000	100	100	30	500	500	500	500

Notes:
mg/Kg - milligrams per kilogram dry weight.
BRL<2.5 indicates concentration, if any, is below reporting limit for analyte.
NS - no standard available.
Bold indicates concentration exceeds one or more Method 1 Soil Standards
Samples TP-11 and TP-19 were also analyzed by EPA Method 8260. Low concentrations (<3.2 mg/Kg) of various petroleum related VOCs were detected in
However, all concentrations were below the most stringent Method 1 Standards.

Table 3
Metals and PCBs Detected in Soil
Stephen's Field
Plymouth, Massachusetts
(mg/Kg)

Sample ID	Date Sampled	Sample Depth (feet below grade)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Polychlorinated Biphenyls (PCBs)
TP-11	1/19/2012	3	4.9	5.1	110	BRL<0.041	0.4	10	230	BRL<0.1	6.6	BRL<2	BRL<0.82	BRL<2.0	11	250	BRL<0.9
TP-3	1/19/2012	3	BRL<5.1	3.1	31	BRL<0.051	0.29	18	16	BRL<0.12	9.1	BRL<3	BRL<1.0	BRL<2.6	29	28	NA
TP-12	1/19/2012	0-3	BRL<5.7	**34**	80	0.17	1.0	6.2	**450**	0.21	7.8	BRL<3	BRL<1.2	BRL<2.9	24	230	NA
TP-16	1/19/2012	0-3	BRL<5.6	8.7	270	BRL<0.056	0.37	10	**450**	0.34	13	BRL<3	BRL<1.1	BRL<2.8	25	100	NA
TP-13	1/19/2012	0-3	BRL<5.2	20	560	BRL<0.052	1.0	15	**460**	BRL<0.12	9.1	BRL<3	BRL<1.0	BRL<2.6	24	340	NA
TP-5	1/19/2012	3	BRL<4.5	3.3	10	BRL<0.045	BRL<0.22	2.8	8.1	BRL<0.12	1.0	BRL<2	BRL<0.9	BRL<2.2	12	9.4	NA
TP-19	1/24/2012	3	BRL<7.28	**41**	250	0.46	**3.7**	16	220	BRL<0.14	**22**	BRL<4	BRL<1.5	BRL<3.6	53	410	BRL<0.9
Method 1 Soil Standards (310 CMR 40.0975(6)); 2/14/2008																	
S-1 & GW-1			20	20	1,000	0.70	2	30	300	20	20	400	100	8	600	2,500	2
S-1 & GW-2			20	20	1,000	0.70	2	30	300	20	20	400	100	8	600	2,500	2
S-1 & GW-3			20	20	1,000	0.70	2	30	300	20	20	400	100	8	600	2,500	2
Background Levels in "Natural' Soil,*MADEP Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil, May 2002*																	
			1	20	50	0.4	2	30	100	0.3	20	0.5	0.6	0.6	30	100	NS
Background Levels in Soil Containing Coal Ash or Wood Ash Associated with Fill Material,*MADEP Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil, May 2002*																	
			7	20	50	0.9	3	40	600	1	30	1	5	5	30	300	NS

Notes:
mg/Kg - milligrams per kilogram dry weight.
BRL<0.3 indicates concentration is below laboratory reporting limit for analyte.
Bold indicates concentration exceeds applicable Method S-1 / GW-1.

Table 4
Arsenic and Lead in Soil
Stephen's Field
Plymouth, Massachusetts
(mg/Kg)

Sample ID	Date Sampled	Sample Depth Below Grade	Arsenic	Lead
TP-11 Fill	1/19/2012	3'	5.1	230
TP-3 Fill	1/19/2012	3'	3.1	16
TP-12 Fill	1/19/2012	0-3'	**34**	**450**
TP-16 Fill	1/19/2012	0-3'	8.7	**450**
TP-13 Fill	1/19/2012	0-3'	20	**460**
TP-5 Fill	1/19/2012	3'	3.3	8.1
TP-19 Fill	1/24/2012	3'	**41**	220
B-1 Topsoil	2/14/2012	0-6"	3.79	60
B-1 Fill	2/14/2012	6-16"	4.77	135
B-2 Topsoil	2/14/2012	0-6"	NA	79.5
B-2 Fill	2/14/2012	6-28"	NA	**318**
B-4 Topsoil	2/14/2012	0-4"	NA	191
B-4 Fill	2/14/2012	4-25"	NA	**736**
B-5 Topsoil	2/14/2012	0-7.5"	NA	86.3
B-5 Fill	2/14/2012	7.5-28"	NA	81.0
B-7 Topsoil	2/14/2012	0-10"	NA	104
B-7 Fill	2/14/2012	10-30"	NA	69.8
B-9 Topsoil	2/14/2012	0-8"	NA	73.7
B-9 Fill	2/14/2012	8-28"	NA	124
B-11 Topsoil	2/14/2012	3-14"	NA	17.8
B-11 Fill	2/14/2012	14-28"	NA	88.5
B-13 Topsoil	2/14/2012	0-7"	NA	**379**
B-13 Fill	2/14/2012	7-20"	NA	222
B-14 Topsoil	2/14/2012	0-6.5"	NA	118
B-14 Fill	2/14/2012	6.5-26.5"	NA	243
B-15 Topsoil	2/14/2012	0-20"	4.56	25.5
B-15 Fill	2/14/2012	20-36"	4.59	123
B-17 Topsoil	2/14/2012	0-9"	NA	183
B-17 Fill	2/14/2012	19-26"	NA	202
B-19 Topsoil	2/14/2012	0-14"	NA	**319**
B-19 Fill	2/14/2012	14-17"	NA	159
B-20 Topsoil	2/14/2012	0-4"	NA	220
B-20 Fill	2/14/2012	4-29"	NA	112
B-21 Topsoil	2/14/2012	0-4"	NA	70.5
B-21 Fill	2/14/2012	8-24"	NA	104
B-22 Topsoil	2/14/2012	0-8"	5.61	99.4
B-22 Fill	2/14/2012	19-33"	9.37	**542**
Playground Sand	2/14/2012	0-4"	2.95	6.46
B-23 Topsoil	2/14/2012	0-8"	NA	65.2
B-23 Fill	2/14/2012	8-36"	NA	25.9
B-24 Topsoil	2/14/2012	0-10"	NA	153
B-24 Fill	2/14/2012	10-21"	NA	**1,100**
B-25 Topsoil	2/14/2012	0-7"	NA	81.5
B-25 Fill	2/14/2012	7-27"	NA	278
B-26 Topsoil	2/14/2012	0-6"	NA	171
B-26 Fill	2/14/2012	9-23"	NA	157
B-27 Topsoil	2/14/2012	0-4"	5.79	45.5
B-27 Fill	2/14/2012	17-24"	18.7	**409**
B-28 Topsoil	2/14/2012	0-5"	NA	70.1
B-28 Fill	2/14/2012	5-31"	NA	2.82
B-29 Topsoil	2/14/2012	0-4"	NA	29.5
B-29 Fill	2/14/2012	4-30.5"	NA	5.77
B-31 Topsoil	2/14/2012	0-8"	NA	**596**
B-31 Fill	2/14/2012	8-19"	NA	72.6
B-32 Topsoil	2/14/2012	0-19"	NA	12.2
B-32 Fill	2/14/2012	19-33"	NA	8.54
B-33 Topsoil	2/14/2012	0-3"	**46.1**	**778**
B-33 Fill	2/14/2012	3-13"	2.95	13.0
Average Concnetrations in Topsoil (Shallow Interval)			11.47	155.20
Average Concentrations in Fill (Deeper Interval)			12.97	223.94
Method 1 Soil Standards (310 CMR 40.0975(6)); 2/14/2008				
S-1 & GW-1			20	300
S-1 & GW-2			20	300
S-1 & GW-3			20	300
Background Levels in Soil Containing Coal Ash or Wood Ash Associated with Fill Material, *MADEP Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil, May 2002*			20	600

Notes:
mg/Kg - milligrams per kilogram dry weight.
BRL<0.3 indicates concentration is below laboratory reporting limit for analyte.
Bold indicates concentration exceeds applicable Method S-1 / GW-1
NS indicates no standard
NA indicates analyte not analyzed

Table 5
Extractable Petroleum Hydrocarbons and Polynuclear Aromatic Hydrocarbons Detected in Groundwater
Stephen's Field
Plymouth, Massachusetts
(ug/L)

Sample Identification Number	Date Sampled	Extractable Petroleum Hydrocarbons			Polynuclear Aromatic Hydrocarbons												
		C_9-C_{18} Aliphatic	C_{19}-C_{36} Aliphatic	C_{11}-C_{22} Aromatics	Naphthalene	2-Methylnaphthalene	Phenanthrene	Acenaphthene	Fluorene	Benzo[a]anthracene	Chrysene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Benzo[a]pyrene	Indeno[1,2,3-c,d]pyrene	Dibenzo[a,h]anthracene	Benzo[g,h,i]perylene
MW-1	1/20/2012	BRL<100	120	**380**	7.2	1.4	4.4	1.3	2	**17**	**15**	**19**	**19**	**22**	**10**	**4.6**	8.2
MW-2	1/20/2012	BRL<100	290	150	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<0.2	BRL<0.2	BRL<0.2	BRL<0.2	0.1	0.1	BRL<0.1	0.1
MW-3	1/20/2012	BRL<100	BRL<100	BRL<100	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<0.2	BRL<0.2	BRL<0.2	BRL<0.2	0.1	BRL<0.1	BRL<0.1	BRL<0.1
MW-4[1]	2/3/2012	BRL<100	BRL<100	BRL<100	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<0.2	BRL<0.2	BRL<0.2	BRL<0.2	0.2	0.1	BRL<0.1	0.1
MW-5[1]	3/2/2012	BRL<100	BRL<100	BRL<100	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<0.2	BRL<0.2	BRL<0.2	BRL<0.2	BRL<0.1	BRL<0.1	BRL<0.1	BRL<0.1
MW-6[1]	3/2/2012	BRL<110	BRL<110	BRL<110	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<0.2	BRL<0.2	BRL<0.2	BRL<0.2	BRL<0.1	BRL<0.1	BRL<0.1	BRL<0.1
MW-7[1]	3/2/2012	BRL<100	BRL<100	BRL<100	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<0.2	BRL<0.2	BRL<0.2	BRL<0.2	BRL<0.1	BRL<0.1	BRL<0.1	BRL<0.1
MW-8[1]	3/2/2012	BRL<100	BRL<100	BRL<100	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	BRL<1.0	0.9	0.7	1.0	0.8	**1.2**	**0.7**	0.2	0.5
Method 1 Groundwater Standards (310 CMR 40.0974(2)); 12/14/2007																	
GW-1		700	14,000	200	140	10	40	20	30	1	2	1	1	0.2	0.5	0.5	300
GW-2		5,000	NS	50,000	1,000	2,000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GW-3		50,000	50,000	5,000	20,000	20,000	10,000	6,000	40	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000

Notes:
ug/L - micrograms per liter.
BDL < 10 Indicates concentration is below reporting limit for analyte.
NS - no standard available.
Bold indicates concentration exceeds Method 1 GW-1 Groundwater Standard.
[1] Sample filtered in field with 0.45-micron filter.

Table 6
Volatile Petroleum Hydrocarbons and Volatile Organic Compounds in Groundwater
Stephen's Field
Plymouth, Massachusetts
(ug/L)

Sample Identification Number	Date Sampled	Volatile Petroleum Hydrocarbons			Volatile Organic Compounds					
		C_5-C_8 Aliphatics	C_9-C_{12} Aliphatics	C_9-C_{10} Aromatics	Methyl tert-Butyl Ether (MTBE)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene
MW-1	1/20/2012	BRL<50	BRL<50	BRL<50	BRL<5	BRL<5	BRL<5	BRL<5	BRL<5	36
MW-2	1/20/2012	64	BRL<50	56	BRL<5	BRL<5	BRL<5	BRL<5	2	BRL<5
MW-3	1/20/2012	BRL<50	BRL<50	BRL<50	BRL<5	BRL<5	BRL<5	BRL<5	BRL<5	BRL<5
MW-6	3/2/2012	BRL<50	BRL<50	BRL<50	BRL<5	BRL<5	BRL<5	BRL<5	BRL<5	BRL<5
MW-8	3/2/2012	BRL<50	BRL<50	BRL<50	BRL<5	BRL<5	BRL<5	BRL<5	BRL<5	BRL<5
Method 1 Groundwater Standards (310 CMR 40.0974(2)); 12/14/2007										
GW-1		300	700	200	70	5	1,000	700	10,000	140
GW-2		3,000	5,000	7,000	50,000	2,000	50,000	20,000	9,000	1,000
GW-3		50,000	50,000	50,000	50,000	10,000	40,000	5,000	5,000	20,000

Notes:
ug/L - micrograms per liter
BDL < 10 Indicates concentration is below reporting limit for analyte.
Bold indicates concentration exceeds Method 1 GW-1 Groundwater Standard.
Sample from MW-2 (1/20/2012) was also analyzed for VOCs by EPA Method 8260. Low concentrations (<4 ug/L) of several VOCs were detected. All concentrations were below the most stringent Method 1 Standards.
MW-8 (3/2/2012) was also sampled for VOCs by EPA Method 8260. Chloromethane was detected at 19 ug/L.
Monitoring wells installed for purpose of evaluation of other release conditions detected in groundwater samples are attributed to other releases and coal ash which will be discussed with other RTNs.

Table 7
Dissolved Metals Detected in Groundwater
Stephen's Field
Plymouth, Massachusetts
(ug/L)

Sample Identification Number	Date Sampled	MCP Metals			
		Barium	Zinc	Arsenic	Lead
MW-2	1/20/2012	136	352	4	5
MW-8	3/2/2012	37	20	2	5
Method 1 Groundwater Standards (310 CMR 40.0974(2)); 12/14/2007					
GW-1		2,000	5,000	10	15
GW-2		NS	NS	NS	NS
GW-3		50,000	900	900	10

Notes:
ug/L - micrograms per liter
Bold indicates concentration exceeds Method 1 GW-1 Groundwater Standard.
NS indicates no standard available for analyte
Groundater samples were filtered in the field with a 0.45 micron filter.

ANALYTICAL DATA

R.I. ANALYTICAL
Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Date Received: 1/23/12
Date Reported: 1/31/12
P.O. #:
Work Order #: 1201-01468

DESCRIPTION: PROJECT# 1153.12.1 STEPHENS FIELD

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.
The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844

This Certificate represents all data associated with the referenced work order and is paginated for completeness. The complete Certificate includes one attachment; the original Chain of Custody.

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:

Data Reporting

enc: Chain of Custody

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 001
SAMPLE DESCRIPTION: TP-11 (3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 09:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
PCB						
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1242	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1254	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1260	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1262	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1268	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Surrogate			RANGE	SW-846 8082	1/27/12	JEB
Tetrachloro-m-xylene (TCMX)	51		30-150%	SW-846 8082	1/27/12	JEB
Decachlorobiphenyl	13*		30-150%	SW-846 8082	1/27/12	JEB
Extraction date	Extracted			SW846 3546	1/24/12	BJK
VPH						
Unadjusted C5-C8 Aliphatics(FID)	85	2.7	mg/kg dry	MADEP	1/26/12	EC
Unadjusted C9-C12 Aliphatics (FID)	610	2.7	mg/kg dry	MADEP	1/26/12	EC
Methyl-tert-butylether	<0.05	0.05	mg/kg dry	MADEP	1/26/12	EC
Benzene	<0.27	0.27	mg/kg dry	MADEP	1/26/12	EC
Toluene	<0.27	0.27	mg/kg dry	MADEP	1/26/12	EC
Ethylbenzene	2.6	0.27	mg/kg dry	MADEP	1/26/12	EC
m,p-Xylene	<0.27	0.27	mg/kg dry	MADEP	1/26/12	EC
o-Xylene	<0.27	0.27	mg/kg dry	MADEP	1/26/12	EC
Total Xylene	<0.27	0.27	mg/kg dry	MADEP	1/26/12	EC
Naphthalene	0.81	0.27	mg/kg dry	MADEP	1/26/12	EC
Adjusted C5-C8 Aliphatics(FID)	85	2.7	mg/kg dry	MADEP	1/26/12	EC
Adjusted C9-C12 Aliphatics(FID)	310	2.7	mg/kg dry	MADEP	1/26/12	EC
C9-C10 Aromatics(PID)	300	2.7	mg/kg dry	MADEP	1/26/12	EC
Moisture	18		%	SM2540 G.	1/24/12	KAC
Surrogate			RANGE		1/26/12	EC
2,5-Dibromotoluene(PID)	96		70-130%	MADEP	1/26/12	EC
2,5-Dibromotoluene(FID)	92		70-130%	MADEP	1/26/12	EC
EPH/PAH						
C9-C18 Aliphatics	2500	120	mg/kg dry	MADEP	1/27/12	JEB

R.I. Analytical Laboratories, Inc.
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Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 001
SAMPLE DESCRIPTION: TP-11 (3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 09:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
C19-C36 Aliphatics	12000	120	mg/kg dry	MADEP	1/27/12	JEB
C11-C22 Aromatics	4400	120	mg/kg dry	MADEP	1/27/12	JEB
Total EPH	19000		mg/kg dry	MADEP	1/27/12	JEB
Target PAH Analytes					1/27/12	JEB
Naphthalene	24	2.0	mg/kg dry	MADEP	1/27/12	JEB
2-Methylnaphthalene	12	0.4	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthylene	0.8	0.4	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthene	1.0	0.4	mg/kg dry	MADEP	1/26/12	JEB
Fluorene	1.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Phenanthrene	6.9	0.4	mg/kg dry	MADEP	1/26/12	JEB
Anthracene	1.5	0.4	mg/kg dry	MADEP	1/26/12	JEB
Fluoranthene	6.3	2.0	mg/kg dry	MADEP	1/27/12	JEB
Pyrene	8.2	2.0	mg/kg dry	MADEP	1/27/12	JEB
Benzo(a)anthracene	3.9	2.0	mg/kg dry	MADEP	1/27/12	JEB
Chrysene	1.1	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(b)fluoranthene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(k)fluoranthene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)pyrene	1.2	0.4	mg/kg dry	MADEP	1/26/12	JEB
Indeno(1,2,3-cd)pyrene	0.9	0.4	mg/kg dry	MADEP	1/26/12	JEB
Dibenzo(a,h)anthracene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(g,h,i)perylene	0.6	0.4	mg/kg dry	MADEP	1/26/12	JEB
Moisture	18		%	SM2540 G.	1/24/12	KAC
Extraction Surrogates			RANGE		1/26/12	JEB
Chloro-octadecane	60		40-140%	MADEP	1/26/12	JEB
Ortho-terphenyl	59		40-140%	MADEP	1/26/12	JEB
Fractionation Surrogates			RANGE		1/26/12	JEB
2-Fluorobiphenyl	82		40-140%	MADEP	1/26/12	JEB
2-Bromonaphthalene	73		40-140%	MADEP	1/26/12	JEB
Extraction date	Extracted			MADEP	1/25/12	KAC
Volatile Organic Compounds						
Acetone	<0.98	0.98	mg/kg dry	5035/8260B	1/28/12	RGM
Tertiary Amyl Methyl Ether	<0.25	0.25	mg/kg dry	5035/8260B	1/28/12	RGM
Benzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Bromobenzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Bromochloromethane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Bromodichloromethane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM

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Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 001
SAMPLE DESCRIPTION: TP-11 (3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 09:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Bromoform	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Bromomethane	<0.25	0.25	mg/kg dry	5035/8260B	1/28/12	RGM
Sec-butylbenzene	0.29	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
n-Butylbenzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
tert-Butylbenzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Carbon Disulfide	<0.25	0.25	mg/kg dry	5035/8260B	1/28/12	RGM
Carbon Tetrachloride	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Chlorobenzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Dibromochloromethane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Chloroethane	<0.25	0.25	mg/kg dry	5035/8260B	1/28/12	RGM
Chloroform	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Chloromethane	<0.25	0.25	mg/kg dry	5035/8260B	1/28/12	RGM
2-Chlorotoluene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
4-Chlorotoluene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dibromo-3-Chloropropane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dibromoethane(EDB)	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Dibromomethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,3-Dichlorobenzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dichlorobenzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,4-Dichlorobenzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
n-Propylbenzene	0.29	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Dichlorodifluoromethane	<0.25	0.25	mg/kg dry	5035/8260B	1/28/12	RGM
1,1-Dichloroethane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dichloroethane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,1-Dichloroethene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
cis-1,2-Dichloroethene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
trans-1,2-Dichloroethylene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dichloropropane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,3-Dichloropropane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
2,2-Dichloropropane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,1-Dichloropropene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
cis-1,3-Dichloropropene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
trans-1,3-Dichloropropylene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Diethyl ether	<0.25	0.25	mg/kg dry	5035/8260B	1/28/12	RGM
Diisopropyl Ether (DIPE)	<0.25	0.25	mg/kg dry	5035/8260B	1/28/12	RGM
1,4-Dioxane	<4.9	4.9	mg/kg dry	5035/8260B	1/28/12	RGM
Ethyl Tertiary Butyl Ether	<0.25	0.25	mg/kg dry	5035/8260B	1/28/12	RGM

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 001
SAMPLE DESCRIPTION: TP-11 (3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 09:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Ethylbenzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Hexachlorobutadiene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
2-Hexanone	<0.49	0.49	mg/kg dry	5035/8260B	1/28/12	RGM
Isopropylbenzene	0.23	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
p-Isopropyltoluene	0.45	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
2-Butanone(MEK)	<0.49	0.49	mg/kg dry	5035/8260B	1/28/12	RGM
4-Methyl-2-pentanone(MIBK)	<0.49	0.49	mg/kg dry	5035/8260B	1/28/12	RGM
Methyl Tertiary Butyl Ether (MTBE)	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Methylene Chloride	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Naphthalene	1.7	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,2-Trichloroethane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Styrene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,1,2-Tetrachloroethane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,2,2-Tetrachloroethane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Tetrachloroethene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Tetrahydrofuran	<0.49	0.49	mg/kg dry	5035/8260B	1/28/12	RGM
Toluene	0.08	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,4-Trichlorobenzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,3-Trichlorobenzene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,1-Trichloroethane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Trichloroethene	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Trichlorofluoromethane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,3-Trichloropropane	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,4-Trimethylbenzene	3.2	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
1,3,5-Trimethylbenzene	1.2	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Vinyl Chloride	<0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
o-Xylene	0.05	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
m,p-Xylene	0.43	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Total Xylene	0.48	0.05	mg/kg dry	5035/8260B	1/28/12	RGM
Surrogates			RANGE	5035/8260B	1/28/12	RGM
Dibromofluoromethane	100		70-130%	5035/8260B	1/28/12	RGM
Toluene-d8	100		70-130%	5035/8260B	1/28/12	RGM
4-Bromofluorobenzene	110		70-130%	5035/8260B	1/28/12	RGM
1,2 Dichloroethane-d4	96		70-130%	5035/8260B	1/28/12	RGM
Total metals						
Antimony	4.9	4.1	mg/kg dry	SW-846 6010	1/27/12	JEH

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Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 001
SAMPLE DESCRIPTION: TP-11 (3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 09:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Arsenic	5.1	2.0	mg/kg dry	SW-846 6010	1/27/12	JEH
Barium	110	0.41	mg/kg dry	SW-846 6010	1/27/12	JEH
Beryllium	<0.041	0.041	mg/kg dry	SW-846 6010	1/27/12	JEH
Cadmium	0.40	0.20	mg/kg dry	SW-846 6010	1/27/12	JEH
Chromium	10	1.2	mg/kg dry	SW-846 6010	1/27/12	JEH
Lead	230	1.6	mg/kg dry	SW-846 6010	1/27/12	JEH
Mercury	<0.10	0.10	mg/kg dry	SW-846 7471A	1/25/12	MLC
Nickel	6.6	0.82	mg/kg dry	SW-846 6010	1/27/12	JEH
Selenium	<2	2	mg/kg dry	SW-846 6010	1/27/12	JEH
Silver	<0.82	0.82	mg/kg dry	SW-846 6010	1/27/12	JEH
Thallium	<2.0	2.0	mg/kg dry	SW-846 6010	1/27/12	JEH
Vanadium	11	0.82	mg/kg dry	SW-846 6010	1/27/12	JEH
Zinc	250	1.6	mg/kg dry	SW-846 6010	1/27/12	JEH
PCB						
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1242	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1254	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1260	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1262	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Aroclor-1268	<0.1	0.1	mg/kg dry	SW-846 8082	1/27/12	JEB
Surrogate			RANGE	SW-846 8082	1/27/12	JEB
Tetrachloro-m-xylene (TCMX)	38		30-150%	SW-846 8082	1/27/12	JEB
Decachlorobiphenyl	15*		30-150%	SW-846 8082	1/27/12	JEB
Extraction date	Extracted			SW846 3546	1/27/12	KAC

Method 8082:
* Surrogate is outside QC Range.

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

All QA/QC procedures required by the EPH Mcthod were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

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Date Received: 1/23/12

Work Order #: 1201-01468

PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 002
SAMPLE DESCRIPTION: TP-8 (2-3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 09:15

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
VPH						
Unadjusted C5-C8 Aliphatics(FID)	9.3	3.8	mg/kg dry	MADEP	1/25/12	EC
Unadjusted C9-C12 Aliphatics (FID)	55	3.8	mg/kg dry	MADEP	1/25/12	EC
Methyl-tert-butylether	<0.08	0.08	mg/kg dry	MADEP	1/25/12	EC
Benzene	<0.38	0.38	mg/kg dry	MADEP	1/25/12	EC
Toluene	0.61	0.38	mg/kg dry	MADEP	1/25/12	EC
Ethylbenzene	<0.38	0.38	mg/kg dry	MADEP	1/25/12	EC
m,p-Xylene	0.61	0.38	mg/kg dry	MADEP	1/25/12	EC
o-Xylene	<0.38	0.38	mg/kg dry	MADEP	1/25/12	EC
Total Xylene	0.61	0.38	mg/kg dry	MADEP	1/25/12	EC
Naphthalene	0.57	0.38	mg/kg dry	MADEP	1/25/12	EC
Adjusted C5-C8 Aliphatics(FID)	8.7	3.8	mg/kg dry	MADEP	1/25/12	EC
Adjusted C9-C12 Aliphatics(FID)	34	3.8	mg/kg dry	MADEP	1/25/12	EC
C9-C10 Aromatics(PID)	20	3.8	mg/kg dry	MADEP	1/25/12	EC
Moisture	29		%	SM2540 G.	1/24/12	KAC
Surrogate			RANGE		1/25/12	EC
2,5-Dibromotoluene(PID)	104		70-130%	MADEP	1/25/12	EC
2,5-Dibromotoluene(FID)	104		70-130%	MADEP	1/25/12	EC
EPH/PAH						
C9-C18 Aliphatics	<28	28	mg/kg dry	MADEP	1/26/12	JEB
C19-C36 Aliphatics	32	28	mg/kg dry	MADEP	1/26/12	JEB
C11-C22 Aromatics	56	28	mg/kg dry	MADEP	1/26/12	JEB
Total EPH	88		mg/kg dry	MADEP	1/26/12	JEB
Target PAH Analytes					1/26/12	JEB
Naphthalene	1.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
2-Methylnaphthalene	0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthylene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Fluorene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Phenanthrene	1.3	0.5	mg/kg dry	MADEP	1/26/12	JEB
Anthracene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Fluoranthene	1.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Pyrene	1.4	0.5	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)anthracene	0.8	0.5	mg/kg dry	MADEP	1/26/12	JEB
Chrysene	0.9	0.5	mg/kg dry	MADEP	1/26/12	JEB

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Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 002
SAMPLE DESCRIPTION: TP-8 (2-3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 09:15

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Benzo(b)fluoranthene	0.7	0.5	mg/kg dry	MADEP	1/26/12	JEB
Benzo(k)fluoranthene	1.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)pyrene	0.8	0.5	mg/kg dry	MADEP	1/26/12	JEB
Indeno(1,2,3-cd)pyrene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Dibenzo(a,h)anthracene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Benzo(g,h,i)perylene	0.8	0.5	mg/kg dry	MADEP	1/26/12	JEB
Moisture	29		%	SM2540 G.	1/24/12	KAC
Extraction Surrogates			RANGE		1/26/12	JEB
Chloro-octadecane	50		40-140%	MADEP	1/26/12	JEB
Ortho-terphenyl	72		40-140%	MADEP	1/26/12	JEB
Fractionation Surrogates			RANGE		1/26/12	JEB
2-Fluorobiphenyl	81		40-140%	MADEP	1/26/12	JEB
2-Bromonaphthalene	85		40-140%	MADEP	1/26/12	JEB
Extraction date	Extracted			MADEP	1/25/12	KAC

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

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Norfolk Ram Group

Date Received: 1/23/12

Work Order #: 1201-01468

PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 003
SAMPLE DESCRIPTION: TP-3 (3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 09:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
VPH						
Unadjusted C5-C8 Aliphatics(FID)	110	3.7	mg/kg dry	MADEP	1/25/12	EC
Unadjusted C9-C12 Aliphatics (FID)	4.4	3.7	mg/kg dry	MADEP	1/25/12	EC
Methyl-tert-butylether	<0.07	0.07	mg/kg dry	MADEP	1/25/12	EC
Benzene	<0.37	0.37	mg/kg dry	MADEP	1/25/12	EC
Toluene	<0.37	0.37	mg/kg dry	MADEP	1/25/12	EC
Ethylbenzene	<0.37	0.37	mg/kg dry	MADEP	1/25/12	EC
m,p-Xylene	<0.37	0.37	mg/kg dry	MADEP	1/25/12	EC
o-Xylene	<0.37	0.37	mg/kg dry	MADEP	1/25/12	EC
Total Xylene	<0.37	0.37	mg/kg dry	MADEP	1/25/12	EC
Naphthalene	<0.37	0.37	mg/kg dry	MADEP	1/25/12	EC
Adjusted C5-C8 Aliphatics(FID)	110	3.7	mg/kg dry	MADEP	1/25/12	EC
Adjusted C9-C12 Aliphatics(FID)	4.4	3.7	mg/kg dry	MADEP	1/25/12	EC
C9-C10 Aromatics(PID)	<3.7	3.7	mg/kg dry	MADEP	1/25/12	EC
Moisture	18		%	SM2540 G.	1/24/12	KAC
Surrogate			RANGE		1/25/12	EC
2,5-Dibromotoluene(PID)	103		70-130%	MADEP	1/25/12	EC
2,5-Dibromotoluene(FID)	91		70-130%	MADEP	1/25/12	EC
EPH/PAH						
C9-C18 Aliphatics	<25	25	mg/kg dry	MADEP	1/26/12	JEB
C19-C36 Aliphatics	<25	25	mg/kg dry	MADEP	1/26/12	JEB
C11-C22 Aromatics	83	25	mg/kg dry	MADEP	1/26/12	JEB
Total EPH	83		mg/kg dry	MADEP	1/26/12	JEB
Target PAH Analytes					1/26/12	JEB
Naphthalene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
2-Methylnaphthalene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthylene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Fluorene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Phenanthrene	2.5	0.4	mg/kg dry	MADEP	1/26/12	JEB
Anthracene	0.9	0.4	mg/kg dry	MADEP	1/26/12	JEB
Fluoranthene	5.9	0.4	mg/kg dry	MADEP	1/26/12	JEB
Pyrene	5.7	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)anthracene	3.7	0.4	mg/kg dry	MADEP	1/26/12	JEB
Chrysene	3.6	0.4	mg/kg dry	MADEP	1/26/12	JEB

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Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 003
SAMPLE DESCRIPTION: TP-3 (3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 09:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Benzo(b)fluoranthene	2.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(k)fluoranthene	3.2	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)pyrene	2.9	0.4	mg/kg dry	MADEP	1/26/12	JEB
Indeno(1,2,3-cd)pyrene	1.3	0.4	mg/kg dry	MADEP	1/26/12	JEB
Dibenzo(a,h)anthracene	0.7	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(g,h,i)perylene	1.1	0.4	mg/kg dry	MADEP	1/26/12	JEB
Moisture	18		%	SM2540 G.	1/24/12	KAC
Extraction Surrogates			RANGE		1/26/12	JEB
Chloro-octadecane	71		40-140%	MADEP	1/26/12	JEB
Ortho-terphenyl	62		40-140%	MADEP	1/26/12	JEB
Fractionation Surrogates			RANGE		1/26/12	JEB
2-Fluorobiphenyl	69		40-140%	MADEP	1/26/12	JEB
2-Bromonaphthalene	69		40-140%	MADEP	1/26/12	JEB
Extraction date	Extracted			MADEP	1/25/12	KAC
Total metals						
Antimony	<5.1	5.1	mg/kg dry	SW-846 6010	1/27/12	JEH
Arsenic	3.1	2.6	mg/kg dry	SW-846 6010	1/27/12	JEH
Barium	31	0.51	mg/kg dry	SW-846 6010	1/27/12	JEH
Beryllium	<0.051	0.051	mg/kg dry	SW-846 6010	1/27/12	JEH
Cadmium	0.29	0.26	mg/kg dry	SW-846 6010	1/27/12	JEH
Chromium	18	1.5	mg/kg dry	SW-846 6010	1/27/12	JEH
Lead	16	2.0	mg/kg dry	SW-846 6010	1/27/12	JEH
Mercury	<0.12	0.12	mg/kg dry	SW-846 7471A	1/25/12	MLC
Nickel	9.1	1.0	mg/kg dry	SW-846 6010	1/27/12	JEH
Selenium	<3	3	mg/kg dry	SW-846 6010	1/27/12	JEH
Silver	<1.0	1.0	mg/kg dry	SW-846 6010	1/27/12	JEH
Thallium	<2.6	2.6	mg/kg dry	SW-846 6010	1/27/12	JEH
Vanadium	29	1.0	mg/kg dry	SW-846 6010	1/27/12	JEH
Zinc	28	2.0	mg/kg dry	SW-846 6010	1/27/12	JEH

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 004
SAMPLE DESCRIPTION: TP-12 (0-3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 10:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
VPH						
Unadjusted C5-C8 Aliphatics(FID)	<4.4	4.4	mg/kg dry	MADEP	1/25/12	EC
Unadjusted C9-C12 Aliphatics (FID)	<4.4	4.4	mg/kg dry	MADEP	1/25/12	EC
Methyl-tert-butylether	<0.09	0.09	mg/kg dry	MADEP	1/25/12	EC
Benzene	<0.45	0.45	mg/kg dry	MADEP	1/25/12	EC
Toluene	<0.45	0.45	mg/kg dry	MADEP	1/25/12	EC
Ethylbenzene	<0.45	0.45	mg/kg dry	MADEP	1/25/12	EC
m,p-Xylene	<0.45	0.45	mg/kg dry	MADEP	1/25/12	EC
o-Xylene	<0.45	0.45	mg/kg dry	MADEP	1/25/12	EC
Total Xylene	<0.45	0.45	mg/kg dry	MADEP	1/25/12	EC
Naphthalene	<0.45	0.45	mg/kg dry	MADEP	1/25/12	EC
Adjusted C5-C8 Aliphatics(FID)	<4.4	4.4	mg/kg dry	MADEP	1/25/12	EC
Adjusted C9-C12 Aliphatics(FID)	<4.4	4.4	mg/kg dry	MADEP	1/25/12	EC
C9-C10 Aromatics(PID)	<4.4	4.4	mg/kg dry	MADEP	1/25/12	EC
Moisture	28		%	SM2540 G.	1/24/12	KAC
Surrogate			RANGE		1/25/12	EC
2,5-Dibromotoluene(PID)	80		70-130%	MADEP	1/25/12	EC
2,5-Dibromotoluene(FID)	68*		70-130%	MADEP	1/25/12	EC
EPH/PAH						
C9-C18 Aliphatics	<28	28	mg/kg dry	MADEP	1/26/12	JEB
C19-C36 Aliphatics	<28	28	mg/kg dry	MADEP	1/26/12	JEB
C11-C22 Aromatics	<28	28	mg/kg dry	MADEP	1/26/12	JEB
Total EPH	<84		mg/kg dry	MADEP	1/26/12	JEB
Target PAH Analytes					1/26/12	JEB
Naphthalene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
2-Methylnaphthalene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthylene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Fluorene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Phenanthrene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Anthracene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Fluoranthene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Pyrene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)anthracene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Chrysene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB

R.I. Analytical Laboratories, Inc.
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Norfolk Ram Group

Date Received: 1/23/12

Work Order #: 1201-01468

PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 004
SAMPLE DESCRIPTION: TP-12 (0-3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 10:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Benzo(b)fluoranthene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Benzo(k)fluoranthene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)pyrene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Indeno(1,2,3-cd)pyrene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Dibenzo(a,h)anthracene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Benzo(g,h,i)perylene	<0.5	0.5	mg/kg dry	MADEP	1/26/12	JEB
Moisture	28		%	SM2540 G.	1/24/12	KAC
Extraction Surrogates			RANGE		1/26/12	JEB
Chloro-octadecane	82		40-140%	MADEP	1/26/12	JEB
Ortho-terphenyl	76		40-140%	MADEP	1/26/12	JEB
Fractionation Surrogates			RANGE		1/26/12	JEB
2-Fluorobiphenyl	84		40-140%	MADEP	1/26/12	JEB
2-Bromonaphthalene	73		40-140%	MADEP	1/26/12	JEB
Extraction date	Extracted			MADEP	1/25/12	KAC
Total metals						
Antimony	<5.7	5.7	mg/kg dry	SW-846 6010	1/27/12	JEH
Arsenic	34	2.9	mg/kg dry	SW-846 6010	1/27/12	JEH
Barium	80	0.57	mg/kg dry	SW-846 6010	1/27/12	JEH
Beryllium	0.17	0.057	mg/kg dry	SW-846 6010	1/27/12	JEH
Cadmium	1.0	0.29	mg/kg dry	SW-846 6010	1/27/12	JEH
Chromium	6.2	1.7	mg/kg dry	SW-846 6010	1/27/12	JEH
Lead	450	2.3	mg/kg dry	SW-846 6010	1/27/12	JEH
Mercury	0.21	0.12	mg/kg dry	SW-846 7471A	1/25/12	MLC
Nickel	7.8	1.2	mg/kg dry	SW-846 6010	1/27/12	JEH
Selenium	<3	3	mg/kg dry	SW-846 6010	1/27/12	JEH
Silver	<1.2	1.2	mg/kg dry	SW-846 6010	1/27/12	JEH
Thallium	<2.9	2.9	mg/kg dry	SW-846 6010	1/27/12	JEH
Vanadium	24	1.2	mg/kg dry	SW-846 6010	1/27/12	JEH
Zinc	230	2.3	mg/kg dry	SW-846 6010	1/27/12	JEH

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

* Surrogate is outside QC Range.

No significant modifications were made to the VPH Method.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 005
SAMPLE DESCRIPTION: TP-16 (0-3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 10:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
EPH/PAH						
C9-C18 Aliphatics	<25	25	mg/kg dry	MADEP	1/26/12	JEB
C19-C36 Aliphatics	28	25	mg/kg dry	MADEP	1/26/12	JEB
C11-C22 Aromatics	<25	25	mg/kg dry	MADEP	1/26/12	JEB
Total EPH	<75		mg/kg dry	MADEP	1/26/12	JEB
Target PAH Analytes					1/26/12	JEB
Naphthalene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
2-Methylnaphthalene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthylene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Fluorene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Phenanthrene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Anthracene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Fluoranthene	0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Pyrene	0.5	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)anthracene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Chrysene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(b)fluoranthene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(k)fluoranthene	0.5	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)pyrene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Indeno(1,2,3-cd)pyrene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Dibenzo(a,h)anthracene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(g,h,i)perylene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Moisture	22		%	SM2540 G.	1/24/12	KAC
Extraction Surrogates			RANGE		1/26/12	JEB
Chloro-octadecane	66		40-140%	MADEP	1/26/12	JEB
Ortho-terphenyl	63		40-140%	MADEP	1/26/12	JEB
Fractionation Surrogates			RANGE		1/26/12	JEB
2-Fluorobiphenyl	80		40-140%	MADEP	1/26/12	JEB
2-Bromonaphthalene	77		40-140%	MADEP	1/26/12	JEB
Extraction date	Extracted			MADEP	1/25/12	KAC
Total metals						
Antimony	<5.6	5.6	mg/kg dry	SW-846 6010	1/27/12	JEH
Arsenic	8.7	2.8	mg/kg dry	SW-846 6010	1/27/12	JEH
Barium	270	5.6	mg/kg dry	SW-846 6010	1/27/12	JEH

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12

Work Order #: 1201-01468

PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 005
SAMPLE DESCRIPTION: TP-16 (0-3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 10:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Beryllium	<0.056	0.056	mg/kg dry	SW-846 6010	1/27/12	JEH
Cadmium	0.37	0.28	mg/kg dry	SW-846 6010	1/27/12	JEH
Chromium	10	1.7	mg/kg dry	SW-846 6010	1/27/12	JEH
Lead	450	2.2	mg/kg dry	SW-846 6010	1/27/12	JEH
Mercury	0.34	0.11	mg/kg dry	SW-846 7471A	1/25/12	MLC
Nickel	13	1.1	mg/kg dry	SW-846 6010	1/27/12	JEH
Selenium	<3	3	mg/kg dry	SW-846 6010	1/27/12	JEH
Silver	<1.1	1.1	mg/kg dry	SW-846 6010	1/27/12	JEH
Thallium	<2.8	2.8	mg/kg dry	SW-846 6010	1/27/12	JEH
Vanadium	25	1.1	mg/kg dry	SW-846 6010	1/27/12	JEH
Zinc	100	2.2	mg/kg dry	SW-846 6010	1/27/12	JEH

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 006
SAMPLE DESCRIPTION: TP-13 (0-3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 11:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
EPH/PAH						
C9-C18 Aliphatics	<25	25	mg/kg dry	MADEP	1/26/12	JEB
C19-C36 Aliphatics	50	25	mg/kg dry	MADEP	1/26/12	JEB
C11-C22 Aromatics	67	25	mg/kg dry	MADEP	1/26/12	JEB
Total EPH	120		mg/kg dry	MADEP	1/26/12	JEB
Target PAH Analytes					1/26/12	JEB
Naphthalene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
2-Methylnaphthalene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthylene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Fluorene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Phenanthrene	1.3	0.4	mg/kg dry	MADEP	1/26/12	JEB
Anthracene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Fluoranthene	3.8	0.4	mg/kg dry	MADEP	1/26/12	JEB
Pyrene	4.0	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)anthracene	2.3	0.4	mg/kg dry	MADEP	1/26/12	JEB
Chrysene	2.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(b)fluoranthene	1.8	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(k)fluoranthene	2.3	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)pyrene	2.3	0.4	mg/kg dry	MADEP	1/26/12	JEB
Indeno(1,2,3-cd)pyrene	1.2	0.4	mg/kg dry	MADEP	1/26/12	JEB
Dibenzo(a,h)anthracene	0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(g,h,i)perylene	1.1	0.4	mg/kg dry	MADEP	1/26/12	JEB
Moisture	20		%	SM2540 G.	1/24/12	KAC
Extraction Surrogates			RANGE		1/26/12	JEB
Chloro-octadecane	51		40-140%	MADEP	1/26/12	JEB
Ortho-terphenyl	45		40-140%	MADEP	1/26/12	JEB
Fractionation Surrogates			RANGE		1/26/12	JEB
2-Fluorobiphenyl	64		40-140%	MADEP	1/26/12	JEB
2-Bromonaphthalene	64		40-140%	MADEP	1/26/12	JEB
Extraction date	Extracted			MADEP	1/25/12	KAC
Total metals						
Antimony	<5.2	5.2	mg/kg dry	SW-846 6010	1/27/12	JEH
Arsenic	20	2.6	mg/kg dry	SW-846 6010	1/27/12	JEH
Barium	560	52	mg/kg dry	SW-846 6010	1/27/12	JEH

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12

Work Order #: 1201-01468

PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 006
SAMPLE DESCRIPTION: TP-13 (0-3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 11:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Beryllium	<0.052	0.052	mg/kg dry	SW-846 6010	1/27/12	JEH
Cadmium	1.0	0.26	mg/kg dry	SW-846 6010	1/27/12	JEH
Chromium	15	1.6	mg/kg dry	SW-846 6010	1/27/12	JEH
Lead	460	2.1	mg/kg dry	SW-846 6010	1/27/12	JEH
Mercury	<0.12	0.12	mg/kg dry	SW-846 7471A	1/25/12	MLC
Nickel	9.1	1.0	mg/kg dry	SW-846 6010	1/27/12	JEH
Selenium	<3	3	mg/kg dry	SW-846 6010	1/27/12	JEH
Silver	<1.0	1.0	mg/kg dry	SW-846 6010	1/27/12	JEH
Thallium	<2.6	2.6	mg/kg dry	SW-846 6010	1/27/12	JEH
Vanadium	24	1.0	mg/kg dry	SW-846 6010	1/27/12	JEH
Zinc	340	2.1	mg/kg dry	SW-846 6010	1/27/12	JEH

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 007
SAMPLE DESCRIPTION: TP-6 (3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 11:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
EPH/PAH						
C9-C18 Aliphatics	<25	25	mg/kg dry	MADEP	1/26/12	JEB
C19-C36 Aliphatics	49	25	mg/kg dry	MADEP	1/26/12	JEB
C11-C22 Aromatics	<25	25	mg/kg dry	MADEP	1/26/12	JEB
Total EPH	<75		mg/kg dry	MADEP	1/26/12	JEB
Target PAH Analytes					1/26/12	JEB
Naphthalene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
2-Methylnaphthalene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthylene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Acenaphthene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Fluorene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Phenanthrene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Anthracene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Fluoranthene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Pyrene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)anthracene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Chrysene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(b)fluoranthene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(k)fluoranthene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(a)pyrene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Indeno(1,2,3-cd)pyrene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Dibenzo(a,h)anthracene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Benzo(g,h,i)perylene	<0.4	0.4	mg/kg dry	MADEP	1/26/12	JEB
Moisture	19		%	SM2540 G.	1/24/12	KAC
Extraction Surrogates			RANGE		1/26/12	JEB
Chloro-octadecane	59		40-140%	MADEP	1/26/12	JEB
Ortho-terphenyl	55		40-140%	MADEP	1/26/12	JEB
Fractionation Surrogates			RANGE		1/26/12	JEB
2-Fluorobiphenyl	80		40-140%	MADEP	1/26/12	JEB
2-Bromonaphthalene	76		40-140%	MADEP	1/26/12	JEB
Extraction date	Extracted			MADEP	1/25/12	KAC

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 008
SAMPLE DESCRIPTION: TP-4 (3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 12:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
VPH						
Unadjusted C5-C8 Aliphatics(FID)	<4.4	4.4	mg/kg dry	MADEP	1/25/12	EC
Unadjusted C9-C12 Aliphatics (FID)	<4.4	4.4	mg/kg dry	MADEP	1/25/12	EC
Methyl-tert-butylether	<0.09	0.09	mg/kg dry	MADEP	1/25/12	EC
Benzene	<0.44	0.44	mg/kg dry	MADEP	1/25/12	EC
Toluene	<0.44	0.44	mg/kg dry	MADEP	1/25/12	EC
Ethylbenzene	<0.44	0.44	mg/kg dry	MADEP	1/25/12	EC
m,p-Xylene	<0.44	0.44	mg/kg dry	MADEP	1/25/12	EC
o-Xylene	<0.44	0.44	mg/kg dry	MADEP	1/25/12	EC
Total Xylene	<0.44	0.44	mg/kg dry	MADEP	1/25/12	EC
Naphthalene	<0.44	0.44	mg/kg dry	MADEP	1/25/12	EC
Adjusted C5-C8 Aliphatics(FID)	<4.4	4.4	mg/kg dry	MADEP	1/25/12	EC
Adjusted C9-C12 Aliphatics(FID)	<4.4	4.4	mg/kg dry	MADEP	1/25/12	EC
C9-C10 Aromatics(PID)	<4.4	4.4	mg/kg dry	MADEP	1/25/12	EC
Moisture	22		%	SM2540 G.	1/24/12	KAC
Surrogate			RANGE		1/25/12	EC
2,5-Dibromotoluene(PID)	84		70-130%	MADEP	1/25/12	EC
2,5-Dibromotoluene(FID)	74		70-130%	MADEP	1/25/12	EC

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01468
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 009
SAMPLE DESCRIPTION: TP-5 (3)'
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/19/2012 @ 12:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total metals						
Antimony	<4.5	4.5	mg/kg dry	SW-846 6010	1/27/12	JEH
Arsenic	3.3	2.2	mg/kg dry	SW-846 6010	1/27/12	JEH
Barium	10	0.45	mg/kg dry	SW-846 6010	1/27/12	JEH
Beryllium	<0.045	0.045	mg/kg dry	SW-846 6010	1/27/12	JEH
Cadmium	<0.22	0.22	mg/kg dry	SW-846 6010	1/27/12	JEH
Chromium	2.8	1.4	mg/kg dry	SW-846 6010	1/27/12	JEH
Lead	8.1	1.8	mg/kg dry	SW-846 6010	1/27/12	JEH
Mercury	<0.12	0.12	mg/kg dry	SW-846 7471A	1/25/12	MLC
Nickel	1.0	0.90	mg/kg dry	SW-846 6010	1/27/12	JEH
Selenium	<2	2	mg/kg dry	SW-846 6010	1/27/12	JEH
Silver	<0.90	0.90	mg/kg dry	SW-846 6010	1/27/12	JEH
Thallium	<2.2	2.2	mg/kg dry	SW-846 6010	1/27/12	JEH
Vanadium	12	0.90	mg/kg dry	SW-846 6010	1/27/12	JEH
Zinc	9.4	1.8	mg/kg dry	SW-846 6010	1/27/12	JEH
Moisture	20		%	SM2540 G.	1/24/12	KAC

Customer Name : Norfolk Ram Group

W.O. Number 1201-01468

MassDEP Analytical Protocol Certification Form

Laboratory Name: R.I. Analytical Laboratories	Work Order No: 1201-01468
Project / Location: PROJECT# 1153.12.1 STEPHENS FIELD	RTN :
This Form provides certifications for the following data set: list Laboratory Sample ID Number(s): 1201-01468-001 through 1201-01468-009	

Matrices: ☐ Groundwater/Surface Water ☒ Soil / Sediment ☐ Drinking Water ☐ Air ☐ Other

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☒	7470/7471 Hg CAM III B ☒	MassDEP VPH CAM IV A ☒	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☒	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☒	6020 Metals CAM III D ☐	8082 PCB CAM V A ☒	9014 Total Cyanide /PAC CAM VI A ☐	6860 Perchlorate CAM V111 B ☐	

Affirmative responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No
B	Were the analytical methods(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Aquisition and Reporting of Analytical Data"?	☒ Yes ☐ No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s) ? (Refer to the individual method(s) for a list of significant modifications).	☒ Yes ☐ No
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No

Responses to Questions G,H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☒ Yes ☐ No [1]

Data User Note: *Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☒ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☒ Yes ☐ No [1]

[1] *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature _____ Position: QA/QC Director

Printed Name: Mike Hobin Date: 1-31-12

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01468
Date: 1/31/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
PCB (Soil)			
Aroclor-1016	mg/kg dry	<0.1	1/25/2012
Aroclor-1221	mg/kg dry	<0.1	1/25/2012
Aroclor-1232	mg/kg dry	<0.1	1/25/2012
Aroclor-1242	mg/kg dry	<0.1	1/25/2012
Aroclor-1248	mg/kg dry	<0.1	1/25/2012
Aroclor-1254	mg/kg dry	<0.1	1/25/2012
Aroclor-1262	mg/kg dry	<0.1	1/25/2012
Aroclor-1268	mg/kg dry	<0.1	1/25/2012
Aroclor-1260	mg/kg dry	<0.1	1/25/2012
Surrogate	**RANGE**		1/25/2012
Tetrachloro-m-xylene (TCMX)	30-150%	89	1/25/2012
Decachlorobiphenyl	30-150%	105	1/25/2012
Extractable Petroleum Hydrocarbons with PAH (Soil)			
C9-C18 Aliphatics	mg/kg dry	<20	1/26/2012
C19-C36 Aliphatics	mg/kg dry	<20	1/26/2012
C11-C22 Aromatics	mg/kg dry	<20	1/26/2012
Total EPH	mg/kg dry	<60	1/26/2012
Target PAH Analytes			1/26/2012
Naphthalene	mg/kg dry	<0.4	1/26/2012
2-Methylnaphthalene	mg/kg dry	<0.4	1/26/2012
Acenaphthylene	mg/kg dry	<0.4	1/26/2012
Acenaphthene	mg/kg dry	<0.4	1/26/2012
Fluorene	mg/kg dry	<0.4	1/26/2012
Phenanthrene	mg/kg dry	<0.4	1/26/2012
Anthracene	mg/kg dry	<0.4	1/26/2012
Fluoranthene	mg/kg dry	<0.4	1/26/2012
Pyrene	mg/kg dry	<0.4	1/26/2012
Benzo(a)anthracene	mg/kg dry	<0.4	1/26/2012
Chrysene	mg/kg dry	<0.4	1/26/2012
Benzo(b)fluoranthene	mg/kg dry	<0.4	1/26/2012
Benzo(k)fluoranthene	mg/kg dry	<0.4	1/26/2012
Benzo(a)pyrene	mg/kg dry	<0.4	1/26/2012
Indeno(1,2,3-cd)pyrene	mg/kg dry	<0.4	1/26/2012
Dibenzo(a,h)anthracene	mg/kg dry	<0.4	1/26/2012
Benzo(g,h,i)perylene	mg/kg dry	<0.4	1/26/2012
Extraction Surrogates	**RANGE**		1/26/2012

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-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Extractable Petroleum Hydrocarbons with PAH (Soil) (cont'd)			
Chloro-octadecane	40-140%	78	1/26/2012
Ortho-terphenyl	40-140%	85	1/26/2012
Fractionation Surrogates	**RANGE**		1/26/2012
2-Fluorobiphenyl	40-140%	83	1/26/2012
2-Bromonaphthalene	40-140%	89	1/26/2012
Volatile Petroleum Hydrocarbons (Soil)			
Unadj C5-C8 Aliphatics(FID)	mg/kg dry	<2.5	1/25/2012
Unadj C9-C12 Aliphatic(FID)	mg/kg dry	<2.5	1/25/2012
Methyl-tert-butylether	mg/kg dry	<0.10	1/25/2012
Benzene	mg/kg dry	<0.25	1/25/2012
Toluene	mg/kg dry	<0.25	1/25/2012
Ethylbenzene	mg/kg dry	<0.25	1/25/2012
m,p-Xylene	mg/kg dry	<0.25	1/25/2012
o-Xylene	mg/kg dry	<0.25	1/25/2012
Naphthalene	mg/kg dry	<0.25	1/25/2012
Adj C5-C8 Aliphatics(FID)	mg/kg dry	<2.5	1/25/2012
Adj C9-C12 Aliphatics(FID)	mg/kg dry	<2.5	1/25/2012
C9-C10 Aromatics(PID)	mg/kg dry	<2.5	1/25/2012
Surrogate	**RANGE**		1/25/2012
2,5-Dibromotoluene(PID)	70-130%	91	1/25/2012
2,5-Dibromotoluene(FID)	70-130%	82	1/25/2012
5035(Soil)			
Benzene	mg/kg dry	<0.05	1/28/2012
Bromobenzene	mg/kg dry	<0.05	1/28/2012
Bromochloromethane	mg/kg dry	<0.05	1/28/2012
Bromodichloromethane	mg/kg dry	<0.05	1/28/2012
Bromoform	mg/kg dry	<0.05	1/28/2012
Bromomethane	mg/kg dry	<0.25	1/28/2012
n-Butylbenzene	mg/kg dry	<0.05	1/28/2012
Sec-butylbenzene	mg/kg dry	<0.05	1/28/2012
tert-Butylbenzene	mg/kg dry	<0.05	1/28/2012
Carbon Tetrachloride	mg/kg dry	<0.05	1/28/2012
Chlorobenzene	mg/kg dry	<0.05	1/28/2012
Chloroethane	mg/kg dry	<0.25	1/28/2012
Chloroform	mg/kg dry	<0.05	1/28/2012
Chloromethane	mg/kg dry	<0.25	1/28/2012

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-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
5035(Soil) (cont'd)			
2-Chlorotoluene	mg/kg dry	<0.05	1/28/2012
4-Chlorotoluene	mg/kg dry	<0.05	1/28/2012
Dibromochloromethane	mg/kg dry	<0.05	1/28/2012
1,2-Dibromo-3-Chloropropane	mg/kg dry	<0.10	1/28/2012
1,2-Dibromoethane(EDB)	mg/kg dry	<0.05	1/28/2012
Dibromomethane	mg/kg dry	<0.10	1/28/2012
1,2-Dichlorobenzene	mg/kg dry	<0.05	1/28/2012
1,3-Dichlorobenzene	mg/kg dry	<0.05	1/28/2012
1,4-Dichlorobenzene	mg/kg dry	<0.05	1/28/2012
Dichlorodifluoromethane	mg/kg dry	<0.25	1/28/2012
1,1-Dichloroethane	mg/kg dry	<0.05	1/28/2012
1,2-Dichloroethane	mg/kg dry	<0.05	1/28/2012
1,1-Dichloroethene	mg/kg dry	<0.05	1/28/2012
cis-1,2-Dichloroethene	mg/kg dry	<0.05	1/28/2012
trans-1,2-Dichloroethylene	mg/kg dry	<0.05	1/28/2012
1,2-Dichloropropane	mg/kg dry	<0.05	1/28/2012
1,3-Dichloropropane	mg/kg dry	<0.05	1/28/2012
2,2-Dichloropropane	mg/kg dry	<0.05	1/28/2012
1,1-Dichloropropene	mg/kg dry	<0.05	1/28/2012
Ethylbenzene	mg/kg dry	<0.05	1/28/2012
Hexachlorobutadiene	mg/kg dry	<0.05	1/28/2012
Isopropylbenzene	mg/kg dry	<0.05	1/28/2012
p-Isopropyltoluene	mg/kg dry	<0.05	1/28/2012
Methylene Chloride	mg/kg dry	<0.05	1/28/2012
Naphthalene	mg/kg dry	<0.10	1/28/2012
n-Propylbenzene	mg/kg dry	<0.05	1/28/2012
Styrene	mg/kg dry	<0.05	1/28/2012
1,1,1,2-Tetrachloroethane	mg/kg dry	<0.05	1/28/2012
1,1,2,2-Tetrachloroethane	mg/kg dry	<0.05	1/28/2012
Tetrachloroethene	mg/kg dry	<0.05	1/28/2012
Toluene	mg/kg dry	<0.05	1/28/2012
1,2,3-Trichlorobenzene	mg/kg dry	<0.05	1/28/2012
1,2,4-Trichlorobenzene	mg/kg dry	<0.05	1/28/2012
1,1,1-Trichloroethane	mg/kg dry	<0.05	1/28/2012
1,1,2-Trichloroethane	mg/kg dry	<0.05	1/28/2012
Trichloroethene	mg/kg dry	<0.05	1/28/2012
Trichlorofluoromethane	mg/kg dry	<0.05	1/28/2012
1,2,3-Trichloropropane	mg/kg dry	<0.05	1/28/2012
1,2,4-Trimethylbenzene	mg/kg dry	<0.05	1/28/2012

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Parameter	Units	Results	Date Analyzed
5035(Soil) (cont'd)			
1,3,5-Trimethylbenzene	mg/kg dry	<0.05	1/28/2012
Vinyl Chloride	mg/kg dry	<0.05	1/28/2012
o-Xylene	mg/kg dry	<0.05	1/28/2012
m,p-Xylene	mg/kg dry	<0.05	1/28/2012
MTBE	mg/kg dry	<0.05	1/28/2012
Carbon Disulfide	mg/kg dry	<0.25	1/28/2012
Acetone	mg/kg dry	<1.0	1/28/2012
2-Butanone(MEK)	mg/kg dry	<0.50	1/28/2012
4-Methyl-2-pentanone(MIBK)	mg/kg dry	<0.50	1/28/2012
2-Hexanone	mg/kg dry	<0.50	1/28/2012
Tetrahydrofuran	mg/kg dry	<0.5	1/28/2012
cis-1,3-Dichloropropene	mg/kg dry	<0.05	1/28/2012
trans-1,3-Dichloropropylene	mg/kg dry	<0.05	1/28/2012
1,4-Dioxane	mg/kg dry	<5.0	1/28/2012
Diethyl ether	mg/kg dry	<0.25	1/28/2012
Surrogates	**RANGE**		1/28/2012
Dibromofluoromethane	70-130%	100	1/28/2012
Toluene-d8	70-130%	100	1/28/2012
4-Bromofluorobenzene	70-130%	100	1/28/2012
1,2 Dichloroethane-d4	70-130%	99	1/28/2012
Metals (Soil)			
Arsenic	mg/kg dry	<2.5	1/27/2012
Barium	mg/kg dry	<0.50	1/27/2012
Cadmium	mg/kg dry	<0.25	1/27/2012
Chromium	mg/kg dry	<1.5	1/27/2012
Lead	mg/kg dry	<2.0	1/27/2012
Mercury	mg/kg dry	<0.10	1/25/2012
Selenium	mg/kg dry	<2	1/27/2012
Silver	mg/kg dry	<1.0	1/27/2012
Antimony	mg/kg dry	<5.0	1/27/2012
Vanadium	mg/kg dry	<1.0	1/27/2012
Beryllium	mg/kg dry	<0.050	1/27/2012
Nickel	mg/kg dry	<1.0	1/27/2012
Thallium	mg/kg dry	<2.5	1/27/2012
Zinc	mg/kg dry	2.4	1/27/2012

-LCS/LCS Duplicate Data Results-

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
PCB (Soil)								
Aroclor-1016		0.33	0.262	79	0.279	85	6	1/27/2012
Aroclor-1260		0.33	0.327	99	0.319	97	2	1/27/2012
Surrogate								
Tetrachloro-m-xylene (TCMX)			94		97			
Decachlorobiphenyl			136		121			
Extractable Petroleum Hydrocarbons with PAH (Soil)								
C9-C18 Aliphatics		20	14.6	73	15.0	75	3	1/26/2012
C19-C36 Aliphatics		27	24.2	90	24.8	92	2	1/26/2012
C11-C22 Aromatics		57	51.7	91	45.7	80	12	1/26/2012
Target PAH Analytes								
Naphthalene		3.33	2.40	72	2.11	63	13	1/26/2012
2-Methylnaphthalene		3.33	2.55	77	2.25	68	13	1/26/2012
Acenaphthylene		3.33	2.68	80	2.43	73	10	1/26/2012
Acenaphthene		3.33	2.70	81	2.44	73	10	1/26/2012
Fluorene		3.33	2.94	88	2.65	80	10	1/26/2012
Phenanthrene		3.33	3.14	94	2.83	85	10	1/26/2012
Anthracene		3.33	3.22	97	2.90	87	10	1/26/2012
Fluoranthene		3.33	3.34	100	3.00	90	11	1/26/2012
Pyrene		3.33	3.27	98	2.96	89	10	1/26/2012
Benzo(a)anthracene		3.33	3.38	102	3.04	91	11	1/26/2012
Chrysene		3.33	3.36	101	3.01	90	11	1/26/2012
Benzo(b)fluoranthene		3.33	3.11	93	2.86	86	8	1/26/2012
Benzo(k)fluoranthene		3.33	3.38	102	2.95	89	14	1/26/2012
Benzo(a)pyrene		3.33	3.28	98	2.84	85	14	1/26/2012
Indeno(1,2,3-cd)pyrene		3.33	3.07	92	2.50	75	20	1/26/2012
Dibenzo(a,h)anthracene		3.33	2.97	89	2.62	79	13	1/26/2012
Benzo(g,h,i)perylene		3.33	2.93	88	2.36	71	22	1/26/2012
Extraction Surrogates								
Chloro-octadecane			79		75			
Ortho-terphenyl			96		86			
Fractionation Surrogates								
2-Fluorobiphenyl			95		87			
2-Bromonaphthalene			99		92			
Volatile Petroleum Hydrocarbons (Soil)								
Methyl-tert-butylether		2.5	2.94	118	2.96	118	1	1/25/2012
Benzene		2.5	2.43	97	2.43	97	0	1/25/2012
Toluene		2.5	2.39	96	2.40	96	0	1/25/2012
Ethylbenzene		2.5	2.47	99	2.50	100	1	1/25/2012
m,p-Xylene		5.0	5.13	103	5.22	104	2	1/25/2012
o-Xylene		2.5	2.56	102	2.58	103	1	1/25/2012
Naphthalene		2.5	2.32	93	2.27	91	2	1/25/2012
Adj C5-C8 Aliphatics(FID)		7.5	8.22	110	8.36	111	2	1/25/2012
Adj C9-C12 Aliphatics(FID)		5.0	4.78	96	4.95	99	3	1/25/2012
C9-C10 Aromatics(PID)		2.5	2.62	105	2.65	106	1	1/25/2012
Surrogate								
2,5-Dibromotoluene(PID)			89		80			
2,5-Dibromotoluene(FID)			79		72			
Methyl-tert-butylether		2.5	2.95	118	2.94	118	0	1/26/2012

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Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Volatile Petroleum Hydrocarbons (Soil) (cont'd)								
Benzene		2.5	2.44	98	2.45	98	0	1/26/2012
Toluene		2.5	2.42	97	2.41	96	0	1/26/2012
Ethylbenzene		2.5	2.50	100	2.49	100	0	1/26/2012
m,p-Xylene		5.0	5.21	104	5.16	103	1	1/26/2012
o-Xylene		2.5	2.58	103	2.58	103	0	1/26/2012
Naphthalene		2.5	2.31	92	2.34	94	1	1/26/2012
Adj C5-C8 Aliphatics(FID)		7.5	8.06	107	8.06	107	0	1/26/2012
Adj C9-C12 Aliphatics(FID)		5.0	4.85	97	4.97	99	2	1/26/2012
C9-C10 Aromatics(PID)		2.5	2.65	106	2.65	106	0	1/26/2012
Surrogate								
2,5-Dibromotoluene(PID)			118		127			
2,5-Dibromotoluene(FID)			113		123			
5035(Soil)								
Benzene		2.5	2.4	96	2.2	88	9	1/28/2012
Bromobenzene		2.5	2.3	92	2.2	88	4	1/28/2012
Bromochloromethane		2.5	2.2	88	2.0	80	10	1/28/2012
Bromodichloromethane		2.5	2.5	100	2.2	88	13	1/28/2012
Bromoform		2.5	2.3	92	2.1	84	9	1/28/2012
Bromomethane		2.5	2.9	116	2.9	116	0	1/28/2012
n-Butylbenzene		2.5	2.3	92	2.3	92	0	1/28/2012
Sec-butylbenzene		2.5	2.1	84	2.0	80	5	1/28/2012
tert-Butylbenzene		2.5	2.1	84	2.0	80	5	1/28/2012
Carbon Tetrachloride		2.5	1.7	68	1.4	56	19	1/28/2012
Chlorobenzene		2.5	2.2	88	2.1	84	5	1/28/2012
Chloroethane		2.5	2.0	80	1.9	76	5	1/28/2012
Chloroform		2.5	2.3	92	2.1	84	9	1/28/2012
Chloromethane		2.5	1.9	76	1.7	68	11	1/28/2012
2-Chlorotoluene		2.5	2.3	92	2.2	88	4	1/28/2012
4-Chlorotoluene		2.5	2.4	96	2.3	92	4	1/28/2012
Dibromochloromethane		2.5	2.3	92	2.0	80	14	1/28/2012
1,2-Dibromo-3-Chloropropane		2.5	2.9	116	2.7	108	7	1/28/2012
1,2-Dibromoethane(EDB)		2.5	2.2	88	2.0	80	10	1/28/2012
Dibromomethane		2.5	2.3	92	2.1	84	9	1/28/2012
1,2-Dichlorobenzene		2.5	2.2	88	2.1	84	5	1/28/2012
1,3-Dichlorobenzene		2.5	2.2	88	2.2	88	0	1/28/2012
1,4-Dichlorobenzene		2.5	2.3	92	2.2	88	4	1/28/2012
Dichlorodifluoromethane		2.5	1.9	76	1.7	68	11	1/28/2012
1,1-Dichloroethane		2.5	2.1	84	2.0	80	5	1/28/2012
1,2-Dichloroethane		2.5	2.8	112	2.6	104	7	1/28/2012
1,1-Dichloroethene		2.5	2.6	104	2.4	96	8	1/28/2012
cis-1,2-Dichloroethene		2.5	2.3	92	2.2	88	4	1/28/2012

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Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
5035(Soil) (cont'd)								
trans-1,2-Dichloroethylene		2.5	1.9	76	1.8	72	5	1/28/2012
1,2-Dichloropropane		2.5	2.3	92	2.1	84	9	1/28/2012
1,3-Dichloropropane		2.5	2.1	84	2.0	80	5	1/28/2012
2,2-Dichloropropane		2.5	3.3	132	3.0	120	10	1/28/2012
1,1-Dichloropropene		2.5	2.3	92	2.1	84	9	1/28/2012
Ethylbenzene		2.5	2.3	92	2.2	88	4	1/28/2012
Hexachlorobutadiene		2.5	2.2	88	2.2	88	0	1/28/2012
Isopropylbenzene		2.5	2.2	88	2.1	84	5	1/28/2012
p-Isopropyltoluene		2.5	2.3	92	2.2	88	4	1/28/2012
Methylene Chloride		2.5	2.4	96	2.2	88	9	1/28/2012
Naphthalene		2.5	3.1	124	3.4	136	9	1/28/2012
n-Propylbenzene		2.5	2.3	92	2.1	84	9	1/28/2012
Styrene		2.5	2.2	88	2.1	84	5	1/28/2012
1,1,1,2-Tetrachloroethane		2.5	2.1	84	2.0	80	5	1/28/2012
1,1,2,2-Tetrachloroethane		2.5	1.9	76	1.7	68	11	1/28/2012
Tetrachloroethene		2.5	2.3	92	2.1	84	9	1/28/2012
Toluene		2.5	2.5	100	2.2	88	13	1/28/2012
1,2,3-Trichlorobenzene		2.5	2.8	112	3.3	132	16	1/28/2012
1,2,4-Trichlorobenzene		2.5	3.1	124	3.2	128	3	1/28/2012
1,1,1-Trichloroethane		2.5	2.4	96	2.2	88	9	1/28/2012
1,1,2-Trichloroethane		2.5	2.1	84	1.9	76	10	1/28/2012
Trichloroethene		2.5	2.2	88	2.0	80	10	1/28/2012
Trichlorofluoromethane		2.5	2.4	96	2.1	84	13	1/28/2012
1,2,3-Trichloropropane		2.5	2.5	100	2.2	88	13	1/28/2012
1,2,4-Trimethylbenzene		2.5	2.4	96	2.3	92	4	1/28/2012
1,3,5-Trimethylbenzene		2.5	2.4	96	2.3	92	4	1/28/2012
Vinyl Chloride		2.5	2.2	88	2.0	80	10	1/28/2012
o-Xylene		2.5	2.1	84	2.1	84	0	1/28/2012
m,p-Xylene		5.0	4.3	86	4.1	82	5	1/28/2012
MTBE		2.5	2.6	104	2.4	96	8	1/28/2012
Carbon Disulfide		2.5	1.9	76	1.8	72	5	1/28/2012
Acetone		25	28	112	25	100	11	1/28/2012
2-Butanone(MEK)		25	36	144	33	132	9	1/28/2012
4-Methyl-2-pentanone(MIBK)		25	26	104	23	92	12	1/28/2012
2-Hexanone		25	29	116	25	100	15	1/28/2012
Tetrahydrofuran		25	22	88	20	80	10	1/28/2012
cis-1,3-Dichloropropene		2.5	2.3	92	2.1	84	9	1/28/2012
trans-1,3-Dichloropropylene		2.5	2.5	100	2.3	92	8	1/28/2012
1,4-Dioxane		50	73	146	61	122	18	1/28/2012
Diethyl ether		25	21	84	21	84	0	1/28/2012
Surrogates								
Dibromofluoromethane			110		110			

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Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
5035(Soil) (cont'd)								
Toluene-d8			100		100			
4-Bromofluorobenzene			110		110			
1,2 Dichloroethane-d4			100		100			
Metals (Soil)								
Mercury	52-149%	20	22	110	20	100	10	1/25/2012
Arsenic	71-129%	271	349	129	349	129	0	1/27/2012
Barium	73-126%	210	240	114	240	114	0	1/27/2012
Cadmium	73-127%	44.3	48	108	47	106	2	1/27/2012
Chromium	70-130%	154	190	123	180	117	5	1/27/2012
Lead	70-130%	90.3	100	111	100	111	0	1/27/2012
Selenium	66-134%	117	110	94	120	103	9	1/27/2012
Silver	42-158%	39.3	42	107	42	107	0	1/27/2012
Antimony	0-280%	45.7	110	241	100	219	10	1/27/2012
Vanadium	57-143%	64.0	72	113	66	103	9	1/27/2012
Beryllium	72-128%	46.6	48	103	48	103	0	1/27/2012
Nickel	73-127%	138	160	116	150	109	6	1/27/2012
Thallium	68-132%	136	140	103	130	96	7	1/27/2012
Zinc	73-127%	588	640	109	630	107	2	1/27/2012

Case Narrative

Date: 1/31/2012

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Project: PROJECT# 1153.12.1 STEPHENSFIELD

RIAL WO#: 1201-01468

All QA/QC procedures required by the EPH Method were followed. All performance/acceptance standards for the required QA/QC procedures were achieved or otherwise stated in this case narrative. A fractionation check was performed on the silica gel lot associated with this sample and found to pass the method criteria unless otherwise stated here. The data reported for this sample was not corrected for instrument/solvent baseline effects. No significant modifications were made to the EPH Method.

All QA/QC procedures required by the VPH Method were followed. All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated. No significant modifications were made to the VPH Method.

The following exceptions were noted for this Work Order:

PCB Method 8082

Question H - The percent recovery for the surrogate (Decachlorobiphenyl) in sample -001(TP-11 (3)') was recovered outside the 30%-150% QC acceptance limits. This sample was re-analyzed to confirm matrix effect. The re-analysis data is reported with the original data.

Volatile Organics by 8260

Question H - The continuing calibration verification standard had analytes outside of the 20% D QC acceptance limit. The specific outliers include, (dichlorodifluoromethane 24.5%, chloromethane 5.4%, carbon disulfide 22.1%, Methyl ethyl ketone -45.5%, 2,2-dichloropropane -31.9%, Carbon Tetrachloride 30.8%, 1,4-dioxane -45.5%, 1,1,2,2-tetrachloroethane 24.6%, 1,2,4-trichlorobenzene -23.8%, and naphthalene -25.5%). The method allows up to seventeen compounds to be greater than 20% with laboratory narration. A negative %D would indicate a positive bias in the data.

Question H - Laboratory control sample (1/28/12) / laboratory control sample duplicate (1/28/12) had analytes outside the 70%-130% QC acceptance limits. Up to 10% of the analytes are allowed to be out. The specific outliers include, (Carbon Tetrachloride 68%, 56%, 2,2-Dichloropropane LCSD 132%, Naphthalene LCSD 136%, 1,1,2,2-Tetrachloroethane LCSD 68%, 1,2,3-Trichlorobenzene LCDS 132%, 2-Butanone(MEK) 144%, 132%, and 1,4-Dioxane LCS 146%).

Volatile Petroleum Hydrocarbons

Question H - Sample -004(TP-12 (0-3)'):The FID surrogate is outside the QC Range. The percent moisture was greater than 25%. Per the method, the sample was not re-analyzed.

Extractable Petroleum Hydrocarbons

Sample -001(TP-11 (3)'): The following analytes were reported from a times five dilution of the sample extract: All the ranges, naphthalene, fluoranthene, pyrene and Benzo(a)anthracene.

Total Metals by 6010

Question H - No MS/MSD requested for Soil/Sediment sample in this work order.

There were no additional exceptions or analytical issues to discuss concerning the testing requirements for the project.

Mike Hobin
QA/QC Director

R.I. ANALYTICAL
Specialists in Environmental Services

CHAIN OF CUSTODY RECORD

41 Illinois Avenue
Warwick, RI 02888-3007
800-937-2580 • Fax: 401-738-1970

131 Coolidge St., Suite 105
Hudson, MA 01749-1331
800-937-2580 • Fax: 978-568-0078

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type C	Preservation Code P	Matrix Code M	EPH w PAHs	VPH w VOCs	MCP Metals	VOCs	PCBs
1-19-12	9:00	TP-11 (3)'	G	1AG 2V	M	SO	X	X	X	X	X
	9:15	8 (2-3)'		1AG 1V	M		X	X			
	9:30	3 (3)'		1AG 1V	M		X	X	X		
	10:00	12 (0-3)'		1AG 1V	M		X	X	X		
	10:30	16 (0-3)'		1AG	–		X		X		
	11:00	13 (0-3)'		1AG	–		X		X		
	11:30	6 (3)'		1AG	–		X				
	12:00	4 (3)'		2V	M			X			
	12:30	5 (3)'		1AG	–				X		

15 RG

Client Information

Company Name: Norfolk Ram Group
Address: 1 Roberts Rd. Plymouth MA 02360
City / State / Zip:
Telephone: 508 747 7900 Fax: ext. 154
Contact Person: Jon Kitchen

Project Information

Project Name: Stephens Field
P.O. Number:
Project Number: 1153.12.1
Report To: Jon Kitchen
Phone: 747-7900 Fax ext. 154
Sampled By: AJE
Quote No:
Email report to these addresses: jkitchen@norfolkram.com

Relinquished By Signatures	Date	Time	Received By Signatures	Date	Time
[signature]	1/23/12	1340	[signature]	1/23/12	1340
[signature]	1/23/12	1730	[signature]	1/23/12	1730

Turn Around Time

- X Normal
- EMAIL Report
- 5 Business days. Possible surcharge
- Rush – Date Due: ___/___/___

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, (S-1) S-2, S-3 MCP Data Enhancement QC Package? (Yes) No

Temp. Upon Receipt 4.0 °C

Lab Use Only

- X Sample Pick-Up Only 1365
- RIAL sampled; attach field hours
- X Shipped on ice
- Workorder No: 1201-0146

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile Preservatives: A=Ascorbic Acid, NH4=NH_4Cl, H=HCl, M=MeOH, N=HNO_3, NP=None, S=H_2SO_4, SB=$NaHSO_4$, SH=NaOH, T=$Na_2S_2O_3$, Z=ZnOAc
Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, SL=Sludge, A=Air, B=Bulk/Solid, WP=Wipe, O=_____

R.I. ANALYTICAL
Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Date Received: 1/25/12
Date Reported: 2/2/12
P.O. #:
Work Order #: 1201-01676

DESCRIPTION: PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.
The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844

This Certificate represents all data associated with the referenced work order and is paginated for completeness. The complete Certificate includes one attachment; the original Chain of Custody.

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:

Data Reporting

enc: Chain of Custody

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/25/12

Work Order #: 1201-01676

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 001
SAMPLE DESCRIPTION: TANK WC-1
SAMPLE TYPE: COMPOSITE **SAMPLE DATE/TIME:** 1/24/2012

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
pH	8.3		SU	SW-846 9045C	1/25/12	RS
Paint Filter	No Free Liquid			SW-846 9095	1/27/12	JRG
Flashpoint	>200	80	deg F	SW846 1010	1/26/12	RLL
Reactivity CN & S Soils						
Sulfide reactivity	<2.5	2.5	mg/kg	SW-846 7.3.4	2/2/12	ML
Cyanide Reactivity	<0.10	0.10	mg/kg	SW-846 7.3.3	2/2/12	ML
TPH						
TPH GC/FID	7700	57	mg/kg dry	SW846 8100M	1/27/12	JEB
Moisture	13		%	SM2540 G.	1/26/12	KAC
PCB						
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1242	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1254	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1260	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1262	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1268	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Surrogate			RANGE	SW-846 8082	1/31/12	JEB
Tetrachloro-m-xylene (TCMX)	60		30-150%	SW-846 8082	1/31/12	JEB
Decachlorobiphenyl	81		30-150%	SW-846 8082	1/31/12	JEB
Extraction date	Extracted			SW846 3546	1/26/12	KAC
Total Metals						
Arsenic	4.0	2.8	mg/kg dry	SW-846 6010	2/1/12	PJC
Cadmium	0.59	0.28	mg/kg dry	SW-846 6010	2/1/12	PJC
Chromium	9.3	1.7	mg/kg dry	SW-846 6010	2/1/12	PJC
Lead	54	2.3	mg/kg dry	SW-846 6010	2/1/12	PJC
Mercury	<0.093	0.093	mg/kg dry	SW-846 7471A	1/31/12	PJC

Fingerprint Evaluation:
The chromatogram associated with this sample was comprised of a single unresolved complex mixture distribution (UCM). The UCM eluted from carbon range C9 to C18 and would be consistent with a weathered #2 fuel oil/diesel fuel. Also apparent in this chromatogram was of a distribution of several discrete peaks being mostly resolved to the base line. These peaks were identified by GC/MS to be a distribution of Polyaromatic Hydrocarbons (PAH's). This would be consistent with coal tar creosote. I would estimate a 60/40 percent ratio of these two distributions with the fuel oil being the most prevalent.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/25/12

Work Order #: 1201-01676

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 002
SAMPLE DESCRIPTION: TANK WC-1
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/24/2012 @ 11:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Volatile Organic Compounds						
Acetone	<0.88	0.88	mg/kg dry	5035/8260B	1/28/12	RGM
Tertiary Amyl Methyl Ether	<0.30	0.30	mg/kg dry	5035/8260B	1/28/12	RGM
Benzene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Bromobenzene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Bromochloromethane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Bromodichloromethane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Bromoform	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Bromomethane	<0.30	0.30	mg/kg dry	5035/8260B	1/28/12	RGM
Sec-butylbenzene	2.7	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
n-Butylbenzene	5.5	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
tert-Butylbenzene	0.27	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Carbon Disulfide	<0.30	0.30	mg/kg dry	5035/8260B	1/28/12	RGM
Carbon Tetrachloride	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Chlorobenzene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Dibromochloromethane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Chloroethane	<0.30	0.30	mg/kg dry	5035/8260B	1/28/12	RGM
Chloroform	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Chloromethane	<0.30	0.30	mg/kg dry	5035/8260B	1/28/12	RGM
2-Chlorotoluene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
4-Chlorotoluene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dibromo-3-Chloropropane	<0.12	0.12	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dibromoethane(EDB)	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Dibromomethane	<0.12	0.12	mg/kg dry	5035/8260B	1/28/12	RGM
1,3-Dichlorobenzene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dichlorobenzene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,4-Dichlorobenzene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
n-Propylbenzene	2.4	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Dichlorodifluoromethane	<0.30	0.30	mg/kg dry	5035/8260B	1/28/12	RGM
1,1-Dichloroethane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dichloroethane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,1-Dichloroethene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
cis-1,2-Dichloroethene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
trans-1,2-Dichloroethylene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dichloropropane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,3-Dichloropropane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/25/12

Work Order #: 1201-01676

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 002
SAMPLE DESCRIPTION: TANK WC-1
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/24/2012 @ 11:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
2,2-Dichloropropane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,1-Dichloropropene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
cis-1,3-Dichloropropene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
trans-1,3-Dichloropropylene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Diethyl ether	<0.30	0.30	mg/kg dry	5035/8260B	1/28/12	RGM
Diisopropyl Ether (DIPE)	<0.30	0.30	mg/kg dry	5035/8260B	1/28/12	RGM
1,4-Dioxane	<5.9	5.9	mg/kg dry	5035/8260B	1/28/12	RGM
Ethyl Tertiary Butyl Ether	<0.30	0.30	mg/kg dry	5035/8260B	1/28/12	RGM
Ethylbenzene	0.29	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Hexachlorobutadiene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
2-Hexanone	<0.59	0.59	mg/kg dry	5035/8260B	1/28/12	RGM
Isopropylbenzene	0.96	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
p-Isopropyltoluene	0.73	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
2-Butanone(MEK)	<0.59	0.59	mg/kg dry	5035/8260B	1/28/12	RGM
4-Methyl-2-pentanone(MIBK)	<0.59	0.59	mg/kg dry	5035/8260B	1/28/12	RGM
Methyl Tertiary Butyl Ether (MTBE)	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Methylene Chloride	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Naphthalene	9.7	0.12	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,2-Trichloroethane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Styrene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,1,2-Tetrachloroethane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,2,2-Tetrachloroethane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Tetrachloroethene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Tetrahydrofuran	<0.59	0.59	mg/kg dry	5035/8260B	1/28/12	RGM
Toluene	0.08	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,4-Trichlorobenzene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,3-Trichlorobenzene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,1-Trichloroethane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Trichloroethene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Trichlorofluoromethane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,3-Trichloropropane	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,4-Trimethylbenzene	1.7	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
1,3,5-Trimethylbenzene	1.1	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Vinyl Chloride	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
o-Xylene	<0.06	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
m,p-Xylene	0.38	0.06	mg/kg dry	5035/8260B	1/28/12	RGM
Total Xylene	0.38	0.06	mg/kg dry	5035/8260B	1/28/12	RGM

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/25/12

Work Order #: 1201-01676

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 002
SAMPLE DESCRIPTION: TANK WC-1
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/24/2012 @ 11:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Surrogates			RANGE	5035/8260B	1/28/12	RGM
Dibromofluoromethane	103		70-130%	5035/8260B	1/28/12	RGM
Toluene-d8	99		70-130%	5035/8260B	1/28/12	RGM
4-Bromofluorobenzene	124		70-130%	5035/8260B	1/28/12	RGM
1,2 Dichloroethane-d4	100		70-130%	5035/8260B	1/28/12	RGM
Moisture	12		%	SM2540 G.	1/26/12	KAC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/25/12

Work Order #: 1201-01676

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 003
SAMPLE DESCRIPTION: TP-19
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/24/2012 @ 10:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
PCB						
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1242	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1254	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1260	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1262	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Aroclor-1268	<0.1	0.1	mg/kg dry	SW-846 8082	1/31/12	JEB
Surrogate			RANGE	SW-846 8082	1/31/12	JEB
Tetrachloro-m-xylene (TCMX)	47		30-150%	SW-846 8082	1/31/12	JEB
Decachlorobiphenyl	26*		30-150%	SW-846 8082	1/31/12	JEB
Extraction date	Extracted			SW846 3546	1/26/12	KAC
VPH						
Unadjusted C5-C8 Aliphatics(FID)	430	9.5	mg/kg dry	MADEP	1/26/12	EC
Unadjusted C9-C12 Aliphatics (FID)	220	9.5	mg/kg dry	MADEP	1/26/12	EC
Methyl-tert-butylether	<0.19	0.19	mg/kg dry	MADEP	1/26/12	EC
Benzene	<0.95	0.95	mg/kg dry	MADEP	1/26/12	EC
Toluene	<0.95	0.95	mg/kg dry	MADEP	1/26/12	EC
Ethylbenzene	<0.95	0.95	mg/kg dry	MADEP	1/26/12	EC
m,p-Xylene	<0.95	0.95	mg/kg dry	MADEP	1/26/12	EC
o-Xylene	<0.95	0.95	mg/kg dry	MADEP	1/26/12	EC
Total Xylene	<0.95	0.95	mg/kg dry	MADEP	1/26/12	EC
Naphthalene	<0.95	0.95	mg/kg dry	MADEP	1/26/12	EC
Adjusted C5-C8 Aliphatics(FID)	430	9.5	mg/kg dry	MADEP	1/26/12	EC
Adjusted C9-C12 Aliphatics(FID)	150	9.5	mg/kg dry	MADEP	1/26/12	EC
C9-C10 Aromatics(PID)	73	9.5	mg/kg dry	MADEP	1/26/12	EC
Moisture	33		%	SM2540 G.	1/26/12	KAC
Surrogate			RANGE		1/26/12	EC
2,5-Dibromotoluene(PID)	116		70-130%	MADEP	1/26/12	EC
2,5-Dibromotoluene(FID)	101		70-130%	MADEP	1/26/12	EC
EPH/PAH						
C9-C18 Aliphatics	880	30	mg/kg dry	MADEP	1/27/12	JEB

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/25/12

Work Order #: 1201-01676

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 003
SAMPLE DESCRIPTION: TP-19
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/24/2012 @ 10:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
C19-C36 Aliphatics	2800	30	mg/kg dry	MADEP	1/27/12	JEB
C11-C22 Aromatics	1200	30	mg/kg dry	MADEP	1/27/12	JEB
Total EPH	4900		mg/kg dry	MADEP	1/27/12	JEB
Target PAH Analytes					1/27/12	JEB
Naphthalene	1.3	0.5	mg/kg dry	MADEP	1/27/12	JEB
2-Methylnaphthalene	1.1	0.5	mg/kg dry	MADEP	1/27/12	JEB
Acenaphthylene	1.1	0.5	mg/kg dry	MADEP	1/27/12	JEB
Acenaphthene	1.3	0.5	mg/kg dry	MADEP	1/27/12	JEB
Fluorene	1.3	0.5	mg/kg dry	MADEP	1/27/12	JEB
Phenanthrene	13	0.5	mg/kg dry	MADEP	1/27/12	JEB
Anthracene	1.6	0.5	mg/kg dry	MADEP	1/27/12	JEB
Fluoranthene	10	0.5	mg/kg dry	MADEP	1/27/12	JEB
Pyrene	12	0.5	mg/kg dry	MADEP	1/27/12	JEB
Benzo(a)anthracene	4.7	0.5	mg/kg dry	MADEP	1/27/12	JEB
Chrysene	5.8	0.5	mg/kg dry	MADEP	1/27/12	JEB
Benzo(b)fluoranthene	2.7	0.5	mg/kg dry	MADEP	1/27/12	JEB
Benzo(k)fluoranthene	3.6	0.5	mg/kg dry	MADEP	1/27/12	JEB
Benzo(a)pyrene	3.0	0.5	mg/kg dry	MADEP	1/27/12	JEB
Indeno(1,2,3-cd)pyrene	0.9	0.5	mg/kg dry	MADEP	1/27/12	JEB
Dibenzo(a,h)anthracene	<0.5	0.5	mg/kg dry	MADEP	1/27/12	JEB
Benzo(g,h,i)perylene	1.0	0.5	mg/kg dry	MADEP	1/27/12	JEB
Moisture	33		%	SM2540 G.	1/26/12	KAC
Extraction Surrogates			RANGE		1/27/12	JEB
Chloro-octadecane	54		40-140%	MADEP	1/27/12	JEB
Ortho-terphenyl	69		40-140%	MADEP	1/27/12	JEB
Fractionation Surrogates			RANGE		1/27/12	JEB
2-Fluorobiphenyl	77		40-140%	MADEP	1/27/12	JEB
2-Bromonaphthalene	85		40-140%	MADEP	1/27/12	JEB
Extraction date	Extracted			MADEP	1/26/12	BJK
Volatile Organic Compounds						
Acetone	<1.5	1.5	mg/kg dry	5035/8260B	1/28/12	RGM
Tertiary Amyl Methyl Ether	<0.52	0.52	mg/kg dry	5035/8260B	1/28/12	RGM
Benzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Bromobenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Bromochloromethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Bromodichloromethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/25/12

Work Order #: 1201-01676

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 003
SAMPLE DESCRIPTION: TP-19
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/24/2012 @ 10:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Bromoform	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Bromomethane	<0.52	0.52	mg/kg dry	5035/8260B	1/28/12	RGM
Sec-butylbenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
n-Butylbenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
tert-Butylbenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Carbon Disulfide	<0.52	0.52	mg/kg dry	5035/8260B	1/28/12	RGM
Carbon Tetrachloride	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Chlorobenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Dibromochloromethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Chloroethane	<0.52	0.52	mg/kg dry	5035/8260B	1/28/12	RGM
Chloroform	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Chloromethane	<0.52	0.52	mg/kg dry	5035/8260B	1/28/12	RGM
2-Chlorotoluene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
4-Chlorotoluene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dibromo-3-Chloropropane	<0.21	0.21	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dibromoethane(EDB)	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Dibromomethane	<0.21	0.21	mg/kg dry	5035/8260B	1/28/12	RGM
1,3-Dichlorobenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dichlorobenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,4-Dichlorobenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
n-Propylbenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Dichlorodifluoromethane	<0.52	0.52	mg/kg dry	5035/8260B	1/28/12	RGM
1,1-Dichloroethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dichloroethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,1-Dichloroethene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
cis-1,2-Dichloroethene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
trans-1,2-Dichloroethylene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,2-Dichloropropane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,3-Dichloropropane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
2,2-Dichloropropane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,1-Dichloropropene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
cis-1,3-Dichloropropene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
trans-1,3-Dichloropropylene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Diethyl ether	<0.52	0.52	mg/kg dry	5035/8260B	1/28/12	RGM
Diisopropyl Ether (DIPE)	<0.52	0.52	mg/kg dry	5035/8260B	1/28/12	RGM
1,4-Dioxane	<10	10	mg/kg dry	5035/8260B	1/28/12	RGM
Ethyl Tertiary Butyl Ether	<0.52	0.52	mg/kg dry	5035/8260B	1/28/12	RGM

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/25/12
Work Order #: 1201-01676
PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 003
SAMPLE DESCRIPTION: TP-19
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/24/2012 @ 10:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Ethylbenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Hexachlorobutadiene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
2-Hexanone	<1.0	1.0	mg/kg dry	5035/8260B	1/28/12	RGM
Isopropylbenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
p-Isopropyltoluene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
2-Butanone(MEK)	<1.0	1.0	mg/kg dry	5035/8260B	1/28/12	RGM
4-Methyl-2-pentanone(MIBK)	<1.0	1.0	mg/kg dry	5035/8260B	1/28/12	RGM
Methyl Tertiary Butyl Ether (MTBE)	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Methylene Chloride	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Naphthalene	<0.20	0.20	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,2-Trichloroethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Styrene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,1,2-Tetrachloroethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,2,2-Tetrachloroethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Tetrachloroethene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Tetrahydrofuran	<1.0	1.0	mg/kg dry	5035/8260B	1/28/12	RGM
Toluene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,4-Trichlorobenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,3-Trichlorobenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,1,1-Trichloroethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Trichloroethene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Trichlorofluoromethane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,3-Trichloropropane	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,2,4-Trimethylbenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
1,3,5-Trimethylbenzene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Vinyl Chloride	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
o-Xylene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
m,p-Xylene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Total Xylene	<0.10	0.10	mg/kg dry	5035/8260B	1/28/12	RGM
Surrogates			RANGE	5035/8260B	1/28/12	RGM
Dibromofluoromethane	104		70-130%	5035/8260B	1/28/12	RGM
Toluene-d8	101		70-130%	5035/8260B	1/28/12	RGM
4-Bromofluorobenzene	113		70-130%	5035/8260B	1/28/12	RGM
1,2 Dichloroethane-d4	106		70-130%	5035/8260B	1/28/12	RGM
Total metals						
Antimony	<7.28	7.28	mg/kg dry	SW-846 6010	2/1/12	PJC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/25/12

Work Order #: 1201-01676

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 003
SAMPLE DESCRIPTION: TP-19
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/24/2012 @ 10:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Arsenic	41	3.6	mg/kg dry	SW-846 6010	2/1/12	PJC
Barium	250	0.73	mg/kg dry	SW-846 6010	2/1/12	PJC
Beryllium	0.46	0.073	mg/kg dry	SW-846 6010	2/1/12	PJC
Cadmium	3.7	0.36	mg/kg dry	SW-846 6010	2/1/12	PJC
Chromium	16	2.2	mg/kg dry	SW-846 6010	2/1/12	PJC
Lead	220	2.9	mg/kg dry	SW-846 6010	2/1/12	PJC
Mercury	<0.14	0.14	mg/kg dry	SW-846 7471A	1/31/12	PJC
Nickel	22	1.5	mg/kg dry	SW-846 6010	2/1/12	PJC
Selenium	<4	4	mg/kg dry	SW-846 6010	2/1/12	PJC
Silver	<1.5	1.5	mg/kg dry	SW-846 6010	2/1/12	PJC
Thallium	<3.6	3.6	mg/kg dry	SW-846 6010	2/1/12	PJC
Vanadium	53	1.5	mg/kg dry	SW-846 6010	2/1/12	PJC
Zinc	410	2.9	mg/kg dry	SW-846 6010	2/1/12	PJC
PCB						
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082	2/1/12	JEB
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082	2/1/12	JEB
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082	2/1/12	JEB
Aroclor-1242	<0.1	0.1	mg/kg dry	SW-846 8082	2/1/12	JEB
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082	2/1/12	JEB
Aroclor-1254	<0.1	0.1	mg/kg dry	SW-846 8082	2/1/12	JEB
Aroclor-1260	<0.1	0.1	mg/kg dry	SW-846 8082	2/1/12	JEB
Aroclor-1262	<0.1	0.1	mg/kg dry	SW-846 8082	2/1/12	JEB
Aroclor-1268	<0.1	0.1	mg/kg dry	SW-846 8082	2/1/12	JEB
Surrogate			RANGE	SW-846 8082	2/1/12	JEB
Tetrachloro-m-xylene (TCMX)	34		30-150%	SW-846 8082	2/1/12	JEB
Decachlorobiphenyl	24*		30-150%	SW-846 8082	2/1/12	JEB
Extraction date	Extracted			SW846 3546	1/31/12	BJK

Method 8082:
* Surrogate is outside QC Range.

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

Customer Name : Norfolk Ram Group

W.O. Number 1201-01676

MassDEP Analytical Protocol Certification Form

Laboratory Name:	R.I. Analytical Laboratories	Work Order No:	1201-01676
Project / Location:	PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA	RTN :	

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):

1201-01676-001 through 1201-01676-003

Matrices: ☐ Groundwater/Surface Water ☒ Soil / Sediment ☐ Drinking Water ☐ Air ☐ Other

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☒	7470/7471 Hg CAM III B ☒	MassDEP VPH CAM IV A ☒	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☒	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☒	6020 Metals CAM III D ☐	8082 PCB CAM V A ☒	9014 Total Cyanide /PAC CAM VI A ☐	6860 Perchlorate CAM V111 B ☐	

Affirmative responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No
B	Were the analytical methods(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Aquisition and Reporting of Analytical Data"?	☒ Yes ☐ No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s) ? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☒ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No

Responses to Questions G,H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☒ Yes ☐ No [1]

***Data User Note:** Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☒ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☒ No [1]

[1] *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature _____ Position: QA/QC Director

Printed Name: Mike Hobin Date: 2-2-12

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01676
Date: 2/2/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
PCB (Soil)			
Aroclor-1016	mg/kg dry	<0.1	1/26/2012
Aroclor-1221	mg/kg dry	<0.1	1/26/2012
Aroclor-1232	mg/kg dry	<0.1	1/26/2012
Aroclor-1242	mg/kg dry	<0.1	1/26/2012
Aroclor-1248	mg/kg dry	<0.1	1/26/2012
Aroclor-1254	mg/kg dry	<0.1	1/26/2012
Aroclor-1262	mg/kg dry	<0.1	1/26/2012
Aroclor-1268	mg/kg dry	<0.1	1/26/2012
Aroclor-1260	mg/kg dry	<0.1	1/26/2012
Surrogate	**RANGE**		1/26/2012
Tetrachloro-m-xylene (TCMX)	30-150%	105	1/26/2012
Decachlorobiphenyl	30-150%	103	1/26/2012
Total Petroleum Hydrocarbons by Method 8100 (Soil)			
TPH GC/FID	mg/kg dry	<10	1/26/2012
Extractable Petroleum Hydrocarbons with PAH (Soil)			
C9-C18 Aliphatics	mg/kg dry	<20	1/27/2012
C19-C36 Aliphatics	mg/kg dry	<20	1/27/2012
C11-C22 Aromatics	mg/kg dry	<20	1/27/2012
Total EPH	mg/kg dry	<60	1/27/2012
Target PAH Analytes			1/27/2012
Naphthalene	mg/kg dry	<0.4	1/27/2012
2-Methylnaphthalene	mg/kg dry	<0.4	1/27/2012
Acenaphthylene	mg/kg dry	<0.4	1/27/2012
Acenaphthene	mg/kg dry	<0.4	1/27/2012
Fluorene	mg/kg dry	<0.4	1/27/2012
Phenanthrene	mg/kg dry	<0.4	1/27/2012
Anthracene	mg/kg dry	<0.4	1/27/2012
Fluoranthene	mg/kg dry	<0.4	1/27/2012
Pyrene	mg/kg dry	<0.4	1/27/2012
Benzo(a)anthracene	mg/kg dry	<0.4	1/27/2012
Chrysene	mg/kg dry	<0.4	1/27/2012
Benzo(b)fluoranthene	mg/kg dry	<0.4	1/27/2012
Benzo(k)fluoranthene	mg/kg dry	<0.4	1/27/2012
Benzo(a)pyrene	mg/kg dry	<0.4	1/27/2012
Indeno(1,2,3-cd)pyrene	mg/kg dry	<0.4	1/27/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01676
Date: 2/2/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Extractable Petroleum Hydrocarbons with PAH (Soil) (cont'd)			
Dibenzo(a,h)anthracene	mg/kg dry	<0.4	1/27/2012
Benzo(g,h,i)perylene	mg/kg dry	<0.4	1/27/2012
Extraction Surrogates	**RANGE**		1/27/2012
Chloro-octadecane	40-140%	54	1/27/2012
Ortho-terphenyl	40-140%	84	1/27/2012
Fractionation Surrogates	**RANGE**		1/27/2012
2-Fluorobiphenyl	40-140%	87	1/27/2012
2-Bromonaphthalene	40-140%	93	1/27/2012
Volatile Petroleum Hydrocarbons (Soil)			
Unadj C5-C8 Aliphatics(FID)	mg/kg dry	<2.5	1/26/2012
Unadj C9-C12 Aliphatic(FID)	mg/kg dry	<2.5	1/26/2012
Methyl-tert-butylether	mg/kg dry	<0.10	1/26/2012
Benzene	mg/kg dry	<0.25	1/26/2012
Toluene	mg/kg dry	<0.25	1/26/2012
Ethylbenzene	mg/kg dry	<0.25	1/26/2012
m,p-Xylene	mg/kg dry	<0.25	1/26/2012
o-Xylene	mg/kg dry	<0.25	1/26/2012
Naphthalene	mg/kg dry	<0.25	1/26/2012
Adj C5-C8 Aliphatics(FID)	mg/kg dry	<2.5	1/26/2012
Adj C9-C12 Aliphatics(FID)	mg/kg dry	<2.5	1/26/2012
C9-C10 Aromatics(PID)	mg/kg dry	<2.5	1/26/2012
Surrogate	**RANGE**		1/26/2012
2,5-Dibromotoluene(PID)	70-130%	100	1/26/2012
2,5-Dibromotoluene(FID)	70-130%	102	1/26/2012
5035(Soil)			
Benzene	mg/kg dry	<0.05	1/28/2012
Bromobenzene	mg/kg dry	<0.05	1/28/2012
Bromochloromethane	mg/kg dry	<0.05	1/28/2012
Bromodichloromethane	mg/kg dry	<0.05	1/28/2012
Bromoform	mg/kg dry	<0.05	1/28/2012
Bromomethane	mg/kg dry	<0.25	1/28/2012
n-Butylbenzene	mg/kg dry	<0.05	1/28/2012
Sec-butylbenzene	mg/kg dry	<0.05	1/28/2012
tert-Butylbenzene	mg/kg dry	<0.05	1/28/2012
Carbon Tetrachloride	mg/kg dry	<0.05	1/28/2012
Chlorobenzene	mg/kg dry	<0.05	1/28/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01676
Date: 2/2/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
5035(Soil) (cont'd)			
Chloroethane	mg/kg dry	<0.25	1/28/2012
Chloroform	mg/kg dry	<0.05	1/28/2012
Chloromethane	mg/kg dry	<0.25	1/28/2012
2-Chlorotoluene	mg/kg dry	<0.05	1/28/2012
4-Chlorotoluene	mg/kg dry	<0.05	1/28/2012
Dibromochloromethane	mg/kg dry	<0.05	1/28/2012
1,2-Dibromo-3-Chloropropane	mg/kg dry	<0.10	1/28/2012
1,2-Dibromoethane(EDB)	mg/kg dry	<0.05	1/28/2012
Dibromomethane	mg/kg dry	<0.10	1/28/2012
1,2-Dichlorobenzene	mg/kg dry	<0.05	1/28/2012
1,3-Dichlorobenzene	mg/kg dry	<0.05	1/28/2012
1,4-Dichlorobenzene	mg/kg dry	<0.05	1/28/2012
Dichlorodifluoromethane	mg/kg dry	<0.25	1/28/2012
1,1-Dichloroethane	mg/kg dry	<0.05	1/28/2012
1,2-Dichloroethane	mg/kg dry	<0.05	1/28/2012
1,1-Dichloroethene	mg/kg dry	<0.05	1/28/2012
cis-1,2-Dichloroethene	mg/kg dry	<0.05	1/28/2012
trans-1,2-Dichloroethylene	mg/kg dry	<0.05	1/28/2012
1,2-Dichloropropane	mg/kg dry	<0.05	1/28/2012
1,3-Dichloropropane	mg/kg dry	<0.05	1/28/2012
2,2-Dichloropropane	mg/kg dry	<0.05	1/28/2012
1,1-Dichloropropene	mg/kg dry	<0.05	1/28/2012
Ethylbenzene	mg/kg dry	<0.05	1/28/2012
Hexachlorobutadiene	mg/kg dry	<0.05	1/28/2012
Isopropylbenzene	mg/kg dry	<0.05	1/28/2012
p-Isopropyltoluene	mg/kg dry	<0.05	1/28/2012
Methylene Chloride	mg/kg dry	<0.05	1/28/2012
n-Propylbenzene	mg/kg dry	<0.05	1/28/2012
Styrene	mg/kg dry	<0.05	1/28/2012
1,1,1,2-Tetrachloroethane	mg/kg dry	<0.05	1/28/2012
1,1,2,2-Tetrachloroethane	mg/kg dry	<0.05	1/28/2012
Tetrachloroethene	mg/kg dry	<0.05	1/28/2012
Toluene	mg/kg dry	<0.05	1/28/2012
1,2,3-Trichlorobenzene	mg/kg dry	<0.05	1/28/2012
1,2,4-Trichlorobenzene	mg/kg dry	<0.05	1/28/2012
1,1,1-Trichloroethane	mg/kg dry	<0.05	1/28/2012
1,1,2-Trichloroethane	mg/kg dry	<0.05	1/28/2012
Trichloroethene	mg/kg dry	<0.05	1/28/2012
Trichlorofluoromethane	mg/kg dry	<0.05	1/28/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01676
Date: 2/2/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
5035(Soil) (cont'd)			
1,2,3-Trichloropropane	mg/kg dry	<0.05	1/28/2012
1,2,4-Trimethylbenzene	mg/kg dry	<0.05	1/28/2012
1,3,5-Trimethylbenzene	mg/kg dry	<0.05	1/28/2012
Vinyl Chloride	mg/kg dry	<0.05	1/28/2012
o-Xylene	mg/kg dry	<0.05	1/28/2012
m,p-Xylene	mg/kg dry	<0.05	1/28/2012
MTBE	mg/kg dry	<0.05	1/28/2012
2-Butanone(MEK)	mg/kg dry	<0.50	1/28/2012
Surrogates	**RANGE**		1/28/2012
Dibromofluoromethane	70-130%	101	1/28/2012
Toluene-d8	70-130%	103	1/28/2012
4-Bromofluorobenzene	70-130%	105	1/28/2012
1,2 Dichloroethane-d4	70-130%	99	1/28/2012
Metals (Soil)			
Arsenic	mg/kg dry	<2.5	2/1/2012
Barium	mg/kg dry	<0.50	2/1/2012
Cadmium	mg/kg dry	<0.25	2/1/2012
Chromium	mg/kg dry	<1.5	2/1/2012
Lead	mg/kg dry	<2.0	2/1/2012
Mercury	mg/kg dry	<0.10	1/31/2012
Selenium	mg/kg dry	<2	2/1/2012
Silver	mg/kg dry	<1.0	2/1/2012
Antimony	mg/kg dry	<5.00	2/1/2012
Vanadium	mg/kg dry	<1.0	2/1/2012
Beryllium	mg/kg dry	<0.050	2/1/2012
Nickel	mg/kg dry	<1.0	2/1/2012
Thallium	mg/kg dry	<2.5	2/1/2012
Zinc	mg/kg dry	<2.0	2/1/2012
Total Metals (Soil)			
Arsenic	mg/kg dry	<2.5	2/1/2012
Cadmium	mg/kg dry	<0.25	2/1/2012
Chromium	mg/kg dry	<1.5	2/1/2012
Lead	mg/kg dry	<2.0	2/1/2012
Mercury	mg/kg dry	<0.10	1/31/2012
Reactivity			

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01676
Date: 2/2/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Reactivity (cont'd)			
Sulfide reactivity	mg/kg	<2.5	2/2/2012
Cyanide Reactivity	mg/kg	<0.10	2/2/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
PCB (Soil)								
Aroclor-1016		0.33	0.265	80	0.303	92	13	1/31/2012
Aroclor-1260		0.33	0.311	94	0.351	106	12	1/31/2012
Surrogate								
Tetrachloro-m-xylene (TCMX)			88		102			
Decachlorobiphenyl			98		110			
Total Petroleum Hydrocarbons by Method 8100 (Soil)								
TPH GC/FID		66.7	58.0	87	53.9	81	7	1/27/2012
Extractable Petroleum Hydrocarbons with PAH (Soil)								
C9-C18 Aliphatics		20	15.3	77	14.3	72	7	1/27/2012
C19-C36 Aliphatics		27	24.1	89	23.0	85	5	1/27/2012
C11-C22 Aromatics		57	45.6	80	46.3	81	2	1/27/2012
Target PAH Analytes								
Naphthalene		3.33	2.06	62	2.18	65	6	1/27/2012
2-Methylnaphthalene		3.33	2.16	65	2.20	66	2	1/27/2012
Acenaphthylene		3.33	2.31	69	2.31	69	0	1/27/2012
Acenaphthene		3.33	2.33	70	2.34	70	0	1/27/2012
Fluorene		3.33	2.52	76	2.51	75	0	1/27/2012
Phenanthrene		3.33	2.64	79	2.68	80	2	1/27/2012
Anthracene		3.33	2.70	81	2.76	83	2	1/27/2012
Fluoranthene		3.33	2.81	84	2.83	85	1	1/27/2012
Pyrene		3.33	2.77	83	2.82	85	2	1/27/2012
Benzo(a)anthracene		3.33	2.91	87	2.96	89	2	1/27/2012
Chrysene		3.33	2.88	86	2.92	88	1	1/27/2012
Benzo(b)fluoranthene		3.33	2.70	81	2.92	88	8	1/27/2012
Benzo(k)fluoranthene		3.33	2.83	85	2.91	87	3	1/27/2012
Benzo(a)pyrene		3.33	2.93	88	2.98	89	2	1/27/2012
Indeno(1,2,3-cd)pyrene		3.33	3.12	94	3.00	90	4	1/27/2012
Dibenzo(a,h)anthracene		3.33	3.00	90	2.97	89	1	1/27/2012
Benzo(g,h,i)perylene		3.33	2.93	88	3.00	90	2	1/27/2012
Extraction Surrogates								
Chloro-octadecane			63		55			
Ortho-terphenyl			81		81			
Fractionation Surrogates								

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01676
Date: 2/2/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Extractable Petroleum Hydrocarbons with PAH (Soil) (cont'd)								
2-Fluorobiphenyl			82		87			
2-Bromonaphthalene			89		89			
Volatile Petroleum Hydrocarbons (Soil)								
Methyl-tert-butylether		2.5	2.95	118	2.94	118	0	1/26/2012
Benzene		2.5	2.44	98	2.45	98	0	1/26/2012
Toluene		2.5	2.42	97	2.41	96	0	1/26/2012
Ethylbenzene		2.5	2.50	100	2.49	100	0	1/26/2012
m,p-Xylene		5.0	5.21	104	5.16	103	1	1/26/2012
o-Xylene		2.5	2.58	103	2.58	103	0	1/26/2012
Naphthalene		2.5	2.31	92	2.34	94	1	1/26/2012
Adj C5-C8 Aliphatics(FID)		7.5	8.06	107	8.06	107	0	1/26/2012
Adj C9-C12 Aliphatics(FID)		5.0	4.85	97	4.97	99	2	1/26/2012
C9-C10 Aromatics(PID)		2.5	2.65	106	2.65	106	0	1/26/2012
Surrogate								
2,5-Dibromotoluene(PID)			118		127			
2,5-Dibromotoluene(FID)			113		123			
5035(Soil)								
Benzene		2.5	2.4	96	2.2	88	9	1/28/2012
Bromobenzene		2.5	2.3	92	2.2	88	4	1/28/2012
Bromochloromethane		2.5	2.2	88	2.0	80	10	1/28/2012
Bromodichloromethane		2.5	2.5	100	2.2	88	13	1/28/2012
Bromoform		2.5	2.3	92	2.1	84	9	1/28/2012
Bromomethane		2.5	2.9	116	2.9	116	0	1/28/2012
n-Butylbenzene		2.5	2.3	92	2.3	92	0	1/28/2012
Sec-butylbenzene		2.5	2.1	84	2.0	80	5	1/28/2012
tert-Butylbenzene		2.5	2.1	84	2.0	80	5	1/28/2012
Carbon Tetrachloride		2.5	1.7	68	1.4	56	19	1/28/2012
Chlorobenzene		2.5	2.2	88	2.1	84	5	1/28/2012
Chloroethane		2.5	2.0	80	1.9	76	5	1/28/2012
Chloroform		2.5	2.3	92	2.1	84	9	1/28/2012
Chloromethane		2.5	1.9	76	1.7	68	11	1/28/2012
2-Chlorotoluene		2.5	2.3	92	2.2	88	4	1/28/2012
4-Chlorotoluene		2.5	2.4	96	2.3	92	4	1/28/2012
Dibromochloromethane		2.5	2.3	92	2.0	80	14	1/28/2012
1,2-Dibromo-3-Chloropropane		2.5	2.9	116	2.7	108	7	1/28/2012
1,2-Dibromoethane(EDB)		2.5	2.2	88	2.0	80	10	1/28/2012
Dibromomethane		2.5	2.3	92	2.1	84	9	1/28/2012
1,2-Dichlorobenzene		2.5	2.2	88	2.1	84	5	1/28/2012
1,3-Dichlorobenzene		2.5	2.2	88	2.2	88	0	1/28/2012
1,4-Dichlorobenzene		2.5	2.3	92	2.2	88	4	1/28/2012
Dichlorodifluoromethane		2.5	1.9	76	1.7	68	11	1/28/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01676
Date: 2/2/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
5035(Soil) (cont'd)								
1,1-Dichloroethane		2.5	2.1	84	2.0	80	5	1/28/2012
1,2-Dichloroethane		2.5	2.8	112	2.6	104	7	1/28/2012
1,1-Dichloroethene		2.5	2.6	104	2.4	96	8	1/28/2012
cis-1,2-Dichloroethene		2.5	2.3	92	2.2	88	4	1/28/2012
trans-1,2-Dichloroethylene		2.5	1.9	76	1.8	72	5	1/28/2012
1,2-Dichloropropane		2.5	2.3	92	2.1	84	9	1/28/2012
1,3-Dichloropropane		2.5	2.1	84	2.0	80	5	1/28/2012
2,2-Dichloropropane		2.5	3.3	132	3.0	120	10	1/28/2012
1,1-Dichloropropene		2.5	2.3	92	2.1	84	9	1/28/2012
Ethylbenzene		2.5	2.3	92	2.2	88	4	1/28/2012
Hexachlorobutadiene		2.5	2.2	88	2.2	88	0	1/28/2012
Isopropylbenzene		2.5	2.2	88	2.1	84	5	1/28/2012
p-Isopropyltoluene		2.5	2.3	92	2.2	88	4	1/28/2012
Methylene Chloride		2.5	2.4	96	2.2	88	9	1/28/2012
n-Propylbenzene		2.5	2.3	92	2.1	84	9	1/28/2012
Styrene		2.5	2.2	88	2.1	84	5	1/28/2012
1,1,1,2-Tetrachloroethane		2.5	2.1	84	2.0	80	5	1/28/2012
1,1,2,2-Tetrachloroethane		2.5	1.9	76	1.7	68	11	1/28/2012
Tetrachloroethene		2.5	2.3	92	2.1	84	9	1/28/2012
Toluene		2.5	2.5	100	2.2	88	13	1/28/2012
1,2,3-Trichlorobenzene		2.5	2.8	112	3.3	132	16	1/28/2012
1,2,4-Trichlorobenzene		2.5	3.1	124	3.2	128	3	1/28/2012
1,1,1-Trichloroethane		2.5	2.4	96	2.2	88	9	1/28/2012
1,1,2-Trichloroethane		2.5	2.1	84	1.9	76	10	1/28/2012
Trichloroethene		2.5	2.2	88	2.0	80	10	1/28/2012
Trichlorofluoromethane		2.5	2.4	96	2.1	84	13	1/28/2012
1,2,3-Trichloropropane		2.5	2.5	100	2.2	88	13	1/28/2012
1,2,4-Trimethylbenzene		2.5	2.4	96	2.3	92	4	1/28/2012
1,3,5-Trimethylbenzene		2.5	2.4	96	2.3	92	4	1/28/2012
Vinyl Chloride		2.5	2.2	88	2.0	80	10	1/28/2012
o-Xylene		2.5	2.1	84	2.1	84	0	1/28/2012
m,p-Xylene		5.0	4.3	86	4.1	82	5	1/28/2012
MTBE		2.5	2.6	104	2.4	96	8	1/28/2012
2-Butanone(MEK)		25	36	144	33	132	9	1/28/2012
Surrogates								
Dibromofluoromethane			108		106			
Toluene-d8			101		100			
4-Bromofluorobenzene			107		108			
1,2 Dichloroethane-d4			102		102			
Metals (Soil)								
Mercury	52-149%	20	21	105	22	110	5	1/31/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01676
Date: 2/2/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Metals (Soil) (cont'd)								
Arsenic	71-129%	271	290	107	310	114	7	2/1/2012
Barium	73-126%	210	200	95	200	95	0	2/1/2012
Cadmium	73-127%	44.3	42	95	43	97	2	2/1/2012
Chromium	70-130%	154	150	97	150	97	0	2/1/2012
Lead	70-130%	90.3	86	95	89	99	3	2/1/2012
Selenium	66-134%	117	110	94	110	94	0	2/1/2012
Silver	42-158%	39.3	39	99	39	99	0	2/1/2012
Antimony	0-280%	45.7	78.9	173	75	164	5	2/1/2012
Vanadium	57-143%	64.0	52	81	56	88	7	2/1/2012
Beryllium	72-128%	46.6	44	94	44	94	0	2/1/2012
Nickel	73-127%	138	130	94	140	101	7	2/1/2012
Thallium	68-132%	136	120	88	130	96	8	2/1/2012
Zinc	73-127%	588	560	95	560	95	0	2/1/2012
Total Metals (Soil)								
Mercury	52-149%	20	21	105	22	110	5	1/31/2012
Arsenic	71-129%	271	290	107	310	114	7	2/1/2012
Cadmium	73-127%	44.3	42	95	43	97	2	2/1/2012
Chromium	70-130%	154	150	97	150	97	0	2/1/2012
Lead	70-130%	90.3	86	95	89	99	3	2/1/2012
Reactivity								
Cyanide Reactivity		2.00	1.35	68	1.36	68	1	2/2/2012
Sulfide reactivity		10	4.07	41	3.91	39	4	2/2/2012

Case Narrative

Date: 2/2/2012

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Project: PROJECT# 1153.12.1 STEPHENSFIELD, PLYMOUTH MA

RIAL WO#: 1201-01676

All QA/QC procedures required by the EPH Method were followed. All performance/acceptance standards for the required QA/QC procedures were achieved or otherwise stated in this case narrative. A fractionation check was performed on the silica gel lot associated with this sample and found to pass the method criteria unless otherwise stated here. The data reported for this sample was not corrected for instrument/solvent baseline effects. No significant modifications were made to the EPH Method.

All QA/QC procedures required by the VPH Method were followed. All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated. No significant modifications were made to the VPH Method.

The following exceptions were noted for this Work Order:

The methods requested for pH, Paint Filter, Flashpoint, Sulfide Reactivity, Cyanide Reactivity, and TPH GC/FID are not listed in the table of contents for compendium of MCP analytical methods. Therefore, there is no guideline for presumptive certainty.

Polychlorinated Biphenyls

For Sample -003(TP-19): The surrogate Decachlorobiphenyl was outside the QC Range. This sample was re-analyzed to confirm matrix effect. The re-analysis data is reported with the original data.

Volatile Organics by 8260B

Question H - The continuing calibration verification standard had analytes outside of the 20% D QC acceptance limit. The specific outliers include, (dichlorodifluoromethane 24.5%, chloromethane 25.4%. carbon disulfide 22.1%. Methyl ethyl ketone -45.5%, 2,2-dichloropropane -31.9%, Carbon Tetrachloride 30.8%, 1,4-dioxane -45.5%, 1,1,2,2-tetrachloroethane 24.6%, 1,2,4-trichlorobenzene -23.8%, and naphthalene -25.5%).

Question H - Laboratory control sample (1/28/12) / laboratory control sample duplicate (1/28/12) had analytes outside the 70%-130% QC acceptance limits. Up to 10% of the analytes are allowed to be out. The specific outliers include, (Carbon Tetrachloride 68%, 56%, Chloromethane LCSD 68%, Dichlorodifluoromethane LCSD 68%. 2,2-Dichloropropane LCS 132%, 1,1,2,2-Tetrachloroethane LCSD 68%, 2-Butanone(MEK) 144%, 132%).

These analytes were not detected in the associated samples

Total Metals by 6010

Question H - No MS/MSD requested for Soil/Sediment sample in this work order.

Question I - Per the client's request, only a subset of the MCP analyte list for SW-846 Method 6010 Total Metals is reported for Sample -001(TANK WC-1).

There were no additional exceptions or analytical issues to discuss concerning the testing requirements for the project.

Mike Hobin
QA/QC Director

R.I. ANALYTICAL
Specialists in Environmental Services

CHAIN OF CUSTODY RECORD

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Warwick, RI 02888-3007
800-937-2580 • Fax: 401-738-1970

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Hudson, MA 01749-1331
800-937-2580 • Fax: 978-568-0078

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type C	Preservation Code P	Matrix Code M	EPH w/ PAHs	VPH w/ VOCs	VOCs 8260	MCP metals	PCBs		TPH w/ Fingerprint	Volatiles 8260	Metals (As, Cd, Cr, Hg, Pb)	PCBs	Ignitability	Corrosivity	Reactivity (CN, TS)	Free Liquids				
1/24/2012	1100	Tank ~~[illegible]~~ WC-1	C	1AG	NP	S							X		X	X	X	X	X	X				
1/24/2012	1100	Tank WC-1	G	2V	M NP	S								X										
																					HOLD			
1/24/2012	1030	TP-19	G	1AG 2V	M NP	S	X	X	~~X~~	X	X						X	X	X	X				
1/24/2012	1030	TP-19	G	~~2V~~	M NP	S			X						HOLD				HOLD					

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Client Information

Company Name: Norfolk Ram Group, LLC
Address: One Roberts Road
City / State / Zip: Plymouth MA 02360
Telephone: 508-747-7900 Fax: 508-747-3658
Contact Person: Eric Sullivan

Project Information

Project Name: Stephens Field, Plymouth MA
P.O. Number:
Project Number: 1153.12.1
Report To: Son Kitchen
Phone: 508-747-7900 Fax
Sampled By: E.S
Quote No:
Email report to these addresses:

Relinquished By Signatures	Date	Time	Received By Signatures	Date	Time
Eric Sullivan	1/25/2012	1334	Ryan Stylo	1/25/12	1334
Ryan Stylo	1/25/12	1649	R Wm	1/25/12	1649

Turn Around Time

X Normal | EMAIL Report
5 Business days. Possible surcharge
Rush – Date Due: ___/___/___

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, (S-1) S-2, S-3
MCP Data Enhancement QC Package? (Yes) No
1201-01676
Hold 1201-01678
* TPH w/ Fingerprint *
Temp. Upon Receipt 3.2°C

Lab Use Only

X Sample Pick-Up Only
RIAL sampled; attach field hours
X Shipped on ice
Workorder No: 1201-01676

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile Preservatives: A=Ascorbic Acid, NH4=NH_4Cl, H=HCl, M=MeOH, N=HNO_3, NP=None, S=H_2SO_4, SB=$NaHSO_4$, SH=NaOH, T=$Na_2S_2O_3$, Z=ZnOAc
Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, SL=Sludge, A=Air, B=Bulk/Solid, WP=Wipe, O=_____

R.I. ANALYTICAL
Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Date Received: 2/16/12
Date Reported: 2/23/12
P.O. #:
Work Order #: 1202-03257

DESCRIPTION: PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.
The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844

This Certificate represents all data associated with the referenced work order and is paginated for completeness. The complete Certificate includes one attachment; the original Chain of Custody.

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:

Data Reporting

enc: Chain of Custody

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 2/16/12

Work Order #: 1202-03257

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 001
SAMPLE DESCRIPTION: B-30
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 2/14/2012 @ 13:50

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
VPH						
Unadjusted C5-C8 Aliphatics(FID)	<5.0	5.0	mg/kg dry	MADEP	2/17/12	KAC
Unadjusted C9-C12 Aliphatics (FID)	<5.0	5.0	mg/kg dry	MADEP	2/17/12	KAC
Methyl-tert-butylether	<0.10	0.10	mg/kg dry	MADEP	2/17/12	KAC
Benzene	<0.50	0.50	mg/kg dry	MADEP	2/17/12	KAC
Toluene	<0.50	0.50	mg/kg dry	MADEP	2/17/12	KAC
Ethylbenzene	<0.50	0.50	mg/kg dry	MADEP	2/17/12	KAC
m,p-Xylene	<0.50	0.50	mg/kg dry	MADEP	2/17/12	KAC
o-Xylene	<0.50	0.50	mg/kg dry	MADEP	2/17/12	KAC
Total Xylene	<0.50	0.50	mg/kg dry	MADEP	2/17/12	KAC
Naphthalene	<0.50	0.50	mg/kg dry	MADEP	2/17/12	KAC
Adjusted C5-C8 Aliphatics(FID)	<5.0	5.0	mg/kg dry	MADEP	2/17/12	KAC
Adjusted C9-C12 Aliphatics(FID)	<5.0	5.0	mg/kg dry	MADEP	2/17/12	KAC
C9-C10 Aromatics(PID)	<5.0	5.0	mg/kg dry	MADEP	2/17/12	KAC
Moisture	18		%	SM2540 G.	2/17/12	BJK
Surrogate			RANGE		2/17/12	KAC
2,5-Dibromotoluene(PID)	146*		70-130%	MADEP	2/17/12	KAC
2,5-Dibromotoluene(FID)	151*		70-130%	MADEP	2/17/12	KAC
EPH/PAH						
C9-C18 Aliphatics	<24	24	mg/kg dry	MADEP	2/23/12	JEB
C19-C36 Aliphatics	68	24	mg/kg dry	MADEP	2/23/12	JEB
C11-C22 Aromatics	200	24	mg/kg dry	MADEP	2/23/12	JEB
Total EPH	270		mg/kg dry	MADEP	2/23/12	JEB
Target PAH Analytes					2/23/12	JEB
Naphthalene	0.4	0.4	mg/kg dry	MADEP	2/23/12	JEB
2-Methylnaphthalene	<0.4	0.4	mg/kg dry	MADEP	2/23/12	JEB
Acenaphthylene	<0.4	0.4	mg/kg dry	MADEP	2/23/12	JEB
Acenaphthene	0.9	0.4	mg/kg dry	MADEP	2/23/12	JEB
Fluorene	2.1	0.4	mg/kg dry	MADEP	2/23/12	JEB
Phenanthrene	9.8	0.4	mg/kg dry	MADEP	2/23/12	JEB
Anthracene	3.3	0.4	mg/kg dry	MADEP	2/23/12	JEB
Fluoranthene	13	0.4	mg/kg dry	MADEP	2/23/12	JEB
Pyrene	11	0.4	mg/kg dry	MADEP	2/23/12	JEB
Benzo(a)anthracene	6.4	0.4	mg/kg dry	MADEP	2/23/12	JEB
Chrysene	6.3	0.4	mg/kg dry	MADEP	2/23/12	JEB

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 2/16/12

Work Order #: 1202-03257

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 001
SAMPLE DESCRIPTION: B-30
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 2/14/2012 @ 13:50

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Benzo(b)fluoranthene	4.5	0.4	mg/kg dry	MADEP	2/23/12	JEB
Benzo(k)fluoranthene	4.5	0.4	mg/kg dry	MADEP	2/23/12	JEB
Benzo(a)pyrene	4.9	0.4	mg/kg dry	MADEP	2/23/12	JEB
Indeno(1,2,3-cd)pyrene	1.7	0.4	mg/kg dry	MADEP	2/23/12	JEB
Dibenzo(a,h)anthracene	0.8	0.4	mg/kg dry	MADEP	2/23/12	JEB
Benzo(g,h,i)perylene	1.5	0.4	mg/kg dry	MADEP	2/23/12	JEB
Moisture	18		%	SM2540 G.	2/17/12	BJK
Extraction Surrogates			RANGE		2/23/12	JEB
Chloro-octadecane	51		40-140%	MADEP	2/23/12	JEB
Ortho-terphenyl	60		40-140%	MADEP	2/23/12	JEB
Fractionation Surrogates			RANGE		2/23/12	JEB
2-Fluorobiphenyl	75		40-140%	MADEP	2/23/12	JEB
2-Bromonaphthalene	76		40-140%	MADEP	2/23/12	JEB
Extraction date	Extracted			MADEP	2/21/12	BJK

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

Method VPH: * Surrogates outside acceptable range. There were no target compounds detected. Sample was not rerun.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 2/16/12

Work Order #: 1202-03257

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 002
SAMPLE DESCRIPTION: B-32
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 2/14/2012 @ 14:10

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
VPH						
Unadjusted C5-C8 Aliphatics(FID)	115	2.7	mg/kg dry	MADEP	2/17/12	KAC
Unadjusted C9-C12 Aliphatics (FID)	296	2.7	mg/kg dry	MADEP	2/17/12	KAC
Methyl-tert-butylether	<0.05	0.05	mg/kg dry	MADEP	2/17/12	KAC
Benzene	<0.27	0.27	mg/kg dry	MADEP	2/17/12	KAC
Toluene	<0.27	0.27	mg/kg dry	MADEP	2/17/12	KAC
Ethylbenzene	0.90	0.27	mg/kg dry	MADEP	2/17/12	KAC
m,p-Xylene	0.34	0.27	mg/kg dry	MADEP	2/17/12	KAC
o-Xylene	<0.27	0.27	mg/kg dry	MADEP	2/17/12	KAC
Total Xylene	0.34	0.27	mg/kg dry	MADEP	2/17/12	KAC
Naphthalene	0.65	0.27	mg/kg dry	MADEP	2/17/12	KAC
Adjusted C5-C8 Aliphatics(FID)	115	2.7	mg/kg dry	MADEP	2/17/12	KAC
Adjusted C9-C12 Aliphatics(FID)	208	2.7	mg/kg dry	MADEP	2/17/12	KAC
C9-C10 Aromatics(PID)	87	2.7	mg/kg dry	MADEP	2/17/12	KAC
Moisture	13		%	SM2540 G.	2/17/12	BJK
Surrogate			RANGE		2/17/12	KAC
2,5-Dibromotoluene(PID)	213*		70-130%	MADEP	2/17/12	KAC
2,5-Dibromotoluene(FID)	224*		70-130%	MADEP	2/17/12	KAC
EPH/PAH						
C9-C18 Aliphatics	<23	23	mg/kg dry	MADEP	2/23/12	JEB
C19-C36 Aliphatics	<23	23	mg/kg dry	MADEP	2/23/12	JEB
C11-C22 Aromatics	81	23	mg/kg dry	MADEP	2/23/12	JEB
Total EPH	81		mg/kg dry	MADEP	2/23/12	JEB
Target PAH Analytes					2/23/12	JEB
Naphthalene	<0.4	0.4	mg/kg dry	MADEP	2/23/12	JEB
2-Methylnaphthalene	<0.4	0.4	mg/kg dry	MADEP	2/23/12	JEB
Acenaphthylene	<0.4	0.4	mg/kg dry	MADEP	2/23/12	JEB
Acenaphthene	<0.4	0.4	mg/kg dry	MADEP	2/23/12	JEB
Fluorene	0.5	0.4	mg/kg dry	MADEP	2/23/12	JEB
Phenanthrene	5.0	0.4	mg/kg dry	MADEP	2/23/12	JEB
Anthracene	1.3	0.4	mg/kg dry	MADEP	2/23/12	JEB
Fluoranthene	6.0	0.4	mg/kg dry	MADEP	2/23/12	JEB
Pyrene	5.9	0.4	mg/kg dry	MADEP	2/23/12	JEB
Benzo(a)anthracene	3.0	0.4	mg/kg dry	MADEP	2/23/12	JEB
Chrysene	2.9	0.4	mg/kg dry	MADEP	2/23/12	JEB

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 2/16/12

Work Order #: 1202-03257

PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA

Sample # 002
SAMPLE DESCRIPTION: B-32
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 2/14/2012 @ 14:10

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Benzo(b)fluoranthene	2.1	0.4	mg/kg dry	MADEP	2/23/12	JEB
Benzo(k)fluoranthene	2.4	0.4	mg/kg dry	MADEP	2/23/12	JEB
Benzo(a)pyrene	2.9	0.4	mg/kg dry	MADEP	2/23/12	JEB
Indeno(1,2,3-cd)pyrene	1.1	0.4	mg/kg dry	MADEP	2/23/12	JEB
Dibenzo(a,h)anthracene	0.5	0.4	mg/kg dry	MADEP	2/23/12	JEB
Benzo(g,h,i)perylene	1.1	0.4	mg/kg dry	MADEP	2/23/12	JEB
Moisture	13		%	SM2540 G.	2/17/12	BJK
Extraction Surrogates			RANGE		2/23/12	JEB
Chloro-octadecane	52		40-140%	MADEP	2/23/12	JEB
Ortho-terphenyl	52		40-140%	MADEP	2/23/12	JEB
Fractionation Surrogates			RANGE		2/23/12	JEB
2-Fluorobiphenyl	74		40-140%	MADEP	2/23/12	JEB
2-Bromonaphthalene	75		40-140%	MADEP	2/23/12	JEB
Extraction date	Extracted			MADEP	2/21/12	BJK
VPH						
Unadjusted C5-C8 Aliphatics(FID)	85	2.7	mg/kg dry	MADEP	2/21/12	KAC
Unadjusted C9-C12 Aliphatics (FID)	280	2.7	mg/kg dry	MADEP	2/21/12	KAC
Methyl-tert-butylether	<0.10	0.10	mg/kg dry	MADEP	2/21/12	KAC
Benzene	<0.27	0.27	mg/kg dry	MADEP	2/21/12	KAC
Toluene	<0.27	0.27	mg/kg dry	MADEP	2/21/12	KAC
Ethylbenzene	<0.27	0.27	mg/kg dry	MADEP	2/21/12	KAC
m,p-Xylene	<0.27	0.27	mg/kg dry	MADEP	2/21/12	KAC
o-Xylene	<0.27	0.27	mg/kg dry	MADEP	2/21/12	KAC
Total Xylene	<0.27	0.27	mg/kg dry	MADEP	2/17/12	KAC
Naphthalene	<0.27	0.27	mg/kg dry	MADEP	2/21/12	KAC
Adjusted C5-C8 Aliphatics(FID)	85	2.7	mg/kg dry	MADEP	2/21/12	KAC
Adjusted C9-C12 Aliphatics(FID)	192	2.7	mg/kg dry	MADEP	2/21/12	KAC
C9-C10 Aromatics(PID)	88	2.7	mg/kg dry	MADEP	2/21/12	KAC
Moisture	13		%	SM2540 G.	2/23/12	BJK
Surrogate			RANGE		2/21/12	KAC
2,5-Dibromotoluene(PID)	152*		70-130%	MADEP	2/21/12	KAC
2,5-Dibromotoluene(FID)	151*		70-130%	MADEP	2/21/12	KAC

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

Method VPH: * Surrogates outside acceptable range. There were target compounds and ranges detected.
Sample was rerun and reported.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

Customer Name : Norfolk Ram Group

W.O. Number 1202-03257

MassDEP Analytical Protocol Certification Form

Laboratory Name:	R.I. Analytical Laboratories	Work Order No:	1202-03257
Project / Location:	PROJECT# 1153.12.1 STEPHENS FIELD, PLYMOUTH MA	RTN :	

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):

1202-03257-001 through 1202-03257-002

Matrices: ☐ Groundwater/Surface Water ☒ Soil / Sediment ☐ Drinking Water ☐ Air ☐ Other

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☐	MassDEP VPH CAM IV A ☒	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☒	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☐	6020 Metals CAM III D ☐	8082 PCB CAM V A ☐	9014 Total Cyanide /PAC CAM VI A ☐	6860 Perchlorate CAM V111 B ☐	

Affirmative responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes	☐ No
B	Were the analytical methods(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes	☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes	☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Aquisition and Reporting of Analytical Data"?	☒ Yes	☐ No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s) ? (Refer to the individual method(s) for a list of significant modifications).	☒ Yes	☐ No
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes	☐ No

Responses to Questions G,H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☒ Yes	☐ No [1]

***Data User Note:** Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes	☒ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☒ Yes	☐ No [1]

[1] *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: [signature] Position: QA/QC Director

Printed Name: Mike Hobin Date: 2/23/12

QA/QC Report

Client: Norfolk Ram Group
WO #: 1202-03257
Date: 2/23/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Extractable Petroleum Hydrocarbons with PAH (Soil)			
C9-C18 Aliphatics	mg/kg dry	<20	2/22/2012
C19-C36 Aliphatics	mg/kg dry	<20	2/22/2012
C11-C22 Aromatics	mg/kg dry	<20	2/22/2012
Total EPH	mg/kg dry	<60	2/22/2012
Target PAH Analytes			2/22/2012
Naphthalene	mg/kg dry	<0.4	2/22/2012
2-Methylnaphthalene	mg/kg dry	<0.4	2/22/2012
Acenaphthylene	mg/kg dry	<0.4	2/22/2012
Acenaphthene	mg/kg dry	<0.4	2/22/2012
Fluorene	mg/kg dry	<0.4	2/22/2012
Phenanthrene	mg/kg dry	<0.4	2/22/2012
Anthracene	mg/kg dry	<0.4	2/22/2012
Fluoranthene	mg/kg dry	<0.4	2/22/2012
Pyrene	mg/kg dry	<0.4	2/22/2012
Benzo(a)anthracene	mg/kg dry	<0.4	2/22/2012
Chrysene	mg/kg dry	<0.4	2/22/2012
Benzo(b)fluoranthene	mg/kg dry	<0.4	2/22/2012
Benzo(k)fluoranthene	mg/kg dry	<0.4	2/22/2012
Benzo(a)pyrene	mg/kg dry	<0.4	2/22/2012
Indeno(1,2,3-cd)pyrene	mg/kg dry	<0.4	2/22/2012
Dibenzo(a,h)anthracene	mg/kg dry	<0.4	2/22/2012
Benzo(g,h,i)perylene	mg/kg dry	<0.4	2/22/2012
Extraction Surrogates	**RANGE**		2/22/2012
Chloro-octadecane	40-140%	67	2/22/2012
Ortho-terphenyl	40-140%	74	2/22/2012
Fractionation Surrogates	**RANGE**		2/22/2012
2-Fluorobiphenyl	40-140%	76	2/22/2012
2-Bromonaphthalene	40-140%	76	2/22/2012
Volatile Petroleum Hydrocarbons (Soil)			
Unadj C5-C8 Aliphatics(FID)	mg/kg dry	<2.5	2/17/2012
Unadj C9-C12 Aliphatic(FID)	mg/kg dry	<2.5	2/17/2012
Methyl-tert-butylether	mg/kg dry	<0.10	2/17/2012
Benzene	mg/kg dry	<0.25	2/17/2012
Toluene	mg/kg dry	<0.25	2/17/2012
Ethylbenzene	mg/kg dry	<0.25	2/17/2012
m,p-Xylene	mg/kg dry	<0.25	2/17/2012
o-Xylene	mg/kg dry	<0.25	2/17/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1202-03257
Date: 2/23/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Volatile Petroleum Hydrocarbons (Soil) (cont'd)			
Naphthalene	mg/kg dry	<0.25	2/17/2012
Adj C5-C8 Aliphatics(FID)	mg/kg dry	<2.5	2/17/2012
Adj C9-C12 Aliphatics(FID)	mg/kg dry	<2.5	2/17/2012
C9-C10 Aromatics(PID)	mg/kg dry	<2.5	2/17/2012
Surrogate	**RANGE**		2/17/2012
2,5-Dibromotoluene(PID)	70-130%	119	2/17/2012
2,5-Dibromotoluene(FID)	70-130%	125	2/17/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Volatile Petroleum Hydrocarbons (Soil)								
Methyl-tert-butylether		2.5	2.71	108	2.80	112	3	2/17/2012
Benzene		2.5	2.23	89	2.24	90	0	2/17/2012
Toluene		2.5	2.23	89	2.28	91	2	2/17/2012
Ethylbenzene		2.5	2.31	92	2.37	95	3	2/17/2012
m,p-Xylene		5.0	4.79	96	4.91	98	2	2/17/2012
o-Xylene		2.5	2.37	95	2.40	96	1	2/17/2012
Naphthalene		2.5	2.02	81	1.95	78	4	2/17/2012
Adj C5-C8 Aliphatics(FID)		7.5	7.98	106	7.87	105	1	2/17/2012
Adj C9-C12 Aliphatics(FID)		5.0	4.97	99	5.18	104	4	2/17/2012
C9-C10 Aromatics(PID)		2.5	2.42	97	2.43	97	0	2/17/2012
Surrogate								
2,5-Dibromotoluene(PID)			81		95			
2,5-Dibromotoluene(FID)			84		99			
Extractable Petroleum Hydrocarbons with PAH (Soil)								
C9-C18 Aliphatics		20	13.6	68	14.3	72	5	2/23/2012
C19-C36 Aliphatics		27	22.9	85	23.1	86	1	2/23/2012
C11-C22 Aromatics		57	38.9	68	42.9	75	10	2/23/2012
Target PAH Analytes								
Naphthalene		3.33	1.90	57	2.00	60	5	2/23/2012
2-Methylnaphthalene		3.33	1.87	56	2.00	60	7	2/23/2012
Acenaphthylene		3.33	2.00	60	2.09	63	4	2/23/2012
Acenaphthene		3.33	2.04	61	2.11	63	3	2/23/2012
Fluorene		3.33	2.29	69	2.33	70	2	2/23/2012
Phenanthrene		3.33	2.36	71	2.39	72	1	2/23/2012
Anthracene		3.33	2.45	74	2.49	75	2	2/23/2012
Fluoranthene		3.33	2.51	75	2.54	76	1	2/23/2012
Pyrene		3.33	2.46	74	2.52	76	2	2/23/2012
Benzo(a)anthracene		3.33	2.50	75	2.63	79	5	2/23/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1202-03257
Date: 2/23/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Extractable Petroleum Hydrocarbons with PAH (Soil) (cont'd)								
Chrysene		3.33	2.50	75	2.64	79	5	2/23/2012
Benzo(b)fluoranthene		3.33	2.45	74	2.91	87	17	2/23/2012
Benzo(k)fluoranthene		3.33	2.50	75	2.70	81	8	2/23/2012
Benzo(a)pyrene		3.33	2.41	72	2.84	85	16	2/23/2012
Indeno(1,2,3-cd)pyrene		3.33	2.28	68	2.85	86	22	2/23/2012
Dibenzo(a,h)anthracene		3.33	2.32	70	2.91	87	23	2/23/2012
Benzo(g,h,i)perylene		3.33	2.08	62	2.93	88	34	2/23/2012
Extraction Surrogates								
Chloro-octadecane			56		74			
Ortho-terphenyl			72		72			
Fractionation Surrogates								
2-Fluorobiphenyl			73		75			
2-Bromonaphthalene			75		75			

Case Narrative

Date: 2/23/2012

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Project: PROJECT# 1153.12.1 STEPHENSFIELD, PLYMOUTH MA

RIAL WO#: 1202-03257

All QA/QC procedures required by the EPH Method were followed. All performance/acceptance standards for the required QA/QC procedures were achieved or otherwise stated in this case narrative. A fractionation check was performed on the silica gel lot associated with this sample and found to pass the method criteria unless otherwise stated here. The data reported for this sample was not corrected for instrument/solvent baseline effects. No significant modifications were made to the EPH Method.

All QA/QC procedures required by the VPH Method were followed. All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated. No significant modifications were made to the VPH Method.

The following exceptions were noted for this Work Order:

Volatile Petroleum Hydrocarbons

Question H - Samples -001(B-30), and -002(B-32): The FID, and PID surrogates are outside the QC Range. It exhibited high recovery and the sample had no reportable targets or range concentrations. Per the method, the sample was not re-analyzed

There were no additional exceptions or analytical issues to discuss concerning the testing requirements for the project.

Mike Hobin
QA/QC Director

R.I. ANALYTICAL
Specialists in Environmental Services

CHAIN OF CUSTODY RECORD

41 Illinois Avenue
Warwick, RI 02888-3007
800-937-2580 • Fax: 401-738-1970

131 Coolidge St., Suite 105
Hudson, MA 01749-1331
800-937-2580 • Fax: 978-568-0078

09-20-11

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type C	Preservation Code P	Matrix Code M	EPH w/ PAHs	VPH w/ VOCs
2/14/2012	1350	B-30	G	2V	M	S		X
	1350	B-30		1AG	NP		X	
	1410	B-32		2V	M			X
	1410	B-32		1AG	NP		X	
				(6)				

Client Information		Project Information	
Company Name:	Norfolk RAM Group	Project Name:	Stephens Field, Plymouth MA
Address:	One Roberts Road	P.O. Number:	Project Number: 1153.12.1
City / State / Zip:	Plymouth MA 02360	Report To:	Jo-Ann Kitchen — Phone: 508-747-7900 Fax: 508-747-3658
Telephone:	508-747-7900 Fax: 508-747-3658	Sampled by:	E.S
Contact Person:	Eric Sullivan	Quote No:	Email report to these addresses: esullivan@norfolkram.com; jkitchen@norfolkram.com

Relinquished By	Date	Time	Received By	Date	Time
	2/16/12	1210		2/16/12	1210
	2/16	1622		2/16/12	1622

Turn Around Time		
X	Normal	X EMAIL Report
	5 Business days	
	Rush – Date Due:___/___/___	

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, (S-1), S-2, S-3 MCP Data Enhancement QC Package? (Yes) No

Temp. Upon Receipt 2.0 °C

Lab Use Only	
X	Sample Pick Up Only
	RIAL sampled; attach field hours
X	Shipped on ice
	Workorder No: 1202-0357

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile Preservatives: A=Ascorbic Acid, NH4=NH_4Cl, H=HCl, M=MeOH, N=HNO_3, NP=None, S=H_2SO_4, SB=$NaHSO_4$, SH=NaOH, T=$Na_2S_2O_3$, Z=ZnOAc
Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, SL=Sludge, A=Air, B=Bulk/Solid, O=_____

Report Date:
24-Feb-12 14:35

☑ Final Report
☐ Re-Issued Report
☐ Revised Report

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

Laboratory Report

Norfolk RAM Group
One Roberts Road
Plymouth, MA 02360
Attn: Jon Kitchen

Project: Stephens Field - Plymouth, MA
Project #: 1153.12.1

Laboratory ID	Client Sample ID	Matrix	Date Sampled	Date Received
SB43999-01	B-1 Topsoil	Soil	14-Feb-12 08:25	16-Feb-12 17:00
SB43999-02	B-1 Fill	Soil	14-Feb-12 08:35	16-Feb-12 17:00
SB43999-03	B-2 Topsoil	Soil	14-Feb-12 08:35	16-Feb-12 17:00
SB43999-04	B-2 Fill	Soil	14-Feb-12 08:35	16-Feb-12 17:00
SB43999-05	B-4 Topsoil	Soil	14-Feb-12 09:00	16-Feb-12 17:00
SB43999-06	B-4 Fill	Soil	14-Feb-12 09:00	16-Feb-12 17:00
SB43999-07	B-5 Topsoil	Soil	14-Feb-12 09:15	16-Feb-12 17:00
SB43999-08	B-5 Fill	Soil	14-Feb-12 09:15	16-Feb-12 17:00
SB43999-09	B-7 Topsoil	Soil	14-Feb-12 09:30	16-Feb-12 17:00
SB43999-10	B-7 Fill	Soil	14-Feb-12 09:30	16-Feb-12 17:00
SB43999-11	B-9 Topsoil	Soil	14-Feb-12 09:50	16-Feb-12 17:00
SB43999-12	B-9 Fill	Soil	14-Feb-12 09:50	16-Feb-12 17:00
SB43999-13	B-11 Fill	Soil	14-Feb-12 10:10	16-Feb-12 17:00
SB43999-14	B-11 Topsoil	Soil	14-Feb-12 10:10	16-Feb-12 17:00
SB43999-15	B-13 Topsoil	Soil	14-Feb-12 10:30	16-Feb-12 17:00
SB43999-16	B-13 Fill	Soil	14-Feb-12 10:30	16-Feb-12 17:00
SB43999-17	B-14 Topsoil	Soil	14-Feb-12 10:45	16-Feb-12 17:00
SB43999-18	B-14 Fill	Soil	14-Feb-12 10:45	16-Feb-12 17:00
SB43999-19	B-15 Topsoil	Soil	14-Feb-12 10:55	16-Feb-12 17:00
SB43999-20	B-15 Fill	Soil	14-Feb-12 10:55	16-Feb-12 17:00
SB43999-21	B-17 Topsoil	Soil	14-Feb-12 11:10	16-Feb-12 17:00
SB43999-22	B-17 Fill	Soil	14-Feb-12 11:10	16-Feb-12 17:00
SB43999-23	B-19 Topsoil	Soil	14-Feb-12 11:30	16-Feb-12 17:00
SB43999-24	B-19 Fill	Soil	14-Feb-12 11:30	16-Feb-12 17:00
SB43999-25	B-20 Topsoil	Soil	14-Feb-12 11:40	16-Feb-12 17:00
SB43999-26	B-20 Fill	Soil	14-Feb-12 11:40	16-Feb-12 17:00
SB43999-27	B-21 Topsoil	Soil	14-Feb-12 11:50	16-Feb-12 17:00
SB43999-28	B-21 Fill	Soil	14-Feb-12 11:50	16-Feb-12 17:00
SB43999-29	B-22 Topsoil	Soil	14-Feb-12 12:00	16-Feb-12 17:00
SB43999-30	B-22 Fill	Soil	14-Feb-12 12:00	16-Feb-12 17:00
SB43999-31	Playground Sand	Soil	14-Feb-12 12:05	16-Feb-12 17:00
SB43999-32	B-23 Topsoil	Soil	14-Feb-12 12:40	16-Feb-12 17:00
SB43999-33	B-23 Fill	Soil	14-Feb-12 12:40	16-Feb-12 17:00
SB43999-34	B-24 Topsoil	Soil	14-Feb-12 12:50	16-Feb-12 17:00
SB43999-35	B-24 Fill	Soil	14-Feb-12 12:50	16-Feb-12 17:00
SB43999-36	B-25 Topsoil	Soil	14-Feb-12 13:00	16-Feb-12 17:00
SB43999-37	B-25 Fill	Soil	14-Feb-12 13:00	16-Feb-12 17:00

SB43999-38	B-26 Topsoil	Soil	14-Feb-12 13:10	16-Feb-12 17:00
SB43999-39	B-26 Fill	Soil	14-Feb-12 13:10	16-Feb-12 17:00
SB43999-40	B-27 Topsoil	Soil	14-Feb-12 13:20	16-Feb-12 17:00
SB43999-41	B-27 Fill	Soil	14-Feb-12 13:20	16-Feb-12 17:00
SB43999-42	B-28 Topsoil	Soil	14-Feb-12 13:30	16-Feb-12 17:00
SB43999-43	B-28 Fill	Soil	14-Feb-12 13:30	16-Feb-12 17:00
SB43999-44	B-29 Topsoil	Soil	14-Feb-12 13:40	16-Feb-12 17:00
SB43999-45	B-29 Fill	Soil	14-Feb-12 13:40	16-Feb-12 17:00
SB43999-46	B-31 Topsoil	Soil	14-Feb-12 14:00	16-Feb-12 17:00
SB43999-47	B-31 Fill	Soil	14-Feb-12 14:00	16-Feb-12 17:00
SB43999-48	B-32 Topsoil	Soil	14-Feb-12 14:10	16-Feb-12 17:00
SB43999-49	B-32 Fill	Soil	14-Feb-12 14:10	16-Feb-12 17:00
SB43999-50	B-33 Topsoil	Soil	14-Feb-12 14:20	16-Feb-12 17:00
SB43999-51	B-33 Fill	Soil	14-Feb-12 14:20	16-Feb-12 17:00

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87600/E87936
Maine # MA138
New Hampshire # 2538
New Jersey # MA011/MA012
New York # 11393/11840
Pennsylvania # 68-04426/68-02924
Rhode Island # 98
USDA # S-51435

Authorized by:

Nicole Leja
Laboratory Director

Spectrum Analytical holds certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes.
Please note that this report contains 62 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).

MassDEP Analytical Protocol Certification Form

Laboratory Name: Spectrum Analytical, Inc.	**Project #:** 1153.12.1
Project Location: Stephens Field - Plymouth, MA	**RTN:**
This form provides certifications for the following data set:	SB43999-01 through SB43999-51
Matrices: Soil	

CAM Protocol

8260 VOC CAM II A	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
✓ 8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
✓ 6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A	9012 Total Cyanide/PAC CAM VI A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	✓ Yes No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	✓ Yes No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	✓ Yes No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	✓ Yes No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes No Yes No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to questions A through E)?	✓ Yes No

Responses to questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	✓ Yes No

***Data User Note:* Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**

H	Were all QC performance standards specified in the CAM protocol(s) achieved?	✓ Yes No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ✓ No

All negative responses are addressed in a case narrative on the cover page of this report.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Nicole Leja

Nicole Leja
Laboratory Director
Date: 2/24/2012

CASE NARRATIVE:

The samples were received 2.1 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

MADEP has published a list of analytical methods (CAM) which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of MCP decisions. "Presumptive Certainty" can be established only for those methods published by the MADEP in the MCP CAM. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method. Regulatory limits may not be achieved if specific method and/or technique was not requested on the Chain of Custody.

According to WSC-CAM 5/2009 Rev.1, Table 11 A-1, recovery for some VOC analytes have been deemed potentially difficult. Although they may still be within the recommended recovery range, a range has been set based on historical control limits.

Some target analytes which are not listed as exceptions in the Summary of CAM Reporting Limits may exceed the recommended RL based on sample initial volume or weight provided, % moisture content, or responsiveness of a particular analyte to purge and trap instrumentation.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8270D

Samples:

S202016-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

2-Methylnaphthalene (39.7%)
Acenaphthene (21.2%)
Acenaphthylene (26.3%)

This affected the following samples:

B-15 Fill
B-22 Fill
B-22 Topsoil
B-4 Fill
B-4 Topsoil

S202023-CCV1

Analyte percent difference is outside individual acceptance criteria (20), but within overall method allowances.

Phenanthrene (62.3%)

This affected the following samples:

1203808-BS1
1203808-MS1
1203808-MSD1

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-1 Topsoil SB43999-01	1153.12.1	Soil	14-Feb-12 08:25	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**3.79**		mg/kg dry	1.71	0.274	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
7439-92-1	Lead	**60.0**		mg/kg dry	1.71	0.203	1	"	"	"	"	"	
General Chemistry Parameters													
	% Solids	**82.3**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203719	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-1 Fill SB43999-02	1153.12.1	Soil	14-Feb-12 08:35	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**4.77**		mg/kg dry	1.72	0.277	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
7439-92-1	Lead	**135**		mg/kg dry	1.72	0.204	1	"	"	"	"	"	
General Chemistry Parameters													
	% Solids	**78.5**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203719	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-2 Topsoil SB43999-03	1153.12.1	Soil	14-Feb-12 08:35	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**79.5**		mg/kg dry	2.04	0.242	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**68.3**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203719	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-2 Fill SB43999-04	1153.12.1	Soil	14-Feb-12 08:35	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**318**		mg/kg dry	1.88	0.223	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**79.4**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203719	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-4 Topsoil	1153.12.1	Soil	14-Feb-12 09:00	16-Feb-12
SB43999-05				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GCMS													
PAHs													
Prepared by method SW846 3545A													
83-32-9	Acenaphthene	< 252		µg/kg dry	252	28.5	1	SW846 8270D	21-Feb-12	23-Feb-12	DS	1203808	
208-96-8	Acenaphthylene	< 252		µg/kg dry	252	28.9	1	"	"	"	"	"	
120-12-7	Anthracene	< 252		µg/kg dry	252	29.7	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	**332**		µg/kg dry	252	29.4	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	**407**		µg/kg dry	252	33.4	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	**362**		µg/kg dry	252	30.5	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 252		µg/kg dry	252	38.7	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	**451**		µg/kg dry	252	44.7	1	"	"	"	"	"	
218-01-9	Chrysene	**359**		µg/kg dry	252	30.1	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 252		µg/kg dry	252	34.9	1	"	"	"	"	"	
206-44-0	Fluoranthene	**598**		µg/kg dry	252	46.2	1	"	"	"	"	"	
86-73-7	Fluorene	< 252		µg/kg dry	252	32.1	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	< 252		µg/kg dry	252	46.7	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	< 252		µg/kg dry	252	37.0	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	< 252		µg/kg dry	252	29.8	1	"	"	"	"	"	
91-20-3	Naphthalene	< 252		µg/kg dry	252	25.6	1	"	"	"	"	"	
85-01-8	Phenanthrene	**256**		µg/kg dry	252	28.5	1	"	"	"	"	"	
129-00-0	Pyrene	**551**		µg/kg dry	252	50.8	1	"	"	"	"	"	
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*54*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*40*			*30-130 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**191**		mg/kg dry	2.10	0.249	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**65.2**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203719	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-4 Fill	1153.12.1	Soil	14-Feb-12 09:00	16-Feb-12
SB43999-06				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GCMS													
PAHs													
Prepared by method SW846 3545A													
83-32-9	Acenaphthene	< 217		µg/kg dry	217	24.5	1	SW846 8270D	21-Feb-12	23-Feb-12	DS	1203808	
208-96-8	Acenaphthylene	< 217		µg/kg dry	217	24.9	1	"	"	"	"	"	
120-12-7	Anthracene	< 217		µg/kg dry	217	25.5	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	< 217		µg/kg dry	217	25.3	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	< 217		µg/kg dry	217	28.7	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	< 217		µg/kg dry	217	26.2	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 217		µg/kg dry	217	33.3	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	< 217		µg/kg dry	217	38.4	1	"	"	"	"	"	
218-01-9	Chrysene	< 217		µg/kg dry	217	25.9	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 217		µg/kg dry	217	30.0	1	"	"	"	"	"	
206-44-0	Fluoranthene	< 217		µg/kg dry	217	39.7	1	"	"	"	"	"	
86-73-7	Fluorene	< 217		µg/kg dry	217	27.6	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	< 217		µg/kg dry	217	40.1	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	< 217		µg/kg dry	217	31.8	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	< 217		µg/kg dry	217	25.7	1	"	"	"	"	"	
91-20-3	Naphthalene	< 217		µg/kg dry	217	22.0	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 217		µg/kg dry	217	24.5	1	"	"	"	"	"	
129-00-0	Pyrene	< 217		µg/kg dry	217	43.7	1	"	"	"	"	"	
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*57*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*49*			*30-130 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**736**		mg/kg dry	1.86	0.220	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**75.9**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203719	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-5 Topsoil SB43999-07	1153.12.1	Soil	14-Feb-12 09:15	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**86.3**		mg/kg dry	1.65	0.196	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**77.0**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203719	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-5 Fill SB43999-08	1153.12.1	Soil	14-Feb-12 09:15	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**81.0**		mg/kg dry	1.82	0.216	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**75.0**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203719	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-7 Topsoil SB43999-09	1153.12.1	Soil	14-Feb-12 09:30	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**104**		mg/kg dry	1.71	0.202	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**84.6**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203719	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-7 Fill SB43999-10	1153.12.1	Soil	14-Feb-12 09:30	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**69.8**		mg/kg dry	1.53	0.181	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**87.2**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-9 Topsoil SB43999-11	1153.12.1	Soil	14-Feb-12 09:50	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**73.7**		mg/kg dry	1.51	0.179	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**86.9**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-9 Fill SB43999-12	1153.12.1	Soil	14-Feb-12 09:50	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**124**		mg/kg dry	1.62	0.192	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**83.1**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-11 Fill SB43999-13	1153.12.1	Soil	14-Feb-12 10:10	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**88.5**		mg/kg dry	1.85	0.219	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**72.9**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-11 Topsoil SB43999-14	1153.12.1	Soil	14-Feb-12 10:10	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**17.8**		mg/kg dry	1.46	0.173	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**89.9**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-13 Topsoil SB43999-15	1153.12.1	Soil	14-Feb-12 10:30	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**379**		mg/kg dry	1.69	0.200	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**75.4**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-13 Fill SB43999-16	1153.12.1	Soil	14-Feb-12 10:30	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**222**		mg/kg dry	1.75	0.207	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**79.5**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-14 Topsoil SB43999-17	1153.12.1	Soil	14-Feb-12 10:45	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**118**		mg/kg dry	1.91	0.226	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**72.2**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-14 Fill SB43999-18	1153.12.1	Soil	14-Feb-12 10:45	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**243**		mg/kg dry	1.72	0.204	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
General Chemistry Parameters													
	% Solids	**78.4**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-15 Topsoil	1153.12.1	Soil	14-Feb-12 10:55	16-Feb-12
SB43999-19				

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Semivolatile Organic Compounds by GCMS													
PAHs													
Prepared by method SW846 3545A													
83-32-9	Acenaphthene	< 202		µg/kg dry	202	22.7	1	SW846 8270D	21-Feb-12	24-Feb-12	DS	1203808	
208-96-8	Acenaphthylene	< 202		µg/kg dry	202	23.1	1	"	"	"	"	"	
120-12-7	Anthracene	< 202		µg/kg dry	202	23.7	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	**303**		µg/kg dry	202	23.5	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	**327**		µg/kg dry	202	26.6	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	**278**		µg/kg dry	202	24.3	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 202		µg/kg dry	202	30.9	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	**297**		µg/kg dry	202	35.7	1	"	"	"	"	"	
218-01-9	Chrysene	**322**		µg/kg dry	202	24.1	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 202		µg/kg dry	202	27.9	1	"	"	"	"	"	
206-44-0	Fluoranthene	**511**		µg/kg dry	202	36.9	1	"	"	"	"	"	
86-73-7	Fluorene	< 202		µg/kg dry	202	25.7	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	**204**		µg/kg dry	202	37.3	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	< 202		µg/kg dry	202	29.6	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	< 202		µg/kg dry	202	23.8	1	"	"	"	"	"	
91-20-3	Naphthalene	< 202		µg/kg dry	202	20.4	1	"	"	"	"	"	
85-01-8	Phenanthrene	< 202		µg/kg dry	202	22.7	1	"	"	"	"	"	
129-00-0	Pyrene	**431**		µg/kg dry	202	40.6	1	"	"	"	"	"	
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*54*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*45*			*30-130 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**4.56**		mg/kg dry	1.70	0.273	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
7439-92-1	Lead	**25.5**		mg/kg dry	1.70	0.202	1	"	"	"	"	"	
General Chemistry Parameters													
	% Solids	**80.5**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-15 Fill	1153.12.1	Soil	14-Feb-12 10:55	16-Feb-12
SB43999-20				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS													
PAHs													
Prepared by method SW846 3545A													
83-32-9	Acenaphthene	< 212		µg/kg dry	212	23.9	1	SW846 8270D	21-Feb-12	23-Feb-12	DS	1203808	
208-96-8	Acenaphthylene	< 212		µg/kg dry	212	24.2	1	"	"	"	"	"	
120-12-7	Anthracene	< 212		µg/kg dry	212	24.9	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	**445**		µg/kg dry	212	24.6	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	**367**		µg/kg dry	212	28.0	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	**332**		µg/kg dry	212	25.5	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 212		µg/kg dry	212	32.5	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	**345**		µg/kg dry	212	37.5	1	"	"	"	"	"	
218-01-9	Chrysene	**383**		µg/kg dry	212	25.3	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 212		µg/kg dry	212	29.2	1	"	"	"	"	"	
206-44-0	Fluoranthene	**795**		µg/kg dry	212	38.7	1	"	"	"	"	"	
86-73-7	Fluorene	< 212		µg/kg dry	212	26.9	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	**224**		µg/kg dry	212	39.1	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	< 212		µg/kg dry	212	31.0	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	< 212		µg/kg dry	212	25.0	1	"	"	"	"	"	
91-20-3	Naphthalene	< 212		µg/kg dry	212	21.4	1	"	"	"	"	"	
85-01-8	Phenanthrene	**470**		µg/kg dry	212	23.9	1	"	"	"	"	"	
129-00-0	Pyrene	**721**		µg/kg dry	212	42.6	1	"	"	"	"	"	
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*66*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*57*			*30-130 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**4.59**		mg/kg dry	1.86	0.299	1	SW846 6010C	17-Feb-12	18-Feb-12	ARF	1203734	
7439-92-1	Lead	**123**		mg/kg dry	1.86	0.221	1	"	"	"	"	"	
General Chemistry Parameters													
	% Solids	**77.2**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-17 Topsoil SB43999-21	1153.12.1	Soil	14-Feb-12 11:10	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**183**		mg/kg dry	2.23	0.264	1	SW846 6010C	17-Feb-12	21-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**66.2**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-17 Fill SB43999-22	1153.12.1	Soil	14-Feb-12 11:10	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**202**		mg/kg dry	1.81	0.215	1	SW846 6010C	17-Feb-12	21-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**75.7**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-19 Topsoil SB43999-23	1153.12.1	Soil	14-Feb-12 11:30	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**319**		mg/kg dry	1.45	0.172	1	SW846 6010C	17-Feb-12	21-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**91.4**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-19 Fill SB43999-24	1153.12.1	Soil	14-Feb-12 11:30	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**159**		mg/kg dry	1.52	0.180	1	SW846 6010C	17-Feb-12	21-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**86.0**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-20 Topsoil SB43999-25	1153.12.1	Soil	14-Feb-12 11:40	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**220**		mg/kg dry	1.81	0.215	1	SW846 6010C	17-Feb-12	21-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**74.1**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-20 Fill SB43999-26	1153.12.1	Soil	14-Feb-12 11:40	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**112**		mg/kg dry	1.87	0.222	1	SW846 6010C	17-Feb-12	21-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**76.2**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-21 Topsoil SB43999-27	1153.12.1	Soil	14-Feb-12 11:50	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**70.5**		mg/kg dry	1.72	0.204	1	SW846 6010C	17-Feb-12	21-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**79.0**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-21 Fill SB43999-28	1153.12.1	Soil	14-Feb-12 11:50	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**104**		mg/kg dry	1.99	0.236	1	SW846 6010C	17-Feb-12	21-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**70.2**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-22 Topsoil	1153.12.1	Soil	14-Feb-12 12:00	16-Feb-12
SB43999-29				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS													
PAHs													
Prepared by method SW846 3545A													
83-32-9	Acenaphthene	< 208		µg/kg dry	208	23.4	1	SW846 8270D	21-Feb-12	23-Feb-12	DS	1203808	
208-96-8	Acenaphthylene	< 208		µg/kg dry	208	23.8	1	"	"	"	"	"	
120-12-7	Anthracene	< 208		µg/kg dry	208	24.5	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	**407**		µg/kg dry	208	24.2	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	**410**		µg/kg dry	208	27.5	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	**333**		µg/kg dry	208	25.1	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	< 208		µg/kg dry	208	31.9	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	**379**		µg/kg dry	208	36.8	1	"	"	"	"	"	
218-01-9	Chrysene	**268**		µg/kg dry	208	24.8	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 208		µg/kg dry	208	28.7	1	"	"	"	"	"	
206-44-0	Fluoranthene	**528**		µg/kg dry	208	38.1	1	"	"	"	"	"	
86-73-7	Fluorene	< 208		µg/kg dry	208	26.5	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	< 208		µg/kg dry	208	38.5	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	< 208		µg/kg dry	208	30.5	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	< 208		µg/kg dry	208	24.6	1	"	"	"	"	"	
91-20-3	Naphthalene	< 208		µg/kg dry	208	21.1	1	"	"	"	"	"	
85-01-8	Phenanthrene	**292**		µg/kg dry	208	23.4	1	"	"	"	"	"	
129-00-0	Pyrene	**512**		µg/kg dry	208	41.9	1	"	"	"	"	"	
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*64*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*63*			*30-130 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**5.61**		mg/kg dry	1.59	0.256	1	SW846 6010C	17-Feb-12	22-Feb-12	EDT	1203735	
7439-92-1	Lead	**99.4**		mg/kg dry	1.59	0.189	1	"	"	21-Feb-12	"	"	
General Chemistry Parameters													
	% Solids	**79.1**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203722	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-22 Fill	1153.12.1	Soil	14-Feb-12 12:00	16-Feb-12
SB43999-30				

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
Semivolatile Organic Compounds by GCMS													
PAHs													
Prepared by method SW846 3545A													
83-32-9	Acenaphthene	< 234		µg/kg dry	234	26.4	1	SW846 8270D	21-Feb-12	23-Feb-12	DS	1203808	
208-96-8	Acenaphthylene	< 234		µg/kg dry	234	26.8	1	"	"	"	"	"	
120-12-7	Anthracene	**323**		µg/kg dry	234	27.5	1	"	"	"	"	"	
56-55-3	Benzo (a) anthracene	**1,950**		µg/kg dry	234	27.2	1	"	"	"	"	"	
50-32-8	Benzo (a) pyrene	**1,210**		µg/kg dry	234	30.9	1	"	"	"	"	"	
205-99-2	Benzo (b) fluoranthene	**1,500**		µg/kg dry	234	28.2	1	"	"	"	"	"	
191-24-2	Benzo (g,h,i) perylene	**537**		µg/kg dry	234	35.9	1	"	"	"	"	"	
207-08-9	Benzo (k) fluoranthene	**1,330**		µg/kg dry	234	41.4	1	"	"	"	"	"	
218-01-9	Chrysene	**1,670**		µg/kg dry	234	27.9	1	"	"	"	"	"	
53-70-3	Dibenzo (a,h) anthracene	< 234		µg/kg dry	234	32.3	1	"	"	"	"	"	
206-44-0	Fluoranthene	**4,690**		µg/kg dry	234	42.8	1	"	"	"	"	"	
86-73-7	Fluorene	< 234		µg/kg dry	234	29.8	1	"	"	"	"	"	
193-39-5	Indeno (1,2,3-cd) pyrene	**661**		µg/kg dry	234	43.3	1	"	"	"	"	"	
90-12-0	1-Methylnaphthalene	< 234		µg/kg dry	234	34.3	1	"	"	"	"	"	
91-57-6	2-Methylnaphthalene	< 234		µg/kg dry	234	27.7	1	"	"	"	"	"	
91-20-3	Naphthalene	< 234		µg/kg dry	234	23.7	1	"	"	"	"	"	
85-01-8	Phenanthrene	**3,790**		µg/kg dry	234	26.4	1	"	"	"	"	"	
129-00-0	Pyrene	**4,090**		µg/kg dry	234	47.1	1	"	"	"	"	"	
Surrogate recoveries:													
321-60-8	*2-Fluorobiphenyl*	*65*			*30-130 %*			"	"	"	"	"	
1718-51-0	*Terphenyl-dl4*	*48*			*30-130 %*			"	"	"	"	"	
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**9.37**		mg/kg dry	2.01	0.324	1	SW846 6010C	17-Feb-12	22-Feb-12	EDT	1203735	
7439-92-1	Lead	**542**		mg/kg dry	2.01	0.239	1	"	"	22-Feb-12	"	"	
General Chemistry Parameters													
	% Solids	**69.8**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
Playground Sand SB43999-31	1153.12.1	Soil	14-Feb-12 12:05	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**2.95**		mg/kg dry	1.33	0.214	1	SW846 6010C	17-Feb-12	22-Feb-12	EDT	1203735	
7439-92-1	Lead	**6.46**		mg/kg dry	1.33	0.158	1	"	"	22-Feb-12	"	"	
General Chemistry Parameters													
	% Solids	**94.3**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-23 Topsoil SB43999-32	1153.12.1	Soil	14-Feb-12 12:40	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**65.2**		mg/kg dry	1.71	0.202	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**84.6**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-23 Fill SB43999-33	1153.12.1	Soil	14-Feb-12 12:40	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**25.9**		mg/kg dry	1.58	0.187	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**84.3**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-24 Topsoil SB43999-34	1153.12.1	Soil	14-Feb-12 12:50	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**153**		mg/kg dry	1.80	0.214	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**74.1**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-24 Fill SB43999-35	1153.12.1	Soil	14-Feb-12 12:50	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**1,100**		mg/kg dry	1.77	0.210	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**71.0**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-25 Topsoil SB43999-36	1153.12.1	Soil	14-Feb-12 13:00	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**81.5**		mg/kg dry	1.89	0.224	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**76.6**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-25 Fill SB43999-37	1153.12.1	Soil	14-Feb-12 13:00	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**278**		mg/kg dry	1.56	0.186	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**81.5**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-26 Topsoil SB43999-38	1153.12.1	Soil	14-Feb-12 13:10	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**171**		mg/kg dry	1.94	0.230	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**68.8**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-26 Fill SB43999-39	1153.12.1	Soil	14-Feb-12 13:10	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**157**		mg/kg dry	1.68	0.199	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203735	
General Chemistry Parameters													
	% Solids	**78.9**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-27 Topsoil SB43999-40	1153.12.1	Soil	14-Feb-12 13:20	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**5.79**		mg/kg dry	1.98	0.317	1	SW846 6010C	17-Feb-12	22-Feb-12	EDT	1203735	
7439-92-1	Lead	**45.5**		mg/kg dry	1.98	0.234	1	"	"	22-Feb-12	"	"	
General Chemistry Parameters													
	% Solids	**69.1**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-27 Fill SB43999-41	1153.12.1	Soil	14-Feb-12 13:20	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**18.7**		mg/kg dry	1.83	0.294	1	SW846 6010C	17-Feb-12	22-Feb-12	EDT	1203736	
7439-92-1	Lead	**409**		mg/kg dry	1.83	0.217	1	"	"	22-Feb-12	"	"	
General Chemistry Parameters													
	% Solids	**72.6**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-28 Topsoil SB43999-42	1153.12.1	Soil	14-Feb-12 13:30	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**70.1**		mg/kg dry	1.63	0.193	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203736	
General Chemistry Parameters													
	% Solids	**91.7**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-28 Fill SB43999-43	1153.12.1	Soil	14-Feb-12 13:30	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**2.82**		mg/kg dry	1.39	0.165	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203736	
General Chemistry Parameters													
	% Solids	**93.2**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-29 Topsoil SB43999-44	1153.12.1	Soil	14-Feb-12 13:40	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**29.5**		mg/kg dry	1.76	0.209	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203736	
General Chemistry Parameters													
	% Solids	**81.0**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-29 Fill SB43999-45	1153.12.1	Soil	14-Feb-12 13:40	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**5.77**		mg/kg dry	1.62	0.193	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203736	
General Chemistry Parameters													
	% Solids	**87.0**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-31 Topsoil SB43999-46	1153.12.1	Soil	14-Feb-12 14:00	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**596**		mg/kg dry	1.45	0.173	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203736	
General Chemistry Parameters													
	% Solids	**91.4**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-31 Fill SB43999-47	1153.12.1	Soil	14-Feb-12 14:00	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**72.6**		mg/kg dry	1.57	0.186	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203736	
General Chemistry Parameters													
	% Solids	**84.0**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-32 Topsoil SB43999-48	1153.12.1	Soil	14-Feb-12 14:10	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**12.2**		mg/kg dry	1.48	0.176	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203736	
General Chemistry Parameters													
	% Solids	**91.3**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-32 Fill SB43999-49	1153.12.1	Soil	14-Feb-12 14:10	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7439-92-1	Lead	**8.54**		mg/kg dry	1.49	0.176	1	SW846 6010C	17-Feb-12	22-Feb-12	ARF	1203736	
General Chemistry Parameters													
	% Solids	**90.9**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203723	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-33 Topsoil SB43999-50	1153.12.1	Soil	14-Feb-12 14:20	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**46.1**		mg/kg dry	2.04	0.327	1	SW846 6010C	17-Feb-12	22-Feb-12	EDT	1203736	
7439-92-1	Lead	**778**		mg/kg dry	2.04	0.241	1	"	"	22-Feb-12	"	"	
General Chemistry Parameters													
	% Solids	**67.6**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203724	

Sample Identification	Client Project #	Matrix	Collection Date/Time	Received
B-33 Fill SB43999-51	1153.12.1	Soil	14-Feb-12 14:20	16-Feb-12

CAS No.	*Analyte(s)*	*Result*	*Flag*	*Units*	**RDL*	*MDL*	*Dilution*	*Method Ref.*	*Prepared*	*Analyzed*	*Analyst*	*Batch*	*Cert.*
Total Metals by EPA 6000/7000 Series Methods													
7440-38-2	Arsenic	**2.95**		mg/kg dry	1.89	0.304	1	SW846 6010C	17-Feb-12	22-Feb-12	EDT	1203736	
7439-92-1	Lead	**13.0**		mg/kg dry	1.89	0.224	1	"	"	22-Feb-12	"	"	
General Chemistry Parameters													
	% Solids	**78.3**		%			1	SM2540 G Mod.	17-Feb-12	17-Feb-12	DT	1203724	

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1203808 - SW846 3545A										
Blank (1203808-BLK1)					Prepared: 21-Feb-12 Analyzed: 24-Feb-12					
Acenaphthene	< 165		µg/kg wet	165						
Acenaphthylene	< 165		µg/kg wet	165						
Anthracene	< 165		µg/kg wet	165						
Benzo (a) anthracene	< 165		µg/kg wet	165						
Benzo (a) pyrene	< 165		µg/kg wet	165						
Benzo (b) fluoranthene	< 165		µg/kg wet	165						
Benzo (g,h,i) perylene	< 165		µg/kg wet	165						
Benzo (k) fluoranthene	< 165		µg/kg wet	165						
Chrysene	< 165		µg/kg wet	165						
Dibenzo (a,h) anthracene	< 165		µg/kg wet	165						
Fluoranthene	< 165		µg/kg wet	165						
Fluorene	< 165		µg/kg wet	165						
Indeno (1,2,3-cd) pyrene	< 165		µg/kg wet	165						
1-Methylnaphthalene	< 165		µg/kg wet	165						
2-Methylnaphthalene	< 165		µg/kg wet	165						
Naphthalene	< 165		µg/kg wet	165						
Phenanthrene	< 165		µg/kg wet	165						
Pyrene	< 165		µg/kg wet	165						
Surrogate: 2-Fluorobiphenyl	*1120*		µg/kg wet		*1670*		*67*	*30-130*		
Surrogate: Terphenyl-dl4	*1180*		µg/kg wet		*1670*		*70*	*30-130*		
LCS (1203808-BS1)					Prepared: 21-Feb-12 Analyzed: 23-Feb-12					
Acenaphthene	**1090**		µg/kg wet	165	1670		66	40-140		
Acenaphthylene	**1050**		µg/kg wet	165	1670		63	40-140		
Anthracene	**1560**		µg/kg wet	165	1670		93	40-140		
Benzo (a) anthracene	**1080**		µg/kg wet	165	1670		65	40-140		
Benzo (a) pyrene	**1060**		µg/kg wet	165	1670		63	40-140		
Benzo (b) fluoranthene	**1070**		µg/kg wet	165	1670		64	40-140		
Benzo (g,h,i) perylene	**1010**		µg/kg wet	165	1670		61	40-140		
Benzo (k) fluoranthene	**1010**		µg/kg wet	165	1670		61	40-140		
Chrysene	**984**		µg/kg wet	165	1670		59	40-140		
Dibenzo (a,h) anthracene	**1040**		µg/kg wet	165	1670		62	40-140		
Fluoranthene	**1450**		µg/kg wet	165	1670		87	40-140		
Fluorene	**1050**		µg/kg wet	165	1670		63	40-140		
Indeno (1,2,3-cd) pyrene	**985**		µg/kg wet	165	1670		59	40-140		
1-Methylnaphthalene	**1050**		µg/kg wet	165	1670		63	40-140		
2-Methylnaphthalene	**1040**		µg/kg wet	165	1670		62	40-140		
Naphthalene	**979**		µg/kg wet	165	1670		59	40-140		
Phenanthrene	**2030**		µg/kg wet	165	1670		122	40-140		
Pyrene	**1060**		µg/kg wet	165	1670		63	40-140		
Surrogate: 2-Fluorobiphenyl	*1130*		µg/kg wet		*1670*		*68*	*30-130*		
Surrogate: Terphenyl-dl4	*1240*		µg/kg wet		*1670*		*75*	*30-130*		
Duplicate (1203808-DUP1)			**Source: SB43999-19**		Prepared: 21-Feb-12 Analyzed: 24-Feb-12					
Acenaphthene	< 203		µg/kg dry	203		BRL				50
Acenaphthylene	**33.3**	J	µg/kg dry	203		32.6			2	50
Anthracene	**54.2**	J	µg/kg dry	203		46.0			16	50
Benzo (a) anthracene	**344**		µg/kg dry	203		303			13	50
Benzo (a) pyrene	**372**		µg/kg dry	203		327			13	50
Benzo (b) fluoranthene	**319**		µg/kg dry	203		278			14	50
Benzo (g,h,i) perylene	**207**		µg/kg dry	203		189			9	50
Benzo (k) fluoranthene	**323**		µg/kg dry	203		297			8	50
Chrysene	**358**		µg/kg dry	203		322			11	50

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1203808 - SW846 3545A										
Duplicate (1203808-DUP1)			**Source: SB43999-19**		Prepared: 21-Feb-12	Analyzed: 24-Feb-12				
Dibenzo (a,h) anthracene	**56.3**	J	µg/kg dry	203		50.9			10	50
Fluoranthene	**574**		µg/kg dry	203		511			12	50
Fluorene	< 203		µg/kg dry	203		BRL				50
Indeno (1,2,3-cd) pyrene	**227**		µg/kg dry	203		204			11	50
1-Methylnaphthalene	< 203		µg/kg dry	203		BRL				50
2-Methylnaphthalene	< 203		µg/kg dry	203		BRL				50
Naphthalene	< 203		µg/kg dry	203		BRL				50
Phenanthrene	**190**	J	µg/kg dry	203		159			18	50
Pyrene	**493**		µg/kg dry	203		431			13	50
Surrogate: 2-Fluorobiphenyl	*1450*		µg/kg dry		*2050*		*71*	*30-130*		
Surrogate: Terphenyl-dl4	*1400*		µg/kg dry		*2050*		*68*	*30-130*		
Matrix Spike (1203808-MS1)			**Source: SB43999-19**		Prepared: 21-Feb-12	Analyzed: 23-Feb-12				
Acenaphthene	**1320**		µg/kg dry	200	2020	BRL	65	40-140		
Acenaphthylene	**1320**		µg/kg dry	200	2020	32.6	64	40-140		
Anthracene	**2010**		µg/kg dry	200	2020	46.0	97	40-140		
Benzo (a) anthracene	**1560**		µg/kg dry	200	2020	303	62	40-140		
Benzo (a) pyrene	**1530**		µg/kg dry	200	2020	327	59	40-140		
Benzo (b) fluoranthene	**1660**		µg/kg dry	200	2020	278	69	40-140		
Benzo (g,h,i) perylene	**1320**		µg/kg dry	200	2020	189	56	40-140		
Benzo (k) fluoranthene	**1310**		µg/kg dry	200	2020	297	50	40-140		
Chrysene	**1430**		µg/kg dry	200	2020	322	55	30-130		
Dibenzo (a,h) anthracene	**1320**		µg/kg dry	200	2020	50.9	63	30-130		
Fluoranthene	**2310**		µg/kg dry	200	2020	511	89	40-140		
Fluorene	**1330**		µg/kg dry	200	2020	BRL	66	40-140		
Indeno (1,2,3-cd) pyrene	**1390**		µg/kg dry	200	2020	204	59	40-140		
1-Methylnaphthalene	**1330**		µg/kg dry	200	2020	BRL	66	40-140		
2-Methylnaphthalene	**1260**		µg/kg dry	200	2020	BRL	63	40-140		
Naphthalene	**1180**		µg/kg dry	200	2020	BRL	59	40-140		
Phenanthrene	**3100**		µg/kg dry	200	2020	159	146	40-140		
Pyrene	**1620**		µg/kg dry	200	2020	431	59	40-140		
Surrogate: 2-Fluorobiphenyl	*1290*		µg/kg dry		*2020*		*64*	*30-130*		
Surrogate: Terphenyl-dl4	*1390*		µg/kg dry		*2020*		*69*	*30-130*		
Matrix Spike Dup (1203808-MSD1)			**Source: SB43999-19**		Prepared: 21-Feb-12	Analyzed: 23-Feb-12				
Acenaphthene	**1390**		µg/kg dry	199	2010	BRL	69	40-140	6	30
Acenaphthylene	**1390**		µg/kg dry	199	2010	32.6	68	40-140	5	30
Anthracene	**1840**		µg/kg dry	199	2010	46.0	89	40-140	9	30
Benzo (a) anthracene	**1670**		µg/kg dry	199	2010	303	68	40-140	8	30
Benzo (a) pyrene	**1630**		µg/kg dry	199	2010	327	65	40-140	9	30
Benzo (b) fluoranthene	**1790**		µg/kg dry	199	2010	278	75	40-140	9	30
Benzo (g,h,i) perylene	**1440**		µg/kg dry	199	2010	189	62	40-140	11	30
Benzo (k) fluoranthene	**1350**		µg/kg dry	199	2010	297	52	40-140	4	30
Chrysene	**1510**		µg/kg dry	199	2010	322	59	30-130	7	30
Dibenzo (a,h) anthracene	**1420**		µg/kg dry	199	2010	50.9	68	30-130	8	30
Fluoranthene	**2190**		µg/kg dry	199	2010	511	83	40-140	7	30
Fluorene	**1380**		µg/kg dry	199	2010	BRL	69	40-140	4	30
Indeno (1,2,3-cd) pyrene	**1460**		µg/kg dry	199	2010	204	63	40-140	7	30
1-Methylnaphthalene	**1390**		µg/kg dry	199	2010	BRL	69	40-140	5	30
2-Methylnaphthalene	**1340**		µg/kg dry	199	2010	BRL	67	40-140	7	30
Naphthalene	**1250**		µg/kg dry	199	2010	BRL	62	40-140	6	30
Phenanthrene	**2880**		µg/kg dry	199	2010	159	135	40-140	7	30
Pyrene	**1700**		µg/kg dry	199	2010	431	63	40-140	7	30

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1203808 - SW846 3545A										
Matrix Spike Dup (1203808-MSD1)			**Source: SB43999-19**		Prepared: 21-Feb-12 Analyzed: 23-Feb-12					
Surrogate: 2-Fluorobiphenyl	*1450*		µg/kg dry		*2010*		*72*	*30-130*		
Surrogate: Terphenyl-dl4	*1570*		µg/kg dry		*2010*		*78*	*30-130*		

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1203734 - SW846 3050B										
Blank (1203734-BLK1)						Prepared: 17-Feb-12	Analyzed: 18-Feb-12			
Lead	< 1.38		mg/kg wet	1.38						
Arsenic	< 1.38		mg/kg wet	1.38						
Duplicate (1203734-DUP1)			**Source: SB43999-10**			Prepared: 17-Feb-12	Analyzed: 18-Feb-12			
Lead	**64.7**		mg/kg dry	1.48		69.8			8	20
Matrix Spike (1203734-MS1)			**Source: SB43999-10**			Prepared: 17-Feb-12	Analyzed: 18-Feb-12			
Lead	**203**		mg/kg dry	1.56	130	69.8	102	75-125		
Matrix Spike Dup (1203734-MSD1)			**Source: SB43999-10**			Prepared: 17-Feb-12	Analyzed: 18-Feb-12			
Lead	**217**		mg/kg dry	1.62	135	69.8	109	75-125	7	20
Post Spike (1203734-PS1)			**Source: SB43999-10**			Prepared: 17-Feb-12	Analyzed: 18-Feb-12			
Lead	**193**		mg/kg dry	1.53	127	69.8	96	80-120		
Reference (1203734-SRM1)						Prepared: 17-Feb-12	Analyzed: 18-Feb-12			
Lead	**50.8**		mg/kg wet	1.50	51.9		98	83.1-116.5		
Arsenic	**124**		mg/kg wet	1.50	119		104	83.12-117.3		
Reference (1203734-SRM2)						Prepared: 17-Feb-12	Analyzed: 18-Feb-12			
Lead	**52.8**		mg/kg wet	1.50	52.5		101	83.1-116.5		
Arsenic	**126**		mg/kg wet	1.50	121		104	83.12-117.3		
Batch 1203735 - SW846 3050B										
Blank (1203735-BLK1)						Prepared: 17-Feb-12	Analyzed: 21-Feb-12			
Lead	< 1.32		mg/kg wet	1.32						
Arsenic	< 1.32		mg/kg wet	1.32						
Duplicate (1203735-DUP1)			**Source: SB43999-31**			Prepared: 17-Feb-12	Analyzed: 22-Feb-12			
Lead	**6.39**		mg/kg dry	1.38		6.46			1	20
Arsenic	**2.88**		mg/kg dry	1.38		2.95			2	20
Matrix Spike (1203735-MS1)			**Source: SB43999-31**			Prepared: 17-Feb-12	Analyzed: 22-Feb-12			
Lead	**125**		mg/kg dry	1.46	121	6.46	98	75-125		
Arsenic	**127**		mg/kg dry	1.46	121	2.95	102	75-125		
Matrix Spike Dup (1203735-MSD1)			**Source: SB43999-31**			Prepared: 17-Feb-12	Analyzed: 22-Feb-12			
Lead	**136**		mg/kg dry	1.59	132	6.46	98	75-125	8	20
Arsenic	**139**		mg/kg dry	1.59	132	2.95	102	75-125	9	20
Post Spike (1203735-PS1)			**Source: SB43999-31**			Prepared: 17-Feb-12	Analyzed: 22-Feb-12			
Lead	**116**		mg/kg dry	1.33	111	6.46	98	80-120		
Arsenic	**110**		mg/kg dry	1.33	111	2.95	96	80-120		
Reference (1203735-SRM1)						Prepared: 17-Feb-12	Analyzed: 21-Feb-12			
Lead	**47.5**		mg/kg wet	1.50	52.6		90	83.1-116.5		
Arsenic	**123**		mg/kg wet	1.50	121		101	83.12-117.3		
Reference (1203735-SRM2)						Prepared: 17-Feb-12	Analyzed: 21-Feb-12			
Lead	**48.5**		mg/kg wet	1.50	53.3		91	83.1-116.5		
Arsenic	**119**		mg/kg wet	1.50	123		97	83.12-117.3		
Batch 1203736 - SW846 3050B										
Blank (1203736-BLK1)						Prepared: 17-Feb-12	Analyzed: 22-Feb-12			
Lead	< 1.32		mg/kg wet	1.32						
Arsenic	< 1.32		mg/kg wet	1.32						
Duplicate (1203736-DUP1)			**Source: SB43999-43**			Prepared: 17-Feb-12	Analyzed: 22-Feb-12			
Lead	**3.23**		mg/kg dry	1.42		2.82			14	20
Matrix Spike (1203736-MS1)			**Source: SB43999-43**			Prepared: 17-Feb-12	Analyzed: 22-Feb-12			
Lead	**130**		mg/kg dry	1.61	134	2.82	95	75-125		
Matrix Spike Dup (1203736-MSD1)			**Source: SB43999-43**			Prepared: 17-Feb-12	Analyzed: 22-Feb-12			
Lead	**113**		mg/kg dry	1.37	114	2.82	96	75-125	14	20
Post Spike (1203736-PS1)			**Source: SB43999-43**			Prepared: 17-Feb-12	Analyzed: 22-Feb-12			

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1203736 - SW846 3050B										
Post Spike (1203736-PS1)			**Source: SB43999-43**		Prepared: 17-Feb-12		Analyzed: 22-Feb-12			
Lead	**116**		mg/kg dry	1.39	116	2.82	98	80-120		
Reference (1203736-SRM1)					Prepared: 17-Feb-12		Analyzed: 22-Feb-12			
Lead	**47.8**		mg/kg wet	1.50	53.1		90	83.1-116.5		
Arsenic	**120**		mg/kg wet	1.50	122		98	83.12-117.3		
Reference (1203736-SRM2)					Prepared: 17-Feb-12		Analyzed: 22-Feb-12			
Lead	**49.2**		mg/kg wet	1.50	52.0		95	83.1-116.5		
Arsenic	**117**		mg/kg wet	1.50	120		97	83.12-117.3		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch 1203722 - General Preparation										
Duplicate (1203722-DUP1)			Source: SB43999-10			Prepared & Analyzed: 17-Feb-12				
% Solids	**86.6**		%			87.2			0.7	20
Batch 1203723 - General Preparation										
Duplicate (1203723-DUP1)			Source: SB43999-30			Prepared & Analyzed: 17-Feb-12				
% Solids	**71.6**		%			69.8			3	20
Batch 1203724 - General Preparation										
Duplicate (1203724-DUP1)			Source: SB43999-50			Prepared & Analyzed: 17-Feb-12				
% Solids	**68.6**		%			67.6			1	20

Notes and Definitions

dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:
June O'Connor
Nicole Leja

SB43999 + By

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 7

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: 2/23 Per R.R
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: Jon Kitchen
Norfolk Ram Group LLC
1 Roberts Road
Plymouth MA 02360
Telephone #: 508-747-7900 x 154
Project Mgr. Jon Kitchen

Invoice To: SAME

P.O. No.: RQN:

Project No.: 1153.12.1
Site Name: Stephens Field
Location: Plymouth State: MA
Sampler(s): E.S

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= 11=

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= X2= X3=

G=Grab C=Composite

MA DEP MCP CAM Report: Yes ☒ No ☐
CT DPH RCP Report: Yes ☐ No ☐

QA/QC Reporting Level
☐ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER V*
☐ Other

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Lead	Arsenic	PAHs							
43999-01	B-1 topsoil	2/14/2012	0825	G	SO			16		X	X								MA MCP
02	B-1 Fill		0835							X	X								
03	B-2 topsoil		0835							X									
04	B-2 Fill		0835							X									
05	B-4 topsoil		0900							X		X							
06	B-4 Fill		0900							X		X							
07	B-5 topsoil		0915							X									
08	B-5 Fill		0915							X									
09	B-7 topsoil		0930							X									
10	B-7 Fill		0930							X									

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	2/10/12	1205	
[signature]	[signature]	2/16/12	17:00	2-1

☐ EDD Format
☐ E-mail to Jon Kitchen
JKitchen@norfolkram.com

☐ Ambient ☐ Iced ☒ Refrigerated ☐ Fridge temp ___°C ☐ Freezer temp ___°C

SB 43999 By

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 2 of 7

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: Jon Kitchen
Norfolk Ram Group, LLC
1 Roberts Road
Plymouth MA 02360
Telephone #: 508-747-7900 x 154
Project Mgr. Jon Kitch

Invoice To: SAME

P.O. No.: _____ RQN: _____

Project No.: 1153.12.1
Site Name: Stephens Field
Location: Plymouth State: MA
Sampler(s): E-J

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= _____ 11= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

MA DEP MCP CAM Report: Yes ☒ No ☐
CT DPH RCP Report: Yes ☐ No ☐

QA/QC Reporting Level
☐ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER V*
☐ Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Lead	Arsenic	PAHs							
43999-11	B-9 topsoil	2/14/2012	0950	G	SO			16		X									MA MCP
12	B-9 Fill		0950							X									
13	B-11 Fill		1010							X									
14	B-11 topsoil		1010							X									
15	B-13 topsoil		1030							X									
16	B-13 Fill		1030							X									
17	B-14 topsoil		1045							X									
18	B-14 Fill		1045							X									
19	B-15 topsoil		1055							X	X	X							
20	B-15 Fill		1055							X	X	X							

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	2.16.12	1205	
[signature]	[signature]	2/16/12	17:00	2.1

☐ EDD Format _____
☐ E-mail to _____

☐ Ambient ☐ Iced ☒ Refrigerated ☐ Fridge temp ____ °C ☐ Freezer temp ____ °C

SB 43999 ✓ DY

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 3 of 7

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: Jon Kitchen
Norfolk Ram Group, LLC
1 Roberts Road
Plymouth MA 02360
Telephone #: 508-747-7900 x 154
Project Mgr. Jon Kitchen

Invoice To: SAME

P.O. No.: _____ RQN: _____

Project No.: 1153.121
Site Name: Stephens Field
Location: Plymouth State: MA
Sampler(s): E.S

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= _____ 11= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

MA DEP MCP CAM Report: Yes ☒ No ☐
CT DPH RCP Report: Yes ☐ No ☐

QA/QC Reporting Level
☐ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER V*
☐ Other _____

State-specific reporting standards:

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Lead	Arsenic	PAHs						
43999-21	B-17 topsoil	2/14/2012	1110	G	SO			1G		X								
22	B-17 Fill		1110	G				1G		X								
23	B-19 topsoil		1130	G				1G		X								
24	B-19 Fill		1130	G				1G		X								
25	B-20 topsoil		1140	G				1G		X								
26	B-20 Fill		1140	G				1G		X								
27	B-21 topsoil		1150	G						X								
28	B-21 Fill		1150	G						X								
29	B-22 topsoil		1200	G						X	X	X						
30	B-22 Fill		1200	G						X	X	X						

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	2.16.12	1205	
[signature]	[signature]	2/16/12	17:00	2.1

☐ EDD Format _____
☐ E-mail to _____

☐ Ambient ☐ Iced ☒ Refrigerated ☐ Fridge temp ____ °C ☐ Freezer temp ____ °C

SB43999 Dy

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 4 of 7

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: Jon Kitchen
Norfolk Ram Group, LLC
1 Roberts Road
Plymouth MA 02360
Telephone #: 508-747-7400 x 152
Project Mgr. Jon Kitchen

Invoice To: Same

P.O. No.: _____ RQN: _____

Project No.: 1153.12.1
Site Name: Stephens Field
Location: Plymouth State: MA
Sampler(s): E.S

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= _____ 11= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Lead	Arsenic							
43999-31	Playground SAND	2/14/2012	1205	C	SO			1G		X	X							
32	B-23 topsoil		1240	G						X								
33	B-23 Fill		1240							X								
34	B-24 topsoil		1250							X								
35	B-24 lead		1250							X								
36	B-25 topsoil		1300							X								
37	B-25 Fill		1300							X								
38	B-26 topsoil		1310							X								
39	B-26 Fill		1310							X								

Containers:

Analyses:

MA DEP MCP CAM Report: Yes ☒ No ☐
CT DPH RCP Report: Yes ☐ No ☐

QA/QC Reporting Level
☐ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER V*
☐ Other _____

State-specific reporting standards: MA MCP

Relinquished by:	Received by:	Date:	Time:	Temp°C
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[signature]	[signature]	2/16/12	17:00	2.1

☐ EDD Format _____
☐ E-mail to _____

☐ Ambient ☐ Iced ☒ Refrigerated ☐ Fridge temp ____°C ☐ Freezer temp ____°C

S843999 Dry

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 5 of 7

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: Jon Kitchen
Norfolk Ram Group, LLC
1 Roberts Road
Plymouth MA 02360
Telephone #: 508-747-7900 x 154
Project Mgr. Jon Kitchen

Invoice To: SAME

P.O. No.: _____ RQN: _____

Project No.: 1153.12.1
Site Name: Stephens Field
Location: Plymouth State: MA
Sampler(s): E.S

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= _____ 11= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

MA DEP MCP CAM Report: Yes ☒ No ☐
CT DPH RCP Report: Yes ☐ No ☐

QA/QC Reporting Level
☐ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER V*
☐ Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Lead	Arsenic								State-specific reporting standards
43999-40	B-27 topsoil	2/14/2012	1320	G	SO			16		X	X								MA MCP
41	B-27 Fill		1320							X	X								
42	B-28 topsoil		1330							X									
43	B-28 Fill		1330							X									
44	B-29 topsoil		1340							X									
45	B-29 Fill		1340							X									
46	B-31 topsoil		1400							X									
47	B-31 Fill		1400							X									
48	B-32 topsoil		1410							X									
49	B-32 Fill		1410							X									

Relinquished by:	Received by:	Date:	Time:	Temp°C
Eric Sullivan	[illegible]	2-16-12	12:00	
[illegible]	[illegible]	2/16/12	17:00	2.1

☐ EDD Format _____
☐ E-mail to _____

☐ Ambient ☐ Iced ☒ Refrigerated ☐ Fridge temp ___ °C ☐ Freezer temp ___ °C

SB43999 / Dry

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 6 of 7

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: Jon Kitchen
Norfolk Ram Group, LLC
1 Roberts Road
Plymouth MA 02360
Telephone #: 508-747-7400 X 154
Project Mgr. Jon Kitchen

Invoice To: SAME

P.O. No.: _____ RQN: _____

Project No.: 1153.12.1
Site Name: Stephens Field
Location: Plymouth State: MA
Sampler(s): E.S

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= _____ 11= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Lead	Arsenic								
43999-50	B-33 topsoil	2/14/2012	1420	G	SO					X	X								
51	B-33 Fill		1420	G	SO					X	X								
52	~~B-34~~ B-34		~~1100~~ 1450							X									
53	~~B-35~~ B-35		1510							X									
54	B-16 topsoil		1100							X									
55	B-16 Fill		1100							X									
56	B-18 topsoil		1120							X									
57	B-18 Fill		1120							X									
58	B-30 topsoil		1350							X									
59	B-30 Fill		1350							X									

Containers: # of VOA Vials, # of Amber Glass, # of Clear Glass, # of Plastic

Analyses: Lead, Arsenic

Lab Id 50–59: HOLD

MA DEP MCP CAM Report: Yes ☐ No ☐
CT DPH RCP Report: Yes ☐ No ☐

QA/QC Reporting Level
☐ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER V*
☐ Other _____

State-specific reporting standards:

Relinquished by:	Received by:	Date:	Time:	Temp°C
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[signature]	[signature]	2/16/12	17:00	2.1

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☐ E-mail to _____

☐ Ambient ☐ Iced ☒ Refrigerated ☐ Fridge temp ___ °C ☐ Freezer temp ___ °C

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SPECTRUM ANALYTICAL, INC.
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HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 7 of 7

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: Jon Kitchen
Norfolk Ran Group, LLC
1 Roberts Road
Plymouth MA 02360
Telephone #: 508-747-7400 x 154
Project Mgr. Jon Kitchen

Invoice To: SAME

P.O. No.: _____ RQN: _____

Project No.: 1153.12.1
Site Name: Stephens Field
Location: Plymouth State: MA
Sampler(s): E.S

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= _____ 11= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

Containers: # of VOA Vials; # of Amber Glass; # of Clear Glass; # of Plastic

Analyses: Lead (HOLD)

MA DEP MCP CAM Report: Yes ☐ No ☐
CT DPH RCP Report: Yes ☐ No ☐

QA/QC Reporting Level
☐ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER V*
☐ Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Lead (HOLD)
43999-60	B-3 topsoil	2/14/2012	0845	G	SO			1G		X
61	B-3 Fill		0845							X
62	B-6 topsoil		0925							
63	B-6 Fill		0925							
64	B-8 topsoil		0940							
65	B-8 Fill		0940							
66	B-10 topsoil		1000							
67	B-10 Fill		1000							
68	B-12 topsoil		1020							
69	B-12 Fill		1020							

HOLD

HOLD

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	2-16-12	1205	
[signature]	[signature]	2/16/12	17:00	2.1

☐ EDD Format _____
☐ E-mail to _____

☐ Ambient ☐ Iced ☒ Refrigerated ☐ Fridge temp ____ °C ☐ Freezer temp ____ °C

SB43999 Dy

SPECTRUM ANALYTICAL, INC.
Featuring
HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 4 of 7

Special Handling:
- ☐ Standard TAT - 7 to 10 business days
- ☒ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval.
- Min. 24-hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: Jon Kitchen
Norfolk Ram Group, LLC
1 Roberts Road
Plymouth MA 02360
Telephone #: 508-747-7400 x 152
Project Mgr. Jon Kitchen

Invoice To: JMC

P.O. No.: _____ RQN: _____

Project No.: 1153.121
Site Name: Stephens Field
Location: Plymouth State: MA
Sampler(s): E.S

1=$Na_2S_2O_3$ 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=Ascorbic Acid 7=CH_3OH
8= $NaHSO_4$ 9= Deionized Water 10= _____ 11= _____

List preservative code below:

QA/QC Reporting Notes:
* additional charges may apply

DW=Drinking Water GW=Groundwater WW=Wastewater
O=Oil SW= Surface Water SO=Soil SL=Sludge A=Air
X1= _____ X2= _____ X3= _____

G=Grab C=Composite

MA DEP MCP CAM Report: Yes ☒ No ☐
CT DPH RCP Report: Yes ☐ No ☐

QA/QC Reporting Level
☐ Standard ☐ No QC ☐ DQA*
☐ NY ASP A* ☐ NY ASP B*
☐ NJ Reduced* ☐ NJ Full*
☐ TIER II* ☐ TIER V*
☐ Other _____

State-specific reporting standards:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Lead	Arsenic								State-specific reporting standards
43999-31	playground stud	2/14/2012	1205	C	SO			16		X	X								MA MCP
32	B-23 topsoil		1240	G						X									
33	B-23 Fill		1240							X									
34	B-24 topsoil		1250							X									
35	B-24 ~~test~~ Fill		1250							X									ID revised per client request
36	B-25 topsoil		1300							X									
37	B-25 Fill		1300							X									
38	B-26 topsoil		1310							X									
39	B-26 Fill		1310							X									

Relinquished by:	Received by:	Date:	Time:	Temp°C
[signature]	[signature]	2.16.12	1205	
[signature]	[signature]	2/16/12	17:00	2.1

☐ EDD Format _____
☐ E-mail to _____

☐ Ambient ☐ Iced ☒ Refrigerated ☐ Fridge temp ____ °C ☐ Freezer temp ____ °C

R.I. ANALYTICAL
Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Date Received: 1/23/12
Date Reported: 2/1/12
P.O. #:
Work Order #: 1201-01465

DESCRIPTION: PROJECT# 1153.12.1 STEPHENS FIELD

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.
The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844

This Certificate represents all data associated with the referenced work order and is paginated for completeness. The complete Certificate includes one attachment; the original Chain of Custody.

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:

Data Reporting

enc: Chain of Custody

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12

Work Order #: 1201-01465

PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 001
SAMPLE DESCRIPTION: MW-1
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/20/2012 @ 14:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
VPH						
Unadjusted C5-C8 Aliphatics(FID)	<50	50	ug/l	MADEP	1/24/12	EC
Unadjusted C9-C12 Aliphatics(FID)	<50	50	ug/l	MADEP	1/24/12	EC
Methyl-tert-butylether	<5	5	ug/l	MADEP	1/24/12	EC
Benzene	<5	5	ug/l	MADEP	1/24/12	EC
Toluene	<5	5	ug/l	MADEP	1/24/12	EC
Ethylbenzene	<5	5	ug/l	MADEP	1/24/12	EC
m,p-Xylene	<5	5	ug/l	MADEP	1/24/12	EC
o-Xylene	<5	5	ug/l	MADEP	1/24/12	EC
Total Xylene	<5	5	ug/l	MADEP	1/24/12	EC
Naphthalene	36	5	ug/l	MADEP	1/24/12	EC
Adjusted C5-C8 Aliphatics(FID)	<50	50	ug/l	MADEP	1/24/12	EC
Adjusted C9-C12 Aliphatics(FID)	<50	50	ug/l	MADEP	1/24/12	EC
C9-C10 Aromatics(PID)	<50	50	ug/l	MADEP	1/24/12	EC
Surrogate			RANGE		1/24/12	EC
2,5-Dibromotoluene(PID)	87		70-130%	MADEP	1/24/12	EC
2,5-Dibromotoluene(FID)	79		70-130%	MADEP	1/24/12	EC
EPH						
C9-C18 Aliphatics	<100	100	ug/l	MADEP	1/27/12	JEB
C19-C36 Aliphatics	120	100	ug/l	MADEP	1/27/12	JEB
C11-C22 Aromatics	380	100	ug/l	MADEP	1/27/12	JEB
Total EPH	500		ug/l	MADEP	1/27/12	JEB
Extraction Surrogates			RANGE		1/27/12	JEB
Chloro-octadecane	48		40-140%	MADEP	1/27/12	JEB
Ortho-terphenyl	59		40-140%	MADEP	1/27/12	JEB
Fractionation Surrogates			RANGE		1/27/12	JEB
2-Fluorobiphenyl	72		40-140%	MADEP	1/27/12	JEB
2-Bromonaphthalene	71		40-140%	MADEP	1/27/12	JEB
Extraction date	Extracted			MADEP	1/26/12	RLL
Target PAH analytes						
Naphthalene	7.2	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
2-Methylnaphthalene	1.4	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Acenaphthylene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Acenaphthene	1.3	1.0	ug/l	GC/MS-SIM	1/27/12	TCL

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12

Work Order #: 1201-01465

PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 001
SAMPLE DESCRIPTION: MW-1
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/20/2012 @ 14:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Fluorene	2.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Phenanthrene	4.4	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Anthracene	1.4	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Fluoranthene	19	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Pyrene	19	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(a)anthracene	17	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Chrysene	15	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(b)fluoranthene	19	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(k)fluoranthene	19	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(a)pyrene	22	0.1	ug/l	GC/MS-SIM	1/27/12	TCL
Indeno(1,2,3-cd)pyrene	10	0.1	ug/l	GC/MS-SIM	1/27/12	TCL
Dibenzo(a,h)anthracene	4.6	0.1	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(g,h,i)perylene	8.2	0.1	ug/l	GC/MS-SIM	1/27/12	TCL

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01465
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 002
SAMPLE DESCRIPTION: MW-2
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/20/2012 @ 14:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
VPH						
Unadjusted C5-C8 Aliphatics(FID)	64	50	ug/l	MADEP	1/24/12	EC
Unadjusted C9-C12 Aliphatics(FID)	89	50	ug/l	MADEP	1/24/12	EC
Methyl-tert-butylether	<5	5	ug/l	MADEP	1/24/12	EC
Benzene	<5	5	ug/l	MADEP	1/24/12	EC
Toluene	<5	5	ug/l	MADEP	1/24/12	EC
Ethylbenzene	<5	5	ug/l	MADEP	1/24/12	EC
m,p-Xylene	<5	5	ug/l	MADEP	1/24/12	EC
o-Xylene	<5	5	ug/l	MADEP	1/24/12	EC
Total Xylene	<5	5	ug/l	MADEP	1/24/12	EC
Naphthalene	<5	5	ug/l	MADEP	1/24/12	EC
Adjusted C5-C8 Aliphatics(FID)	64	50	ug/l	MADEP	1/24/12	EC
Adjusted C9-C12 Aliphatics(FID)	<50	50	ug/l	MADEP	1/24/12	EC
C9-C10 Aromatics(PID)	56	50	ug/l	MADEP	1/24/12	EC
Surrogate			RANGE		1/24/12	EC
2,5-Dibromotoluene(PID)	101		70-130%	MADEP	1/24/12	EC
2,5-Dibromotoluene(FID)	95		70-130%	MADEP	1/24/12	EC
EPH						
C9-C18 Aliphatics	<100	100	ug/l	MADEP	1/27/12	JEB
C19-C36 Aliphatics	290	100	ug/l	MADEP	1/27/12	JEB
C11-C22 Aromatics	150	100	ug/l	MADEP	1/27/12	JEB
Total EPH	440		ug/l	MADEP	1/27/12	JEB
Extraction Surrogates			RANGE		1/27/12	JEB
Chloro-octadecane	45		40-140%	MADEP	1/27/12	JEB
Ortho-terphenyl	72		40-140%	MADEP	1/27/12	JEB
Fractionation Surrogates			RANGE		1/27/12	JEB
2-Fluorobiphenyl	82		40-140%	MADEP	1/27/12	JEB
2-Bromonaphthalene	82		40-140%	MADEP	1/27/12	JEB
Extraction date	Extracted			MADEP	1/26/12	RLL
Target PAH analytes						
Naphthalene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
2-Methylnaphthalene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Acenaphthylene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Acenaphthene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01465
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 002
SAMPLE DESCRIPTION: MW-2
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/20/2012 @ 14:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Fluorene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Phenanthrene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Anthracene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Fluoranthene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Pyrene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(a)anthracene	<0.2	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Chrysene	<0.2	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(b)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(k)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(a)pyrene	0.1	0.1	ug/l	GC/MS-SIM	1/27/12	TCL
Indeno(1,2,3-cd)pyrene	0.1	0.1	ug/l	GC/MS-SIM	1/27/12	TCL
Dibenzo(a,h)anthracene	<0.1	0.1	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(g,h,i)perylene	0.1	0.1	ug/l	GC/MS-SIM	1/27/12	TCL
Volatile Organic Compounds						
Acetone	<10	10	ug/l	SW-846 8260B	2/1/12	MMM
Tertiary Amyl Methyl Ether	<5	5	ug/l	SW-846 8260B	2/1/12	MMM
Benzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Bromobenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Bromochloromethane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Bromodichloromethane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Bromoform	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Bromomethane	<2	2	ug/l	SW-846 8260B	2/1/12	MMM
n-Butylbenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Sec-butylbenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
tert-Butylbenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Carbon Disulfide	<5	5	ug/l	SW-846 8260B	2/1/12	MMM
Carbon Tetrachloride	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Chlorobenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Dibromochloromethane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Chloroethane	<5	5	ug/l	SW-846 8260B	2/1/12	MMM
Chloroform	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Chloromethane	<5	5	ug/l	SW-846 8260B	2/1/12	MMM
2-Chlorotoluene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
4-Chlorotoluene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,2-Dibromo-3-Chloropropane	<2	2	ug/l	SW-846 8260B	2/1/12	MMM
1,2-Dibromoethane(EDB)	<1	1	ug/l	SW-846 8260B	2/1/12	MMM

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01465
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 002
SAMPLE DESCRIPTION: MW-2
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/20/2012 @ 14:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Dibromomethane	<2	2	ug/l	SW-846 8260B	2/1/12	MMM
1,3-Dichlorobenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,2-Dichlorobenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,4-Dichlorobenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
n-Propylbenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Dichlorodifluoromethane	<5	5	ug/l	SW-846 8260B	2/1/12	MMM
1,1-Dichloroethane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,2-Dichloroethane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,1-Dichloroethene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
cis-1,2-Dichloroethene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
trans-1,2-Dichloroethylene	<2	2	ug/l	SW-846 8260B	2/1/12	MMM
1,2-Dichloropropane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,3-Dichloropropane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
2,2-Dichloropropane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,1-Dichloropropene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
cis-1,3-Dichloropropene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
trans-1,3-Dichloropropylene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Diethyl ether	<5	5	ug/l	SW-846 8260B	2/1/12	MMM
Diisopropyl Ether (DIPE)	<5	5	ug/l	SW-846 8260B	2/1/12	MMM
1,4-Dioxane	<100	100	ug/l	SW-846 8260B	2/1/12	MMM
Ethyl Tertiary Butyl Ether	<5	5	ug/l	SW-846 8260B	2/1/12	MMM
Ethylbenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Hexachlorobutadiene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
2-Hexanone	<10	10	ug/l	SW-846 8260B	2/1/12	MMM
Isopropylbenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
p-Isopropyltoluene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
2-Butanone(MEK)	<10	10	ug/l	SW-846 8260B	2/1/12	MMM
4-Methyl-2-pentanone(MIBK)	<10	10	ug/l	SW-846 8260B	2/1/12	MMM
Methyl Tertiary Butyl Ether (MTBE)	<2	2	ug/l	SW-846 8260B	2/1/12	MMM
Methylene Chloride	<5	5	ug/l	SW-846 8260B	2/1/12	MMM
Naphthalene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,1,2-Trichloroethane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Styrene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,1,1,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,1,2,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Tetrachloroethene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Tetrahydrofuran	<10	10	ug/l	SW-846 8260B	2/1/12	MMM

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01465
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 002
SAMPLE DESCRIPTION: MW-2
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/20/2012 @ 14:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Toluene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,2,4-Trichlorobenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,2,3-Trichlorobenzene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,1,1-Trichloroethane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Trichloroethene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
Trichlorofluoromethane	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
1,2,3-Trichloropropane	<2	2	ug/l	SW-846 8260B	2/1/12	MMM
1,2,4-Trimethylbenzene	4	1	ug/l	SW-846 8260B	2/1/12	MMM
1,3,5-Trimethylbenzene	2	1	ug/l	SW-846 8260B	2/1/12	MMM
Vinyl Chloride	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
o-Xylene	<1	1	ug/l	SW-846 8260B	2/1/12	MMM
m,p-Xylene	2	1	ug/l	SW-846 8260B	2/1/12	MMM
Surrogates			RANGE	SW-846 8260B	2/1/12	MMM
Dibromofluoromethane	116		86-118%	SW-846 8260B	2/1/12	MMM
Toluene-d8	95		88-110%	SW-846 8260B	2/1/12	MMM
4-Bromofluorobenzene	101		86-115%	SW-846 8260B	2/1/12	MMM
1,2 Dichloroethane-d4	105		80-120%	SW-846 8260B	2/1/12	MMM
Dissolved Metals Analyzed by ICP						
Barium	0.136	0.005	mg/l	SW-846 6010C	1/26/12	JEH
Beryllium	<0.001	0.001	mg/l	SW-846 6010C	1/26/12	JEH
Cadmium	<0.004	0.004	mg/l	SW-846 6010C	1/26/12	JEH
Chromium	<0.005	0.005	mg/l	SW-846 6010C	1/26/12	JEH
Mercury	<0.0005	0.0005	mg/l	SW-846 7470A	1/26/12	JEH
Nickel	<0.010	0.010	mg/l	SW-846 6010C	1/26/12	JEH
Silver	<0.020	0.020	mg/l	SW-846 6010C	1/26/12	JEH
Vanadium	<0.020	0.020	mg/l	SW-846 6010C	1/26/12	JEH
Zinc	0.352	0.020	mg/l	SW-846 6010C	1/26/12	JEH
Dissolved Metals Analyzed by ICPMS						
Antimony	<0.002	0.002	mg/l	SW-846 6020A	1/26/12	JEH
Arsenic	0.004	0.001	mg/l	SW-846 6020A	1/26/12	JEH
Lead	0.005	0.001	mg/l	SW-846 6020A	1/26/12	JEH
Selenium	<0.002	0.002	mg/l	SW-846 6020A	1/26/12	JEH
Thallium	<0.001	0.001	mg/l	SW-846 6020A	1/26/12	JEH

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12
Work Order #: 1201-01465
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 003
SAMPLE DESCRIPTION: MW-3
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/20/2012 @ 15:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
VPH						
Unadjusted C5-C8 Aliphatics(FID)	<50	50	ug/l	MADEP	1/24/12	EC
Unadjusted C9-C12 Aliphatics(FID)	<50	50	ug/l	MADEP	1/24/12	EC
Methyl-tert-butylether	<5	5	ug/l	MADEP	1/24/12	EC
Benzene	<5	5	ug/l	MADEP	1/24/12	EC
Toluene	<5	5	ug/l	MADEP	1/24/12	EC
Ethylbenzene	<5	5	ug/l	MADEP	1/24/12	EC
m,p-Xylene	<5	5	ug/l	MADEP	1/24/12	EC
o-Xylene	<5	5	ug/l	MADEP	1/24/12	EC
Total Xylene	<5	5	ug/l	MADEP	1/24/12	EC
Naphthalene	<5	5	ug/l	MADEP	1/24/12	EC
Adjusted C5-C8 Aliphatics(FID)	<50	50	ug/l	MADEP	1/24/12	EC
Adjusted C9-C12 Aliphatics(FID)	<50	50	ug/l	MADEP	1/24/12	EC
C9-C10 Aromatics(PID)	<50	50	ug/l	MADEP	1/24/12	EC
Surrogate			RANGE		1/24/12	EC
2,5-Dibromotoluene(PID)	81		70-130%	MADEP	1/24/12	EC
2,5-Dibromotoluene(FID)	76		70-130%	MADEP	1/24/12	EC
EPH						
C9-C18 Aliphatics	<100	100	ug/l	MADEP	1/27/12	JEB
C19-C36 Aliphatics	<100	100	ug/l	MADEP	1/27/12	JEB
C11-C22 Aromatics	<100	100	ug/l	MADEP	1/27/12	JEB
Total EPH	<300		ug/l	MADEP	1/27/12	JEB
Extraction Surrogates			RANGE		1/27/12	JEB
Chloro-octadecane	52		40-140%	MADEP	1/27/12	JEB
Ortho-terphenyl	103		40-140%	MADEP	1/27/12	JEB
Fractionation Surrogates			RANGE		1/27/12	JEB
2-Fluorobiphenyl	102		40-140%	MADEP	1/27/12	JEB
2-Bromonaphthalene	104		40-140%	MADEP	1/27/12	JEB
Extraction date	Extracted			MADEP	1/26/12	RLL
Target PAH analytes						
Naphthalene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
2-Methylnaphthalene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Acenaphthylene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Acenaphthene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 1/23/12

Work Order #: 1201-01465

PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 003
SAMPLE DESCRIPTION: MW-3
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 1/20/2012 @ 15:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Fluorene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Phenanthrene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Anthracene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Fluoranthene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Pyrene	<1.0	1.0	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(a)anthracene	<0.2	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Chrysene	<0.2	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(b)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(k)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(a)pyrene	0.1	0.1	ug/l	GC/MS-SIM	1/27/12	TCL
Indeno(1,2,3-cd)pyrene	<0.1	0.1	ug/l	GC/MS-SIM	1/27/12	TCL
Dibenzo(a,h)anthracene	<0.1	0.1	ug/l	GC/MS-SIM	1/27/12	TCL
Benzo(g,h,i)perylene	<0.1	0.1	ug/l	GC/MS-SIM	1/27/12	TCL

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

Customer Name : Norfolk Ram Group

W.O. Number 1201-01465

MassDEP Analytical Protocol Certification Form

Laboratory Name: R.I. Analytical Laboratories	Work Order No: 1201-01465
Project / Location: PROJECT# 1153.12.1 STEPHENS FIELD	RTN :
This Form provides certifications for the following data set: list Laboratory Sample ID Number(s): 1201-01465-001 through 1201-01465-003	

Matrices: ☒ Groundwater/Surface Water ☐ Soil / Sediment ☐ Drinking Water ☐ Air ☐ Other

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☒	7470/7471 Hg CAM III B ☒	MassDEP VPH CAM IV A ☒	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☒	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☒	6020 Metals CAM III D ☒	8082 PCB CAM V A ☐	9014 Total Cyanide /PAC CAM VI A ☐	6860 Perchlorate CAM V111 B ☐	

Affirmative responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No
B	Were the analytical methods(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Aquisition and Reporting of Analytical Data"?	☒ Yes ☐ No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s) ? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☒ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No

Responses to Questions G,H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes ☒ No [1]

Data User Note: ***Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.***

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes ☒ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☒ Yes ☐ No [1]

[1] *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature _____ Position: QA/QC Director

Printed Name: Mike Hobin Date: 2-1-12

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01465
Date: 2/1/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Extractable Petroleum Hydrocarbons (Aqueous)			
C9-C18 Aliphatics	ug/l	<100	1/27/2012
C19-C36 Aliphatics	ug/l	<100	1/27/2012
C11-C22 Aromatics	ug/l	<100	1/27/2012
Extraction Surrogates	**RANGE**		
Chloro-octadecane	40-140%	90	1/27/2012
Ortho-terphenyl	40-140%	93	1/27/2012
Fractionation Surrogates	**RANGE**		
2-Fluorobiphenyl	40-140%	87	1/27/2012
2-Bromonaphthalene	40-140%	86	1/27/2012
Volatile Petroleum Hydrocarbons(Aqueous)			
Unadj C5-C8 Aliphatics(FID)	ug/l	<50	1/24/2012
Unadj C9-C12 Aliphatic(FID)	ug/l	<50	1/24/2012
Methyl-tert-butylether	ug/l	<5	1/24/2012
Benzene	ug/l	<5	1/24/2012
Toluene	ug/l	<5	1/24/2012
Ethylbenzene	ug/l	<5	1/24/2012
m,p-Xylene	ug/l	<5	1/24/2012
o-Xylene	ug/l	<5	1/24/2012
Naphthalene	ug/l	<5	1/24/2012
Adj C5-C8 Aliphatics(FID)	ug/l	<50	1/24/2012
Adj C9-C12 Aliphatics(FID)	ug/l	<50	1/24/2012
C9-C10 Aromatics(PID)	ug/l	<50	1/24/2012
Surrogate	**RANGE**		1/24/2012
2,5-Dibromotoluene(PID)	70-130%	83	1/24/2012
2,5-Dibromotoluene(FID)	70-130%	78	1/24/2012
Volatile Organics by Method 8260			
Benzene	ug/l	<1	2/1/2012
Bromobenzene	ug/l	<1	2/1/2012
Bromochloromethane	ug/l	<1	2/1/2012
Bromodichloromethane	ug/l	<1	2/1/2012
Bromoform	ug/l	<1	2/1/2012
n-Butylbenzene	ug/l	<1	2/1/2012
Sec-butylbenzene	ug/l	<1	2/1/2012
tert-Butylbenzene	ug/l	<1	2/1/2012
Carbon Tetrachloride	ug/l	<1	2/1/2012
Chlorobenzene	ug/l	<1	2/1/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01465
Date: 2/1/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Volatile Organics by Method 8260 (cont'd)			
Chloroethane	ug/l	<5	2/1/2012
Chloroform	ug/l	<1	2/1/2012
Chloromethane	ug/l	<5	2/1/2012
2-Chlorotoluene	ug/l	<1	2/1/2012
4-Chlorotoluene	ug/l	<1	2/1/2012
Dibromochloromethane	ug/l	<1	2/1/2012
1,2-Dibromo-3-Chloropropane	ug/l	<2	2/1/2012
1,2-Dibromoethane(EDB)	ug/l	<1	2/1/2012
Dibromomethane	ug/l	<2	2/1/2012
1,2-Dichlorobenzene	ug/l	<1	2/1/2012
1,3-Dichlorobenzene	ug/l	<1	2/1/2012
1,4-Dichlorobenzene	ug/l	<1	2/1/2012
Dichlorodifluoromethane	ug/l	<5	2/1/2012
1,1-Dichloroethane	ug/l	<1	2/1/2012
1,2-Dichloroethane	ug/l	<1	2/1/2012
1,1-Dichloroethene	ug/l	<1	2/1/2012
cis-1,2-Dichloroethene	ug/l	<1	2/1/2012
trans-1,2-Dichloroethylene	ug/l	<2	2/1/2012
1,2-Dichloropropane	ug/l	<1	2/1/2012
1,3-Dichloropropane	ug/l	<1	2/1/2012
2,2-Dichloropropane	ug/l	<1	2/1/2012
1,1-Dichloropropene	ug/l	<1	2/1/2012
Ethylbenzene	ug/l	<1	2/1/2012
Isopropylbenzene	ug/l	<1	2/1/2012
p-Isopropyltoluene	ug/l	<1	2/1/2012
Methylene Chloride	ug/l	<5	2/1/2012
Naphthalene	ug/l	<1	2/1/2012
n-Propylbenzene	ug/l	<1	2/1/2012
Styrene	ug/l	<1	2/1/2012
1,1,1,2-Tetrachloroethane	ug/l	<1	2/1/2012
1,1,2,2-Tetrachloroethane	ug/l	<1	2/1/2012
Tetrachloroethene	ug/l	<1	2/1/2012
Toluene	ug/l	<1	2/1/2012
1,2,3-Trichlorobenzene	ug/l	<1	2/1/2012
1,2,4-Trichlorobenzene	ug/l	<1	2/1/2012
1,1,1-Trichloroethane	ug/l	<1	2/1/2012
1,1,2-Trichloroethane	ug/l	<1	2/1/2012
Trichloroethene	ug/l	<1	2/1/2012
Trichlorofluoromethane	ug/l	<1	2/1/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01465
Date: 2/1/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Volatile Organics by Method 8260 (cont'd)			
1,2,3-Trichloropropane	ug/l	<2	2/1/2012
1,2,4-Trimethylbenzene	ug/l	<1	2/1/2012
1,3,5-Trimethylbenzene	ug/l	<1	2/1/2012
Vinyl Chloride	ug/l	<1	2/1/2012
o-Xylene	ug/l	<1	2/1/2012
m,p-Xylene	ug/l	<1	2/1/2012
MTBE	ug/l	<2	2/1/2012
Acetone	ug/l	<10	2/1/2012
2-Butanone(MEK)	ug/l	<10	2/1/2012
4-Methyl-2-pentanone(MIBK)	ug/l	<10	2/1/2012
Tetrahydrofuran	ug/l	<10	2/1/2012
Carbon Disulfide	ug/l	<5	2/1/2012
2-Hexanone	ug/l	<10	2/1/2012
cis-1,3-Dichloropropene	ug/l	<1	2/1/2012
trans-1,3-Dichloropropylene	ug/l	<1	2/1/2012
1,4-Dioxane	ug/l	<100	2/1/2012
Diethyl ether	ug/l	<5	2/1/2012
Ethyl Tertiary Butyl Ether	ug/l	<5	2/1/2012
Diisopropyl ether (DIPE)	ug/l	<5	2/1/2012
Tertiary Amyl Methyl Ether	ug/l	<5	2/1/2012
Surrogates	**RANGE**		2/1/2012
Dibromofluoromethane	86-118%	104	2/1/2012
Toluene-d8	88-110%	96	2/1/2012
4-Bromofluorobenzene	86-115%	99	2/1/2012
1,2 Dichloroethane-d4	80-120%	103	2/1/2012
Polyaromatic Hydrocarbons (Aqueous)			
Naphthalene	ug/l	<1.0	1/27/2012
2-Methylnaphthalene	ug/l	<1.0	1/27/2012
Acenaphthylene	ug/l	<1.0	1/27/2012
Acenaphthene	ug/l	<1.0	1/27/2012
Fluorene	ug/l	<1.0	1/27/2012
Phenanthrene	ug/l	<1.0	1/27/2012
Anthracene	ug/l	<1.0	1/27/2012
Fluoranthene	ug/l	<1.0	1/27/2012
Pyrene	ug/l	<0.2	1/27/2012
Benzo(a)anthracene	ug/l	<0.2	1/27/2012
Chrysene	ug/l	<0.2	1/27/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01465
Date: 2/1/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Polyaromatic Hydrocarbons (Aqueous) (cont'd)			
Benzo(b)fluoranthene	ug/l	<0.2	1/27/2012
Benzo(k)fluoranthene	ug/l	<0.2	1/27/2012
Benzo(a)pyrene	ug/l	<0.1	1/27/2012
Indeno(1,2,3-cd)pyrene	ug/l	<0.1	1/27/2012
Dibenzo(a,h)anthracene	ug/l	<0.1	1/27/2012
Benzo(g,h,i)perylene	ug/l	<0.1	1/27/2012
Dissolved Metals by ICP			
Beryllium	mg/l	<0.001	1/26/2012
Cadmium	mg/l	<0.004	1/26/2012
Chromium	mg/l	<0.005	1/26/2012
Nickel	mg/l	<0.010	1/26/2012
Silver	mg/l	<0.020	1/26/2012
Vanadium	mg/l	<0.020	1/26/2012
Zinc	mg/l	<0.020	1/26/2012
Barium	mg/l	<0.005	1/26/2012
Dissolved Metals by ICP Mass Spec			
Antimony (mg/l)	mg/l	<0.002	1/26/2012
Arsenic (mg/l)	mg/l	<0.001	1/26/2012
Lead (mg/l)	mg/l	<0.001	1/26/2012
Selenium (mg/l)	mg/l	<0.002	1/26/2012
Thallium (mg/l)	mg/l	<0.001	1/26/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Extractable Petroleum Hydrocarbons (Aqueous)								
C9-C18 Aliphatics		300	231	77	236	79	2	1/27/2012
C19-C36 Aliphatics		400	383	96	401	100	5	1/27/2012
C11-C22 Aromatics		850	760	89	744	88	2	1/27/2012
Extraction Surrogates								
Chloro-octadecane			57		82			
Ortho-terphenyl			90		90			
Fractionation Surrogates								
2-Fluorobiphenyl			77		81			
2-Bromonaphthalene			77		78			
Volatile Petroleum Hydrocarbons(Aqueous)								

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01465
Date: 2/1/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Volatile Petroleum Hydrocarbons(Aqueous) (cont'd)								
Methyl-tert-butylether		50	54.4	109	54.1	108	1	1/24/2012
Benzene		50	49.0	98	47.6	95	3	1/24/2012
Toluene		50	49.6	99	45.9	92	8	1/24/2012
Ethylbenzene		50	50.7	101	47.3	95	7	1/24/2012
m,p-Xylene		100	105	105	98	98	7	1/24/2012
o-Xylene		50	50.9	102	48.5	97	5	1/24/2012
Naphthalene		50	44.9	90	48.4	97	8	1/24/2012
Adj C5-C8 Aliphatics(FID)		150	144	96	135	90	6	1/24/2012
Adj C9-C12 Aliphatics(FID)		100	85.9	86	81.7	82	5	1/24/2012
C9-C10 Aromatics(PID)		50	50.5	101	49.3	99	2	1/24/2012
Surrogate								
2,5-Dibromotoluene(PID)			80		98			
2,5-Dibromotoluene(FID)			84		104			
Polyaromatic Hydrocarbons (Aqueous)								
Naphthalene		5.0	4.3	86	4.4	88	2	1/27/2012
2-Methylnaphthalene		5.0	4.4	88	4.5	90	2	1/27/2012
Acenaphthylene		5.0	4.7	94	4.9	98	4	1/27/2012
Acenaphthene		5.0	4.8	96	4.9	98	2	1/27/2012
Fluorene		5.0	5.2	104	5.4	108	4	1/27/2012
Phenanthrene		5.0	5.4	108	5.6	112	4	1/27/2012
Anthracene		5.0	5.5	110	5.8	116	5	1/27/2012
Fluoranthene		5.0	6.0	120	6.4	128	6	1/27/2012
Pyrene		5.0	5.9	118	5.9	118	0	1/27/2012
Benzo(a)anthracene		5.0	5.7	114	6.0	120	5	1/27/2012
Chrysene		5.0	5.3	106	5.6	112	6	1/27/2012
Benzo(b)fluoranthene		5.0	6.1	122	6.6	132	8	1/27/2012
Benzo(k)fluoranthene		5.0	6.7	134	6.8	136	1	1/27/2012
Benzo(a)pyrene		5.0	6.1	122	6.3	126	3	1/27/2012
Indeno(1,2,3-cd)pyrene		5.0	5.3	106	5.6	112	6	1/27/2012
Dibenzo(a,h)anthracene		5.0	5.8	116	6.5	130	11	1/27/2012
Benzo(g,h,i)perylene		5.0	5.1	102	5.4	108	6	1/27/2012
Dissolved Metals by ICP								
Beryllium		1.00	1.02	102	1.01	101	1	1/26/2012
Cadmium		1.00	1.04	104	0.999	100	4	1/26/2012
Chromium		1.00	1.00	100	0.962	96	4	1/26/2012
Nickel		1.00	1.00	100	0.969	97	3	1/26/2012
Silver		1.00	1.03	103	1.00	100	3	1/26/2012
Vanadium		1.00	0.996	100	0.958	96	4	1/26/2012
Zinc		1.00	1.02	102			0	1/26/2012
Barium		1.00	1.01	101	1.00	100	1	1/26/2012
Dissolved Metals by ICP Mass Spec								

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01465
Date: 2/1/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Dissolved Metals by ICP Mass Spec (cont'd)								
Antimony (mg/l)		0.050	0.05	100	0.05	100	0	1/26/2012
Arsenic (mg/l)		0.050	0.05	100	0.05	100	0	1/26/2012
Lead (mg/l)		0.050	0.04	80	0.04	80	0	1/26/2012
Selenium (mg/l)		0.050	0.04	80	0.04	80	0	1/26/2012
Thallium (mg/l)		0.050	0.04	80	0.04	80	0	1/26/2012
Volatile Organics by Method 8260								
Benzene		50	57	114	54	108	5	2/1/2012
Bromobenzene		50	59	118	56	112	5	2/1/2012
Bromochloromethane		50	68	136	66	132	3	2/1/2012
Bromodichloromethane		50	65	130	62	124	5	2/1/2012
Bromoform		50	54	108	54	108	0	2/1/2012
n-Butylbenzene		50	55	110	52	104	6	2/1/2012
Sec-butylbenzene		50	59	118	56	112	5	2/1/2012
tert-Butylbenzene		50	59	118	56	112	5	2/1/2012
Carbon Tetrachloride		50	65	130	61	122	6	2/1/2012
Chlorobenzene		50	57	114	54	108	5	2/1/2012
Chloroethane		50	57	114	61	122	7	2/1/2012
Chloroform		50	59	118	55	110	7	2/1/2012
Chloromethane		50	57	114	65	130	13	2/1/2012
2-Chlorotoluene		50	60	120	57	114	5	2/1/2012
4-Chlorotoluene		50	60	120	57	114	5	2/1/2012
Dibromochloromethane		50	54	108	53	106	2	2/1/2012
1,2-Dibromo-3-Chloropropane		50	58	116	57	114	2	2/1/2012
1,2-Dibromoethane(EDB)		50	63	126	63	126	0	2/1/2012
Dibromomethane		50	64	128	63	126	2	2/1/2012
1,2-Dichlorobenzene		50	55	110	53	106	4	2/1/2012
1,3-Dichlorobenzene		50	54	108	52	104	4	2/1/2012
1,4-Dichlorobenzene		50	54	108	52	104	4	2/1/2012
Dichlorodifluoromethane		50	58	116	69	138	17	2/1/2012
1,1-Dichloroethane		50	60	120	58	116	3	2/1/2012
1,2-Dichloroethane		50	67	134	64	128	5	2/1/2012
1,1-Dichloroethene		50	58	116	59	118	2	2/1/2012
cis-1,2-Dichloroethene		50	54	108	55	110	2	2/1/2012
trans-1,2-Dichloroethylene		50	60	120	58	116	3	2/1/2012
1,2-Dichloropropane		50	60	120	58	116	3	2/1/2012
1,3-Dichloropropane		50	59	118	59	118	0	2/1/2012
2,2-Dichloropropane		50	58	116	56	112	4	2/1/2012
1,1-Dichloropropene		50	59	118	56	112	5	2/1/2012
Ethylbenzene		50	57	114	54	108	5	2/1/2012
Isopropylbenzene		50	58	116	55	110	5	2/1/2012
p-Isopropyltoluene		50	59	118	57	114	3	2/1/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1201-01465
Date: 2/1/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Volatile Organics by Method 8260 (cont'd)								
Methylene Chloride		50	69	138	67	134	3	2/1/2012
Naphthalene		50	47	94	48	96	2	2/1/2012
n-Propylbenzene		50	58	116	55	110	5	2/1/2012
Styrene		50	59	118	56	112	5	2/1/2012
1,1,1,2-Tetrachloroethane		50	60	120	59	118	2	2/1/2012
1,1,2,2-Tetrachloroethane		50	56	112	55	110	2	2/1/2012
Tetrachloroethene		50	60	120	55	110	9	2/1/2012
Toluene		50	55	110	54	108	2	2/1/2012
1,2,3-Trichlorobenzene		50	50	100	49	98	2	2/1/2012
1,2,4-Trichlorobenzene		50	52	104	50	100	4	2/1/2012
1,1,1-Trichloroethane		50	63	126	59	118	7	2/1/2012
1,1,2-Trichloroethane		50	56	112	53	106	6	2/1/2012
Trichloroethene		50	58	116	55	110	5	2/1/2012
Trichlorofluoromethane		50	66	132	65	130	2	2/1/2012
1,2,3-Trichloropropane		50	60	120	59	118	2	2/1/2012
1,2,4-Trimethylbenzene		50	59	118	58	116	2	2/1/2012
1,3,5-Trimethylbenzene		50	60	120	56	112	7	2/1/2012
Vinyl Chloride		50	57	114	63	126	10	2/1/2012
o-Xylene		50	57	114	54	108	5	2/1/2012
m,p-Xylene		100	110	110	110	110	0	2/1/2012
MTBE		50	59	118	57	114	3	2/1/2012
Acetone		500	600	120	610	122	2	2/1/2012
2-Butanone(MEK)		500	560	112	540	108	4	2/1/2012
4-Methyl-2-pentanone(MIBK)		500	510	102	500	100	2	2/1/2012
Tetrahydrofuran		500	440	88	440	88	0	2/1/2012
Carbon Disulfide		50	59	118	57	114	3	2/1/2012
2-Hexanone		500	520	104	510	102	2	2/1/2012
cis-1,3-Dichloropropene		50	59	118	59	118	0	2/1/2012
trans-1,3-Dichloropropylene		50	64	128	63	126	2	2/1/2012
1,4-Dioxane		1000	1100	110	1100	110	0	2/1/2012
Diethyl ether		500	480	96	500	100	4	2/1/2012
Ethyl Tertiary Butyl Ether		50	65	130	63	126	3	2/1/2012
Diisopropyl ether (DIPE)		50	63	126	62	124	2	2/1/2012
Tertiary Amyl Methyl Ether		50	62	124	60	120	3	2/1/2012
Surrogates								
Dibromofluoromethane			106		105			
Toluene-d8			100		102			
4-Bromofluorobenzene			107		107			
1,2 Dichloroethane-d4			101		111			

Case Narrative

Date: 2/1/2012

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Project: PROJECT# 1153.12.1 STEPHENSFIELD

RIAL WO#: 1201-01465

All QA/QC procedures required by the EPH Method were followed. All performance/acceptance standards for the required QA/QC procedures were achieved or otherwise stated in this case narrative. A fractionation check was performed on the silica gel lot associated with this sample and found to pass the method criteria unless otherwise stated here. The data reported for this sample was not corrected for instrument/solvent baseline effects. No significant modifications were made to the EPH Method.The target PAH analytes were reported from a GC/MS SIM approach.

All QA/QC procedures required by the VPH Method were followed. All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated. No significant modifications were made to the VPH Method.

The following exceptions were noted for this Work Order:

Volatile Organics by 8260B

Question G - The Volatile Organic Compounds Method 8260B detection limits for 1,4-Dioxane, and Hexachlorobutadiene in sample -002(MW-2) were above the MCP GW-1 standards.

Question H - The continuing calibration verification standard had analytes outside of the 20% D QC acceptance limit. The specific outliers include, (bromomethane -27.7%, trichlorotrifluoromethane -32.5%, methylene chloride -38.8%, diisopropyl ether -26.9%, ethyl-tert-butyl ether 30.2%, bromochloromethane -36.3%, 1,1,1-trichloroethene -25.3%, carbon tetrachloride -29.8%, 1,2-dichloroethane -34.3%, tert-amyl-methyl ether -23.7%,1,2-dichloropropane -20.9%, dibromomethane -28.8%, bromodichloromethane -24.1%, trans-1,3-dichloropropene -28.1 %, 1,2-dibromoethane -25.1%.)

Question H - Laboratory control sample (2/1/12) / laboratory control sample duplicate (2/1/12) had analytes outside the 70%-130% QC acceptance limits. Up to 10% of the analytes are allowed to be out. The specific outliers include, (Bromochloromethane 136%, 132%, 1,2 Dichloroethane LCS 134%, Methylene Chloride 138%, 134%, Trichlorofluoromethane LCS 132%). These analytes were not detected in the associated samples

There were no additional exceptions or analytical issues to discuss concerning the testing requirements for the project.

Mike Hobin
QA/QC Director

R.I. ANALYTICAL
Specialists in Environmental Services

CHAIN OF CUSTODY RECORD

41 Illinois Avenue
Warwick, RI 02888-3007
800-937-2580 • Fax: 401-738-1970

131 Coolidge St., Suite 105
Hudson, MA 01749-1331
800-937-2580 • Fax: 978-568-0078

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type C	Preservation Code P	Matrix Code M	EPH w. PAHs	VPH w. VOCs	VOCs	MCP Metals ☆	☆ Field Filtered
14:00	1-20-12	MW-1	G	2G 2V	H	GW	X	X			
14:30	1-20-12	MW-2	↓	2G, 1P, 4V	H, N, H, -	↓	X	X	X	X	X
15:00	1-20-12	MW-3	↓	2G 2V	H	↓	X	X			
				15 RG							

Client Information		Project Information	
Company Name:	Norfolk Ram Group	Project Name:	Stephens Field
Address:	1 Roberts Rd.	P.O. Number:	Project Number: 1153.12.1
City / State / Zip:	Plymouth, MA 02360	Report To: Jon Kitchen	Phone: 508 747 7900 ~~Fax~~ ext. 154
Telephone:	508 747 7900 ~~Fax~~ ext. 154	Sampled By:	AJE
Contact Person:	Jon Kitchen	Quote No:	Email report to these addresses: jkitchen@norfolkram.com

Relinquished By Signatures	Date	Time	Received By Signatures	Date	Time
[signature]	1/23/12	1340	[signature]	1/23/12	1340
[signature]	1/23/12	1730	[signature]	1/23/12	17:30

Turn Around Time		
X	Normal	EMAIL Report
	5 Business days. Possible surcharge	
	Rush – Date Due: ___/___/___	

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, S-1, S-2, S-3 MCP Data Enhancement QC Package? Yes No

Temp. Upon Receipt 4.9 °C

Lab Use Only	
X	Sample Pick-Up Only
	RIAL sampled; attach field hours
X	Shipped on ice
Workorder No:	1201-0165

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile Preservatives: A=Ascorbic Acid, NH4=NH_4Cl, H=HCl, M=MeOH, N=HNO_3, NP=None, S=H_2SO_4, SB=$NaHSO_4$, SH=NaOH, T=$Na_2S_2O_3$, Z=ZnOAc
Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, SL=Sludge, A=Air, B=Bulk/Solid, WP=Wipe, O=_____

R.I. ANALYTICAL
Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Date Received: 2/3/12
Date Reported: 2/9/12
P.O. #:
Work Order #: 1202-02348

DESCRIPTION: PROJECT# 1153.12.1 STEPHENS FIELD

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.
The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844

This Certificate represents all data associated with the referenced work order and is paginated for completeness. The complete Certificate includes one attachment; the original Chain of Custody.

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:

Data Reporting

enc: Chain of Custody

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 2/3/12

Work Order #: 1202-02348

PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 001
SAMPLE DESCRIPTION: MW-1
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 2/03/2012 @ 09:10

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Dissolved Solids	420	10	mg/l	SM 2540C	2/8/12	JRG

Sample # 002
SAMPLE DESCRIPTION: MW-2
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 2/03/2012 @ 08:25

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Dissolved Solids	620	10	mg/l	SM 2540C	2/8/12	JRG

Sample # 003
SAMPLE DESCRIPTION: MW-3
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 2/03/2012 @ 08:40

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Dissolved Solids	210	10	mg/l	SM 2540C	2/8/12	JRG

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 2/3/12
Work Order #: 1202-02348
PROJECT# 1153.12.1 STEPHENS FIELD

Sample # 004
SAMPLE DESCRIPTION: MW-4
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 2/03/2012 @ 09:25

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Dissolved Solids	370	10	mg/l	SM 2540C	2/8/12	JRG
EPH						
C9-C18 Aliphatics	<100	100	ug/l	MADEP	2/7/12	JEB
C19-C36 Aliphatics	<100	100	ug/l	MADEP	2/7/12	JEB
C11-C22 Aromatics	<100	100	ug/l	MADEP	2/7/12	JEB
Extraction Surrogates			RANGE		2/7/12	JEB
Chloro-octadecane	45		40-140%	MADEP	2/7/12	JEB
Ortho-terphenyl	77		40-140%	MADEP	2/7/12	JEB
Fractionation Surrogates			RANGE		2/7/12	JEB
2-Fluorobiphenyl	80		40-140%	MADEP	2/7/12	JEB
2-Bromonaphthalene	78		40-140%	MADEP	2/7/12	JEB
Extraction date	Extracted			MADEP	2/7/12	RLL
Target PAH analytes						
Naphthalene	<1.0	1.0	ug/l	GC/MS-SIM	2/8/12	TCL
2-Methylnaphthalene	<1.0	1.0	ug/l	GC/MS-SIM	2/8/12	TCL
Acenaphthylene	<1.0	1.0	ug/l	GC/MS-SIM	2/8/12	TCL
Acenaphthene	<1.0	1.0	ug/l	GC/MS-SIM	2/8/12	TCL
Fluorene	<1.0	1.0	ug/l	GC/MS-SIM	2/8/12	TCL
Phenanthrene	<1.0	1.0	ug/l	GC/MS-SIM	2/8/12	TCL
Anthracene	<1.0	1.0	ug/l	GC/MS-SIM	2/8/12	TCL
Fluoranthene	<1.0	1.0	ug/l	GC/MS-SIM	2/8/12	TCL
Pyrene	<1.0	1.0	ug/l	GC/MS-SIM	2/8/12	TCL
Benzo(a)anthracene	<0.2	0.2	ug/l	GC/MS-SIM	2/8/12	TCL
Chrysene	<0.2	0.2	ug/l	GC/MS-SIM	2/8/12	TCL
Benzo(b)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	2/8/12	TCL
Benzo(k)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	2/8/12	TCL
Benzo(a)pyrene	0.2	0.1	ug/l	GC/MS-SIM	2/8/12	TCL
Indeno(1,2,3-cd)pyrene	0.1	0.1	ug/l	GC/MS-SIM	2/8/12	TCL
Dibenzo(a,h)anthracene	<0.1	0.1	ug/l	GC/MS-SIM	2/8/12	TCL
Benzo(g,h,i)perylene	0.1	0.1	ug/l	GC/MS-SIM	2/8/12	TCL

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

Customer Name : Norfolk Ram Group

W.O. Number 1202-02348

MassDEP Analytical Protocol Certification Form

Laboratory Name: R.I. Analytical Laboratories Work Order No: 1202-02348

Project / Location: PROJECT# 1153.12.1 STEPHENS FIELD RTN :

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):

1202-02348-001 through 1202-02348-004

Matrices: ☒ Groundwater/Surface Water ☐ Soil / Sediment ☐ Drinking Water ☐ Air ☐ Other

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☐	MassDEP VPH CAM IV A ☐	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☒	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☐	6020 Metals CAM III D ☐	8082 PCB CAM V A ☐	9014 Total Cyanide /PAC CAM VI A ☐	6860 Perchlorate CAM V111 B ☐	

Affirmative responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes	☐ No
B	Were the analytical methods(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes	☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes	☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Aquisition and Reporting of Analytical Data"?	☒ Yes	☐ No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s) ? (Refer to the individual method(s) for a list of significant modifications).	☒ Yes	☐ No
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes	☐ No

Responses to Questions G,H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☒ Yes	☐ No [1]

***Data User Note:** Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☐ Yes	☒ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☒ Yes	☐ No [1]

[1] *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: [signature] Position: QA/QC Director

Printed Name: Mike Hobin Date: 2/10/12

QA/QC Report

Client: Norfolk Ram Group
WO #: 1202-02348
Date: 2/9/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Total Dissolved Solids	mg/l	<10	2/8/2012
Extractable Petroleum Hydrocarbons (Aqueous)			
C9-C18 Aliphatics	ug/l	<100	2/7/2012
C19-C36 Aliphatics	ug/l	<100	2/7/2012
C11-C22 Aromatics	ug/l	<100	2/7/2012
Extraction Surrogates	**RANGE**		
Chloro-octadecane	40-140%	87	2/7/2012
Ortho-terphenyl	40-140%	107	2/7/2012
Fractionation Surrogates	**RANGE**		
2-Fluorobiphenyl	40-140%	86	2/7/2012
2-Bromonaphthalene	40-140%	64	2/7/2012
Polyaromatic Hydrocarbons (Aqueous)			
Naphthalene	ug/l	<1.0	2/8/2012
2-Methylnaphthalene	ug/l	<1.0	2/8/2012
Acenaphthylene	ug/l	<1.0	2/8/2012
Acenaphthene	ug/l	<1.0	2/8/2012
Fluorene	ug/l	<1.0	2/8/2012
Phenanthrene	ug/l	<1.0	2/8/2012
Anthracene	ug/l	<1.0	2/8/2012
Fluoranthene	ug/l	<1.0	2/8/2012
Pyrene	ug/l	<0.2	2/8/2012
Benzo(a)anthracene	ug/l	<0.2	2/8/2012
Chrysene	ug/l	<0.2	2/8/2012
Benzo(b)fluoranthene	ug/l	<0.2	2/8/2012
Benzo(k)fluoranthene	ug/l	<0.2	2/8/2012
Benzo(a)pyrene	ug/l	<0.1	2/8/2012
Indeno(1,2,3-cd)pyrene	ug/l	<0.1	2/8/2012
Dibenzo(a,h)anthracene	ug/l	<0.1	2/8/2012
Benzo(g,h,i)perylene	ug/l	<0.1	2/8/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Total Dissolved Solids		1000	1100	110				2/8/2012
Extractable Petroleum Hydrocarbons (Aqueous)								

QA/QC Report

Client: Norfolk Ram Group
WO #: 1202-02348
Date: 2/9/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Extractable Petroleum Hydrocarbons (Aqueous) (cont'd)								
C9-C18 Aliphatics		300	221	74	222	74	0	2/7/2012
C19-C36 Aliphatics		400	367	92	363	91	1	2/7/2012
C11-C22 Aromatics		850	743	87	731	86	2	2/7/2012
Extraction Surrogates								
Chloro-octadecane			82		76			
Ortho-terphenyl			98		93			
Fractionation Surrogates								
2-Fluorobiphenyl			89		84			
2-Bromonaphthalene			91		81			
Polyaromatic Hydrocarbons (Aqueous)								
Naphthalene		5.0	4.05	81	4.18	84	3	2/8/2012
2-Methylnaphthalene		5.0	4.79	96	4.94	99	3	2/8/2012
Acenaphthylene		5.0	5.83	117	6.04	121	4	2/8/2012
Acenaphthene		5.0	4.64	93	4.84	97	4	2/8/2012
Fluorene		5.0	5.60	112	5.79	116	3	2/8/2012
Phenanthrene		5.0	5.10	102	5.32	106	4	2/8/2012
Anthracene		5.0	6.75	135	6.73	135	0	2/8/2012
Fluoranthene		5.0	7.05	141	7.11	142	1	2/8/2012
Pyrene		5.0	5.34	107	5.72	114	7	2/8/2012
Benzo(a)anthracene		5.0	6.35	127	6.87	137	8	2/8/2012
Chrysene		5.0	4.92	98	5.30	106	7	2/8/2012
Benzo(b)fluoranthene		5.0	5.47	109	5.86	117	7	2/8/2012
Benzo(k)fluoranthene		5.0	4.78	96	4.73	95	1	2/8/2012
Benzo(a)pyrene		5.0	6.61	132	6.67	133	1	2/8/2012
Indeno(1,2,3-cd)pyrene		5.0	6.51	130	6.60	132	1	2/8/2012
Dibenzo(a,h)anthracene		5.0	6.67	133	6.65	133	0	2/8/2012
Benzo(g,h,i)perylene		5.0	4.84	97	5.08	102	5	2/8/2012

Case Narrative

Date: 2/9/2012

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Project: PROJECT# 1153.12.1 STEPHENSFIELD

RIAL WO#: 1202-02348

All QA/QC procedures required by the EPH Method were followed. All performance/acceptance standards for the required QA/QC procedures were achieved or otherwise stated in this case narrative. A fractionation check was performed on the silica gel lot associated with this sample and found to pass the method criteria unless otherwise stated here. The data reported for this sample was not corrected for instrument/solvent baseline effects. No significant modifications were made to the EPH Method. The target PAH analytes were reported from a GC/MS SIM approach.

The following exceptions were noted for this Work Order:

The method requested for Total Dissolved Solids is not listed in the table of contents for compendium of MCP analytical methods. Therefore, there is no guideline for presumptive certainty.

Extractable Petroleum Hydrocarbons

Question H - Laboratory control sample (2/8/12)/ laboratory control sample duplicate (2/8/12) had ranges and/or target PAH analytes above the 40%-140% QC acceptance limits. The specific outliers include, (Fluoroanthene 141%, 142%). These ranges/analytes were not detected in the associated samples.

There were no additional exceptions or analytical issues to discuss concerning the testing requirements for the project.

Mike Hobin
QA/QC Director

R.I. ANALYTICAL
Specialists in Environmental Services

CHAIN OF CUSTODY RECORD

41 Illinois Avenue
Warwick, RI 02888-3007
800-937-2580 • Fax: 401-738-1970

131 Coolidge St., Suite 105
Hudson, MA 01749-1331
800-937-2580 • Fax: 978-568-0078

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type C	Preservation Code P	Matrix Code M	Total Dissolved Solids	EPH w/ PAHs
2/3/2012	0910	MW-1	G	1P	ND	GW	X	
	0825	MW-2						
	0840	MW-3						
	0925	MW-4						
	0925	MW-4	G	2AE	H			X

Client Information

Company Name:	Norfolk RAM Group
Address:	One Roberts Road
City / State / Zip:	Plymouth MA 02360
Telephone:	508-747-7900 Fax: 508-747-3658
Contact Person.	Eric Sullivan

Project Information

Project Name:	Stephens Field
P.O. Number:	—
Project Number:	1153.12.1
Report To:	Jon Kitchen
Phone:	508-747-7900
Fax:	508-747-3658
Sampled by:	E.S
Quote No:	
Email report to these addresses:	

Relinquished By	Date	Time	Received By	Date	Time
Eric Sullivan	2/3/12	1046	Ryan Stylo	2/3/12	1046
Ryan Stylo	2/3/12	1437	[illegible]	2/3/12	1437

Turn Around Time

	Normal	X	EMAIL Report
X	5 Business days		
	Rush – Date Due: ___/___/___		

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, S-1, S-2, S-3 MCP Data Enhancement QC Package? Yes No

Temp. Upon Receipt 2.5 °C

Lab Use Only

X	Sample Pick Up Only
	RIAL sampled; attach field hours
X	Shipped on ice
	Workorder No: 1202-02348

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile Preservatives: A=Ascorbic Acid, NH4=NH_4Cl, H=HCl, M=MeOH, N=HNO_3, NP=None, S=H_2SO_4, SB=$NaHSO_4$, SH=NaOH, T=$Na_2S_2O_3$, Z=ZnOAc
Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, SL=Sludge, A=Air, B=Bulk/Solid, O=_____

CERTIFICATE OF ANALYSIS

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Date Received: 3/5/12
Date Reported: 3/9/12
P.O. #:
Work Order #: 1203-04403

DESCRIPTION: PROJECT# 1153.12.1 STEPHEN'S FIELD, PLYMOUTH, MA

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.
The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844

This Certificate represents all data associated with the referenced work order and is paginated for completeness. The complete Certificate includes one attachment; the original Chain of Custody.

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:

Data Reporting

enc: Chain of Custody

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 3/5/12

Work Order #: 1203-04403

PROJECT# 1153.12.1 STEPHEN'S FIELD, PLYMOUTH, MA

Sample # 001
SAMPLE DESCRIPTION: MW-8
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 3/02/2012 @ 12:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Dissolved Solids	230	10	mg/l	SM 2540C	3/8/12	JRG
EPH						
C9-C18 Aliphatics	<100	100	ug/l	MADEP	3/8/12	JEB
C19-C36 Aliphatics	<100	100	ug/l	MADEP	3/8/12	JEB
C11-C22 Aromatics	<100	100	ug/l	MADEP	3/8/12	JEB
Extraction Surrogates			RANGE		3/8/12	JEB
Chloro-octadecane	63		40-140%	MADEP	3/8/12	JEB
Ortho-terphenyl	87		40-140%	MADEP	3/8/12	JEB
Fractionation Surrogates			RANGE		3/8/12	JEB
2-Fluorobiphenyl	85		40-140%	MADEP	3/8/12	JEB
2-Bromonaphthalene	81		40-140%	MADEP	3/8/12	JEB
Extraction date	Extracted			MADEP	3/6/12	RLL
Target PAH analytes						
Naphthalene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
2-Methylnaphthalene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Acenaphthylene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Acenaphthene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Fluorene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Phenanthrene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Anthracene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Fluoranthene	1.3	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Pyrene	1.2	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(a)anthracene	0.9	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Chrysene	0.7	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(b)fluoranthene	1.0	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(k)fluoranthene	0.8	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(a)pyrene	1.2	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Indeno(1,2,3-cd)pyrene	0.7	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Dibenzo(a,h)anthracene	0.2	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(g,h,i)perylene	0.5	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
VPH						
Unadjusted C5-C8 Aliphatics(FID)	<50	50	ug/l	MADEP	3/6/12	KAC
Unadjusted C9-C12 Aliphatics(FID)	<50	50	ug/l	MADEP	3/6/12	KAC
Methyl-tert-butylether	<5	5	ug/l	MADEP	3/6/12	KAC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 3/5/12

Work Order #: 1203-04403

PROJECT# 1153.12.1 STEPHEN'S FIELD, PLYMOUTH, MA

Sample # 001
SAMPLE DESCRIPTION: MW-8
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 3/02/2012 @ 12:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Benzene	<5	5	ug/l	MADEP	3/6/12	KAC
Toluene	<5	5	ug/l	MADEP	3/6/12	KAC
Ethylbenzene	<5	5	ug/l	MADEP	3/6/12	KAC
m,p-Xylene	<5	5	ug/l	MADEP	3/6/12	KAC
o-Xylene	<5	5	ug/l	MADEP	3/6/12	KAC
Total Xylene	<5	5	ug/l	MADEP	3/6/12	KAC
Naphthalene	<5	5	ug/l	MADEP	3/6/12	KAC
Adjusted C5-C8 Aliphatics(FID)	<50	50	ug/l	MADEP	3/6/12	KAC
Adjusted C9-C12 Aliphatics(FID)	<50	50	ug/l	MADEP	3/6/12	KAC
C9-C10 Aromatics(PID)	<50	50	ug/l	MADEP	3/6/12	KAC
Surrogate			RANGE		3/6/12	KAC
2,5-Dibromotoluene(PID)	100		70-130%	MADEP	3/6/12	KAC
2,5-Dibromotoluene(FID)	99		70-130%	MADEP	3/6/12	KAC
Volatile Organic Compounds						
Acetone	<10	10	ug/l	SW-846 8260B	3/8/12	RGM
Tertiary Amyl Methyl Ether	<5	5	ug/l	SW-846 8260B	3/8/12	RGM
Benzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Bromobenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Bromochloromethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Bromodichloromethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Bromoform	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Bromomethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
n-Butylbenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Sec-butylbenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
tert-Butylbenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Carbon Disulfide	<5	5	ug/l	SW-846 8260B	3/8/12	RGM
Carbon Tetrachloride	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Chlorobenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Dibromochloromethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Chloroethane	<5	5	ug/l	SW-846 8260B	3/8/12	RGM
Chloroform	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Chloromethane	19	5	ug/l	SW-846 8260B	3/8/12	RGM
2-Chlorotoluene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
4-Chlorotoluene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,2-Dibromo-3-Chloropropane	<2	2	ug/l	SW-846 8260B	3/8/12	RGM
1,2-Dibromoethane(EDB)	<1	1	ug/l	SW-846 8260B	3/8/12	RGM

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 3/5/12

Work Order #: 1203-04403

PROJECT# 1153.12.1 STEPHEN'S FIELD, PLYMOUTH, MA

Sample # 001
SAMPLE DESCRIPTION: MW-8
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 3/02/2012 @ 12:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Dibromomethane	<2	2	ug/l	SW-846 8260B	3/8/12	RGM
1,3-Dichlorobenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,2-Dichlorobenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,4-Dichlorobenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
n-Propylbenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Dichlorodifluoromethane	<5	5	ug/l	SW-846 8260B	3/8/12	RGM
1,1-Dichloroethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,2-Dichloroethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,1-Dichloroethene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
cis-1,2-Dichloroethene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
trans-1,2-Dichloroethylene	<2	2	ug/l	SW-846 8260B	3/8/12	RGM
1,2-Dichloropropane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,3-Dichloropropane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
2,2-Dichloropropane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,1-Dichloropropene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
cis-1,3-Dichloropropene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
trans-1,3-Dichloropropylene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Diethyl ether	<5	5	ug/l	SW-846 8260B	3/8/12	RGM
Diisopropyl Ether (DIPE)	<5	5	ug/l	SW-846 8260B	3/8/12	RGM
1,4-Dioxane	<100	100	ug/l	SW-846 8260B	3/8/12	RGM
Ethyl Tertiary Butyl Ether	<5	5	ug/l	SW-846 8260B	3/8/12	RGM
Ethylbenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Hexachlorobutadiene	<0.5	0.5	ug/l	SW-846 8260B	3/8/12	RGM
2-Hexanone	<10	10	ug/l	SW-846 8260B	3/8/12	RGM
Isopropylbenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
p-Isopropyltoluene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
2-Butanone(MEK)	<10	10	ug/l	SW-846 8260B	3/8/12	RGM
4-Methyl-2-pentanone(MIBK)	<10	10	ug/l	SW-846 8260B	3/8/12	RGM
Methyl Tertiary Butyl Ether (MTBE)	<2	2	ug/l	SW-846 8260B	3/8/12	RGM
Methylene Chloride	<5	5	ug/l	SW-846 8260B	3/8/12	RGM
Naphthalene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,1,2-Trichloroethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Styrene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,1,1,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,1,2,2-Tetrachloroethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Tetrachloroethene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Tetrahydrofuran	<10	10	ug/l	SW-846 8260B	3/8/12	RGM

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 3/5/12

Work Order #: 1203-04403

PROJECT# 1153.12.1 STEPHEN'S FIELD, PLYMOUTH, MA

Sample # 001
SAMPLE DESCRIPTION: MW-8
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 3/02/2012 @ 12:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Toluene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,2,4-Trichlorobenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,2,3-Trichlorobenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,1,1-Trichloroethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Trichloroethene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Trichlorofluoromethane	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,2,3-Trichloropropane	<2	2	ug/l	SW-846 8260B	3/8/12	RGM
1,2,4-Trimethylbenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
1,3,5-Trimethylbenzene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Vinyl Chloride	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
o-Xylene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
m,p-Xylene	<1	1	ug/l	SW-846 8260B	3/8/12	RGM
Surrogates			RANGE	SW-846 8260B	3/8/12	RGM
Dibromofluoromethane	112		86-118%	SW-846 8260B	3/8/12	RGM
Toluene-d8	102		88-110%	SW-846 8260B	3/8/12	RGM
4-Bromofluorobenzene	95		86-115%	SW-846 8260B	3/8/12	RGM
1,2 Dichloroethane-d4	98		80-120%	SW-846 8260B	3/8/12	RGM
Dissolved Metals Analyzed by ICPMS						
Antimony	<0.002	0.002	mg/l	SW-846 6020A	3/7/12	JEH
Arsenic	0.002	0.001	mg/l	SW-846 6020A	3/7/12	JEH
Lead	0.005	0.001	mg/l	SW-846 6020A	3/7/12	JEH
Selenium	<0.002	0.002	mg/l	SW-846 6020A	3/7/12	JEH
Thallium	<0.001	0.001	mg/l	SW-846 6020A	3/7/12	JEH
Dissolved Metals Analyzed by ICP						
Barium	0.037	0.005	mg/l	SW-846 6010C	3/7/12	PJC
Beryllium	<0.001	0.001	mg/l	SW-846 6010C	3/7/12	PJC
Cadmium	<0.004	0.004	mg/l	SW-846 6010C	3/7/12	PJC
Chromium	<0.005	0.005	mg/l	SW-846 6010C	3/7/12	PJC
Mercury	<0.0005	0.0005	mg/l	SW-846 7470A	3/8/12	PJC
Nickel	<0.010	0.010	mg/l	SW-846 6010C	3/7/12	PJC
Silver	<0.020	0.020	mg/l	SW-846 6010C	3/7/12	PJC
Vanadium	<0.020	0.020	mg/l	SW-846 6010C	3/7/12	PJC
Zinc	0.020	0.020	mg/l	SW-846 6010C	3/7/12	PJC

EPH and metals samples were filtered in the field prior to preservation.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 3/5/12

Work Order #: 1203-04403

PROJECT# 1153.12.1 STEPHEN'S FIELD, PLYMOUTH, MA

Sample # 002
SAMPLE DESCRIPTION: MW-6
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 3/02/2012 @ 13:15

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Dissolved Solids	250	10	mg/l	SM 2540C	3/8/12	JRG
EPH						
C9-C18 Aliphatics	<110	110	ug/l	MADEP	3/8/12	JEB
C19-C36 Aliphatics	<110	110	ug/l	MADEP	3/8/12	JEB
C11-C22 Aromatics	<110	110	ug/l	MADEP	3/8/12	JEB
Extraction Surrogates			RANGE		3/8/12	JEB
Chloro-octadecane	55		40-140%	MADEP	3/8/12	JEB
Ortho-terphenyl	88		40-140%	MADEP	3/8/12	JEB
Fractionation Surrogates			RANGE		3/8/12	JEB
2-Fluorobiphenyl	80		40-140%	MADEP	3/8/12	JEB
2-Bromonaphthalene	80		40-140%	MADEP	3/8/12	JEB
Extraction date	Extracted			MADEP	3/6/12	RLL
Target PAH analytes						
Naphthalene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
2-Methylnaphthalene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Acenaphthylene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Acenaphthene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Fluorene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Phenanthrene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Anthracene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Fluoranthene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Pyrene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(a)anthracene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Chrysene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(b)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(k)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(a)pyrene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Indeno(1,2,3-cd)pyrene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Dibenzo(a,h)anthracene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(g,h,i)perylene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
VPH						
Unadjusted C5-C8 Aliphatics(FID)	<50	50	ug/l	MADEP	3/6/12	KAC
Unadjusted C9-C12 Aliphatics(FID)	<50	50	ug/l	MADEP	3/6/12	KAC
Methyl-tert-butylether	<5	5	ug/l	MADEP	3/6/12	KAC

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 3/5/12

Work Order #: 1203-04403

PROJECT# 1153.12.1 STEPHEN'S FIELD, PLYMOUTH, MA

Sample # 002
SAMPLE DESCRIPTION: MW-6
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 3/02/2012 @ 13:15

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Benzene	<5	5	ug/l	MADEP	3/6/12	KAC
Toluene	<5	5	ug/l	MADEP	3/6/12	KAC
Ethylbenzene	<5	5	ug/l	MADEP	3/6/12	KAC
m,p-Xylene	<5	5	ug/l	MADEP	3/6/12	KAC
o-Xylene	<5	5	ug/l	MADEP	3/6/12	KAC
Total Xylene	<5	5	ug/l	MADEP	3/6/12	KAC
Naphthalene	<5	5	ug/l	MADEP	3/6/12	KAC
Adjusted C5-C8 Aliphatics(FID)	<50	50	ug/l	MADEP	3/6/12	KAC
Adjusted C9-C12 Aliphatics(FID)	<50	50	ug/l	MADEP	3/6/12	KAC
C9-C10 Aromatics(PID)	<50	50	ug/l	MADEP	3/6/12	KAC
Surrogate			RANGE		3/6/12	KAC
2,5-Dibromotoluene(PID)	106		70-130%	MADEP	3/6/12	KAC
2,5-Dibromotoluene(FID)	104		70-130%	MADEP	3/6/12	KAC

EPH sample was filtered in the field prior to preservation.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

All QA/QC procedures required by the VPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the VPH Method.

R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Norfolk Ram Group

Date Received: 3/5/12

Work Order #: 1203-04403

PROJECT# 1153.12.1 STEPHEN'S FIELD, PLYMOUTH, MA

Sample # 003
SAMPLE DESCRIPTION: MW-7
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 3/02/2012 @ 13:45

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Dissolved Solids	260	10	mg/l	SM 2540C	3/8/12	JRG
EPH						
C9-C18 Aliphatics	<100	100	ug/l	MADEP	3/8/12	JEB
C19-C36 Aliphatics	<100	100	ug/l	MADEP	3/8/12	JEB
C11-C22 Aromatics	<100	100	ug/l	MADEP	3/8/12	JEB
Extraction Surrogates			RANGE		3/8/12	JEB
Chloro-octadecane	65		40-140%	MADEP	3/8/12	JEB
Ortho-terphenyl	88		40-140%	MADEP	3/8/12	JEB
Fractionation Surrogates			RANGE		3/8/12	JEB
2-Fluorobiphenyl	83		40-140%	MADEP	3/8/12	JEB
2-Bromonaphthalene	77		40-140%	MADEP	3/8/12	JEB
Extraction date	Extracted			MADEP	3/6/12	RLL
Target PAH analytes						
Naphthalene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
2-Methylnaphthalene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Acenaphthylene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Acenaphthene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Fluorene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Phenanthrene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Anthracene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Fluoranthene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Pyrene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(a)anthracene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Chrysene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(b)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(k)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(a)pyrene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Indeno(1,2,3-cd)pyrene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Dibenzo(a,h)anthracene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(g,h,i)perylene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL

EPH sample was filtered in the field prior to preservation.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

Sample # 004
SAMPLE DESCRIPTION: MW-5
SAMPLE TYPE: GRAB **SAMPLE DATE/TIME:** 3/02/2012 @ 14:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Dissolved Solids	260	10	mg/l	SM 2540C	3/8/12	JRG
EPH						
C9-C18 Aliphatics	<100	100	ug/l	MADEP	3/8/12	JEB
C19-C36 Aliphatics	<100	100	ug/l	MADEP	3/8/12	JEB
C11-C22 Aromatics	<100	100	ug/l	MADEP	3/8/12	JEB
Extraction Surrogates			RANGE		3/8/12	JEB
Chloro-octadecane	71		40-140%	MADEP	3/8/12	JEB
Ortho-terphenyl	89		40-140%	MADEP	3/8/12	JEB
Fractionation Surrogates			RANGE		3/8/12	JEB
2-Fluorobiphenyl	80		40-140%	MADEP	3/8/12	JEB
2-Bromonaphthalene	75		40-140%	MADEP	3/8/12	JEB
Extraction date	Extracted			MADEP	3/6/12	RLL
Target PAH analytes						
Naphthalene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
2-Methylnaphthalene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Acenaphthylene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Acenaphthene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Fluorene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Phenanthrene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Anthracene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Fluoranthene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Pyrene	<1.0	1.0	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(a)anthracene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Chrysene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(b)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(k)fluoranthene	<0.2	0.2	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(a)pyrene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Indeno(1,2,3-cd)pyrene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Dibenzo(a,h)anthracene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL
Benzo(g,h,i)perylene	<0.1	0.1	ug/l	GC/MS-SIM	3/9/12	TCL

EPH sample was filtered in the field prior to preservation.

All QA/QC procedures required by the EPH Method were followed.
All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated.

No significant modifications were made to the EPH Method.

Customer Name : Norfolk Ram Group

W.O. Number 1203-04403

MassDEP Analytical Protocol Certification Form

Laboratory Name: R.I. Analytical Laboratories Work Order No: 1203-04403

Project / Location: PROJECT# 1153.12.1 STEPHEN'S FIELD, PLYMOUTH, MA RTN :

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):

1203-04403-001 through 1203-04403-004

Matrices: ☒ Groundwater/Surface Water ☐ Soil / Sediment ☐ Drinking Water ☐ Air ☐ Other

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☒	7470/7471 Hg CAM III B ☒	MassDEP VPH CAM IV A ☒	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☒	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☒	6020 Metals CAM III D ☒	8082 PCB CAM V A ☐	9014 Total Cyanide /PAC CAM VI A ☐	6860 Perchlorate CAM V111 B ☐	

Affirmative responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No
B	Were the analytical methods(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Aquisition and Reporting of Analytical Data"?	☒ Yes ☐ No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s) ? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☒ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No

Responses to Questions G,H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes ☒ No [1]

***Data User Note:** Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☒ Yes ☐ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☒ Yes ☐ No [1]

[1] *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature _____ Position: QA/QC Director

Printed Name: Mike Hobin Date: 3-9-12

QA/QC Report

Client: Norfolk Ram Group
WO #: 1203-04403
Date: 3/9/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Total Dissolved Solids	mg/l	<10	3/8/2012
Extractable Petroleum Hydrocarbons (Aqueous)			
C9-C18 Aliphatics	ug/l	<100	3/7/2012
C19-C36 Aliphatics	ug/l	<100	3/7/2012
C11-C22 Aromatics	ug/l	<100	3/7/2012
Extraction Surrogates	**RANGE**		
Chloro-octadecane	40-140%	72	3/7/2012
Ortho-terphenyl	40-140%	102	3/7/2012
Fractionation Surrogates	**RANGE**		
2-Fluorobiphenyl	40-140%	91	3/7/2012
2-Bromonaphthalene	40-140%	88	3/7/2012
Volatile Petroleum Hydrocarbons(Aqueous)			
Unadj C5-C8 Aliphatics(FID)	ug/l	<50	3/6/2012
Unadj C9-C12 Aliphatic(FID)	ug/l	<50	3/6/2012
Methyl-tert-butylether	ug/l	<5	3/6/2012
Benzene	ug/l	<5	3/6/2012
Toluene	ug/l	<5	3/6/2012
Ethylbenzene	ug/l	<5	3/6/2012
m,p-Xylene	ug/l	<5	3/6/2012
o-Xylene	ug/l	<5	3/6/2012
Naphthalene	ug/l	<5	3/6/2012
Adj C5-C8 Aliphatics(FID)	ug/l	<50	3/6/2012
Adj C9-C12 Aliphatics(FID)	ug/l	<50	3/6/2012
C9-C10 Aromatics(PID)	ug/l	<50	3/6/2012
Surrogate	**RANGE**		3/6/2012
2,5-Dibromotoluene(PID)	70-130%	130	3/6/2012
2,5-Dibromotoluene(FID)	70-130%	122	3/6/2012
Volatile Organics by Method 8260			
Benzene	ug/l	<1	3/8/2012
Bromobenzene	ug/l	<1	3/8/2012
Bromochloromethane	ug/l	<1	3/8/2012
Bromodichloromethane	ug/l	<1	3/8/2012
Bromoform	ug/l	<1	3/8/2012
Bromomethane	ug/l	<1	3/8/2012
n-Butylbenzene	ug/l	<1	3/8/2012
Sec-butylbenzene	ug/l	<1	3/8/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1203-04403
Date: 3/9/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Volatile Organics by Method 8260 (cont'd)			
tert-Butylbenzene	ug/l	<1	3/8/2012
Carbon Tetrachloride	ug/l	<1	3/8/2012
Chlorobenzene	ug/l	<1	3/8/2012
Chloroethane	ug/l	<5	3/8/2012
Chloroform	ug/l	<1	3/8/2012
Chloromethane	ug/l	<5	3/8/2012
2-Chlorotoluene	ug/l	<1	3/8/2012
4-Chlorotoluene	ug/l	<1	3/8/2012
Dibromochloromethane	ug/l	<1	3/8/2012
1,2-Dibromo-3-Chloropropane	ug/l	<2	3/8/2012
1,2-Dibromoethane(EDB)	ug/l	<1	3/8/2012
Dibromomethane	ug/l	<2	3/8/2012
1,2-Dichlorobenzene	ug/l	<1	3/8/2012
1,3-Dichlorobenzene	ug/l	<1	3/8/2012
1,4-Dichlorobenzene	ug/l	<1	3/8/2012
Dichlorodifluoromethane	ug/l	<5	3/8/2012
1,1-Dichloroethane	ug/l	<1	3/8/2012
1,2-Dichloroethane	ug/l	<1	3/8/2012
1,1-Dichloroethene	ug/l	<1	3/8/2012
cis-1,2-Dichloroethene	ug/l	<1	3/8/2012
trans-1,2-Dichloroethylene	ug/l	<2	3/8/2012
1,2-Dichloropropane	ug/l	<1	3/8/2012
1,3-Dichloropropane	ug/l	<1	3/8/2012
2,2-Dichloropropane	ug/l	<1	3/8/2012
1,1-Dichloropropene	ug/l	<1	3/8/2012
Ethylbenzene	ug/l	<1	3/8/2012
Hexachlorobutadiene	ug/l	0.5	3/8/2012
Isopropylbenzene	ug/l	<1	3/8/2012
p-Isopropyltoluene	ug/l	<1	3/8/2012
Methylene Chloride	ug/l	<5	3/8/2012
Naphthalene	ug/l	<1	3/8/2012
n-Propylbenzene	ug/l	<1	3/8/2012
Styrene	ug/l	<1	3/8/2012
1,1,1,2-Tetrachloroethane	ug/l	<1	3/8/2012
1,1,2,2-Tetrachloroethane	ug/l	<1	3/8/2012
Tetrachloroethene	ug/l	<1	3/8/2012
Toluene	ug/l	<1	3/8/2012
1,2,3-Trichlorobenzene	ug/l	<1	3/8/2012
1,2,4-Trichlorobenzene	ug/l	<1	3/8/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1203-04403
Date: 3/9/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Volatile Organics by Method 8260 (cont'd)			
1,1,1-Trichloroethane	ug/l	<1	3/8/2012
1,1,2-Trichloroethane	ug/l	<1	3/8/2012
Trichloroethene	ug/l	<1	3/8/2012
Trichlorofluoromethane	ug/l	<1	3/8/2012
1,2,3-Trichloropropane	ug/l	<2	3/8/2012
1,2,4-Trimethylbenzene	ug/l	<1	3/8/2012
1,3,5-Trimethylbenzene	ug/l	<1	3/8/2012
Vinyl Chloride	ug/l	<1	3/8/2012
o-Xylene	ug/l	<1	3/8/2012
m,p-Xylene	ug/l	<1	3/8/2012
MTBE	ug/l	<2	3/8/2012
Acetone	ug/l	<10	3/8/2012
2-Butanone(MEK)	ug/l	<10	3/8/2012
4-Methyl-2-pentanone(MIBK)	ug/l	<10	3/8/2012
Tetrahydrofuran	ug/l	<10	3/8/2012
Carbon Disulfide	ug/l	<5	3/8/2012
2-Hexanone	ug/l	<10	3/8/2012
cis-1,3-Dichloropropene	ug/l	<1	3/8/2012
trans-1,3-Dichloropropylene	ug/l	<1	3/8/2012
Diethyl ether	ug/l	<5	3/8/2012
Ethyl Tertiary Butyl Ether	ug/l	<5	3/8/2012
Diisopropyl ether (DIPE)	ug/l	<5	3/8/2012
Tertiary Amyl Methyl Ether	ug/l	<5	3/8/2012
Polyaromatic Hydrocarbons (Aqueous)			
Naphthalene	ug/l	<1.0	3/9/2012
2-Methylnaphthalene	ug/l	<1.0	3/9/2012
Acenaphthylene	ug/l	<1.0	3/9/2012
Acenaphthene	ug/l	<1.0	3/9/2012
Fluorene	ug/l	<1.0	3/9/2012
Phenanthrene	ug/l	<1.0	3/9/2012
Anthracene	ug/l	<1.0	3/9/2012
Fluoranthene	ug/l	<1.0	3/9/2012
Pyrene	ug/l	<0.2	3/9/2012
Benzo(a)anthracene	ug/l	<0.2	3/9/2012
Chrysene	ug/l	<0.2	3/9/2012
Benzo(b)fluoranthene	ug/l	<0.2	3/9/2012
Benzo(k)fluoranthene	ug/l	<0.2	3/9/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1203-04403
Date: 3/9/2012

-Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Polyaromatic Hydrocarbons (Aqueous) (cont'd)			
Benzo(a)pyrene	ug/l	<0.1	3/9/2012
Indeno(1,2,3-cd)pyrene	ug/l	<0.1	3/9/2012
Dibenzo(a,h)anthracene	ug/l	<0.1	3/9/2012
Benzo(g,h,i)perylene	ug/l	<0.1	3/9/2012
Dissolved Metals by ICP			
Beryllium	mg/l	<0.001	3/7/2012
Cadmium	mg/l	<0.004	3/7/2012
Chromium	mg/l	<0.005	3/7/2012
Nickel	mg/l	<0.010	3/7/2012
Silver	mg/l	<0.020	3/7/2012
Vanadium	mg/l	<0.020	3/7/2012
Zinc	mg/l	<0.020	3/7/2012
Barium	mg/l	<0.005	3/7/2012
Dissolved Metals by ICP Mass Spec			
Antimony (mg/l)	mg/l	<0.002	3/7/2012
Arsenic (mg/l)	mg/l	<0.001	3/7/2012
Lead (mg/l)	mg/l	<0.001	3/7/2012
Selenium (mg/l)	mg/l	<0.002	3/7/2012
Thallium (mg/l)	mg/l	<0.001	3/7/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Total Dissolved Solids		1001	1000	100			0	3/8/2012
Extractable Petroleum Hydrocarbons (Aqueous)								
C9-C18 Aliphatics		300	237	79	248	83	5	3/8/2012
C19-C36 Aliphatics		400	387	97	386	97	0	3/8/2012
C11-C22 Aromatics		850	857	101	1056	124	21	3/8/2012
Extraction Surrogates								
Chloro-octadecane			72		74			
Ortho-terphenyl			97		124			
Fractionation Surrogates								
2-Fluorobiphenyl			89		103			
2-Bromonaphthalene			85		102			

QA/QC Report

Client: Norfolk Ram Group
WO #: 1203-04403
Date: 3/9/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Volatile Petroleum Hydrocarbons(Aqueous)								
Methyl-tert-butylether		50	47	94	51	102	8	3/6/2012
Benzene		50	46	92	45	90	2	3/6/2012
Toluene		50	45	90	45	90	0	3/6/2012
Ethylbenzene		50	46	92	46	92	0	3/6/2012
m,p-Xylene		100	96	96	96	96	0	3/6/2012
o-Xylene		50	46	92	46	92	0	3/6/2012
Naphthalene		50	47	94	41	82	14	3/6/2012
Adj C5-C8 Aliphatics(FID)		150	147	98	148	99	1	3/6/2012
Adj C9-C12 Aliphatics(FID)		100	81	81	85	85	5	3/6/2012
C9-C10 Aromatics(PID)		50	47	94	47	94	0	3/6/2012
Surrogate								
2,5-Dibromotoluene(PID)			101		100			
2,5-Dibromotoluene(FID)			122		95			
Volatile Organics by Method 8260								
Benzene		50	44	88	42	84	5	3/8/2012
Bromobenzene		50	40	80	38	76	5	3/8/2012
Bromochloromethane		50	43	86	39	78	10	3/8/2012
Bromodichloromethane		50	41	82	39	78	5	3/8/2012
Bromoform		50	49	98	47	94	4	3/8/2012
Bromomethane		50	42	84	41	82	2	3/8/2012
n-Butylbenzene		50	45	90	43	86	5	3/8/2012
Sec-butylbenzene		50	48	96	46	92	4	3/8/2012
tert-Butylbenzene		50	48	96	46	92	4	3/8/2012
Carbon Tetrachloride		50	42	84	40	80	5	3/8/2012
Chlorobenzene		50	41	82	40	80	2	3/8/2012
Chloroethane		50	42	84	41	82	2	3/8/2012
Chloroform		50	43	86	41	82	5	3/8/2012
Chloromethane		50	48	96	50	100	4	3/8/2012
2-Chlorotoluene		50	42	84	41	82	2	3/8/2012
4-Chlorotoluene		50	42	84	41	82	2	3/8/2012
Dibromochloromethane		50	46	92	44	88	4	3/8/2012
1,2-Dibromo-3-Chloropropane		50	42	84	41	82	2	3/8/2012
1,2-Dibromoethane(EDB)		50	42	84	41	82	2	3/8/2012
Dibromomethane		50	41	82	39	78	5	3/8/2012
1,2-Dichlorobenzene		50	43	86	42	84	2	3/8/2012
1,3-Dichlorobenzene		50	41	82	42	84	2	3/8/2012
1,4-Dichlorobenzene		50	41	82	40	80	2	3/8/2012
Dichlorodifluoromethane		50	44	88	44	88	0	3/8/2012
1,1-Dichloroethane		50	42	84	40	80	5	3/8/2012
1,2-Dichloroethane		50	40	80	39	78	3	3/8/2012
1,1-Dichloroethene		50	46	92	44	88	4	3/8/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1203-04403
Date: 3/9/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Volatile Organics by Method 8260 (cont'd)								
cis-1,2-Dichloroethene		50	44	88	42	84	5	3/8/2012
trans-1,2-Dichloroethylene		50	45	90	42	84	7	3/8/2012
1,2-Dichloropropane		50	42	84	40	80	5	3/8/2012
1,3-Dichloropropane		50	42	84	39	78	7	3/8/2012
2,2-Dichloropropane		50	40	80	38	76	5	3/8/2012
1,1-Dichloropropene		50	41	82	39	78	5	3/8/2012
Ethylbenzene		50	41	82	40	80	2	3/8/2012
Hexachlorobutadiene		50	41	82	39	78	5	3/8/2012
Isopropylbenzene		50	47	94	45	90	4	3/8/2012
p-Isopropyltoluene		50	48	96	45	90	6	3/8/2012
Methylene Chloride		50	55	110	53	106	4	3/8/2012
Naphthalene		50	43	86	43	86	0	3/8/2012
n-Propylbenzene		50	44	88	43	86	2	3/8/2012
Styrene		50	43	86	42	84	2	3/8/2012
1,1,1,2-Tetrachloroethane		50	40	80	39	78	3	3/8/2012
1,1,2,2-Tetrachloroethane		50	41	82	40	80	2	3/8/2012
Tetrachloroethene		50	43	86	39	78	10	3/8/2012
Toluene		50	42	84	40	80	5	3/8/2012
1,2,3-Trichlorobenzene		50	40	80	41	82	2	3/8/2012
1,2,4-Trichlorobenzene		50	43	86	43	86	0	3/8/2012
1,1,1-Trichloroethane		50	42	84	40	80	5	3/8/2012
1,1,2-Trichloroethane		50	42	84	40	80	5	3/8/2012
Trichloroethene		50	42	84	40	80	5	3/8/2012
Trichlorofluoromethane		50	41	82	39	78	5	3/8/2012
1,2,3-Trichloropropane		50	44	88	43	86	2	3/8/2012
1,2,4-Trimethylbenzene		50	46	92	44	88	4	3/8/2012
1,3,5-Trimethylbenzene		50	46	92	44	88	4	3/8/2012
Vinyl Chloride		50	48	96	48	96	0	3/8/2012
o-Xylene		50	45	90	43	86	5	3/8/2012
m,p-Xylene		100	89	89	84	84	6	3/8/2012
MTBE		50	42	84	42	84	0	3/8/2012
Acetone		500	420	84	400	80	5	3/8/2012
2-Butanone(MEK)		500	590	118	570	114	3	3/8/2012
4-Methyl-2-pentanone(MIBK)		500	430	86	410	82	5	3/8/2012
Tetrahydrofuran		500	440	88	420	84	5	3/8/2012
Carbon Disulfide		50	43	86	41	82	5	3/8/2012
2-Hexanone		500	440	88	410	82	7	3/8/2012
cis-1,3-Dichloropropene		50	43	86	41	82	5	3/8/2012
trans-1,3-Dichloropropylene		50	43	86	42	84	2	3/8/2012
Diethyl ether		500	430	86	420	84	2	3/8/2012
Ethyl Tertiary Butyl Ether		50	41	82	39	78	5	3/8/2012
Diisopropyl ether (DIPE)		50	42	84	40	80	5	3/8/2012

QA/QC Report

Client: Norfolk Ram Group
WO #: 1203-04403
Date: 3/9/2012

-LCS/LCS Duplicate Data Results-

Parameter	CRM Acceptance Limits	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Volatile Organics by Method 8260 (cont'd)								
Tertiary Amyl Methyl Ether		50	42	84	40	80	5	3/8/2012
Polyaromatic Hydrocarbons (Aqueous)								
Naphthalene		5	3.00	60	2.82	56	6	3/9/2012
2-Methylnaphthalene		5	3.55	71	3.29	66	8	3/9/2012
Acenaphthylene		5	4.56	91	4.01	80	13	3/9/2012
Acenaphthene		5	3.50	70	3.17	63	10	3/9/2012
Fluorene		5	4.15	83	3.60	72	14	3/9/2012
Phenanthrene		5	3.68	74	3.19	64	14	3/9/2012
Anthracene		5	4.87	97	4.20	84	15	3/9/2012
Fluoranthene		5	5.14	103	4.48	90	14	3/9/2012
Pyrene		5	4.25	85	3.72	74	13	3/9/2012
Benzo(a)anthracene		5	5.22	104	4.53	91	14	3/9/2012
Chrysene		5	3.74	75	3.19	64	16	3/9/2012
Benzo(b)fluoranthene		5	4.27	85	3.68	74	15	3/9/2012
Benzo(k)fluoranthene		5	3.37	67	3.06	61	10	3/9/2012
Benzo(a)pyrene		5	4.73	95	4.12	82	14	3/9/2012
Indeno(1,2,3-cd)pyrene		5	4.24	85	4.03	81	5	3/9/2012
Dibenzo(a,h)anthracene		5	4.05	81	3.57	71	13	3/9/2012
Benzo(g,h,i)perylene		5	3.14	63	3.17	63	1	3/9/2012
Dissolved Metals by ICP								
Beryllium		1.00	0.988	99	0.986	99	0	3/7/2012
Cadmium		1.00	0.968	97	0.958	96	1	3/7/2012
Chromium		1.00	0.955	96	0.945	95	1	3/7/2012
Nickel		1.00	0.959	96	0.949	95	1	3/7/2012
Silver		1.00	1.01	101	1.00	100	1	3/7/2012
Vanadium		1.00	0.950	95	0.941	94	1	3/7/2012
Zinc		1.00	0.906	91	0.899	90	1	3/7/2012
Barium		1.00	0.990	99	0.993	99	0	3/7/2012
Dissolved Metals by ICP Mass Spec								
Antimony (mg/l)		0.100	0.048	48	0.052	52	8	3/7/2012
Arsenic (mg/l)		0.100	0.048	48	0.049	49	2	3/7/2012
Lead (mg/l)		0.100	0.049	49	0.051	51	4	3/7/2012
Selenium (mg/l)		0.100	0.042	42	0.044	44	5	3/7/2012
Thallium (mg/l)		0.100	0.046	46	0.048	48	4	3/7/2012

Case Narrative

Date: 3/9/2012

Norfolk Ram Group
Attn: Mr. Jon Kitchen
One Roberts Road
Plymouth, MA 02360

Project: PROJECT# 1153.12.1 STEPHEN'SFIELD, PLYMOUTH, MA

RIAL WO#: 1203-04403

All QA/QC procedures required by the EPH Method were followed. All performance/acceptance standards for the required QA/QC procedures were achieved or otherwise stated in this case narrative. A fractionation check was performed on the silica gel lot associated with this sample and found to pass the method criteria unless otherwise stated here. The data reported for this sample was not corrected for instrument/solvent baseline effects. No significant modifications were made to the EPH Method. The target PAH analytes were reported from a GC/MS SIM approach.

All QA/QC procedures required by the VPH Method were followed. All Performance/Acceptance Standards for the required QA/QC procedures were achieved or otherwise stated. No significant modifications were made to the VPH Method.

The following exceptions were noted for this Work Order:

The method requested for Total Dissolved Solids is not listed in the table of contents for compendium of MCP analytical methods. Therefore, there is no guideline for presumptive certainty.

Extractable Petroluem Hydrocarbons

Question G - The Extractable Petroleum Hydrocarbons detection limits for Benzo(a)pyrene, and Indeno(1,2,3-cd)pyrene in Sample -001 (MW-8) were above the MCP GW-1 standards.

Volatile Organics by 8260B

Question G - The Volatile Organic Compounds Method 8260B detection limits for cis-1,3-Dichloroethene, trans-1,2-Dichloroethylene, 1,2-Dibromoethane(EDB), and 1,4-Dioxane in Sample -001 (MW-8) were above the MCP GW-1 standards.

There were no additional exceptions or analytical issues to discuss concerning the testing requirements for the project.

Mike Hobin
QA/QC Director

R.I. ANALYTICAL
Specialists in Environmental Services

CHAIN OF CUSTODY RECORD

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Warwick, RI 02888-3007
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131 Coolidge St., Suite 105
Hudson, MA 01749-1331
800-937-2580 • Fax: 978-568-0078

07-14-11

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type C	Preservation Code P	Matrix Code M	EPH w. PAHs ☆	MCP Metals ☆	VPH w. target VOCs	VOCs	TDS
3-2-12	12:30	MW-8	G	2AG 2P 4V	H, NP	GW	X	X	X	X	X
	13:15	MW-6	G	2AG 1P 2V	H, NP		X		X		X
	13:45	MW-7	G	2AG 1P	H, NP		X				X
	14:30	MW-5	G	2AG 1P	H, NP		X				X
	~~[illegible]~~										

☆ = Filtered in field prior to preservation

Client Information	
Company Name:	Norfolk RAM Group
Address:	One Roberts Road
City / State / Zip:	Plymouth MA 02360
Telephone:	508-747-7900 Fax: 508-747-3658
Contact Person:	Jon Kitchen ext. 154

Project Information	
Project Name:	Stephen's Field, Plymouth, MA
P.O. Number:	Project Number: 1153.12.1
Report To:	Jon Kitchen Phone: 508-747-7900 Fax: 508-747-3658
Sampled by:	AJE
Quote No:	Email report to these addresses: jkitchen@norfolkram.com

Relinquished By	Date	Time	Received By	Date	Time
[signature]	3-5-12	1315	[signature]	3/5/12	1315
[signature]	3/5	1800	[signature]	3/5	18:00

Turn Around Time			
X	Normal	X	EMAIL Report
	5 Business days		
	Rush – Date Due: ___/___/___		

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, S-1, S-2, S-3 MCP Data Enhancement QC Package? Yes No

Temp. Upon Receipt 1.8 °C

Lab Use Only	
X	Sample Pick Up Only
	RIAL sampled; attach field hours
X	Shipped on ice
Workorder No:	1203-04403

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile Preservatives: A=Ascorbic Acid, NH4=NH_4Cl, H=HCl, M=MeOH, N=HNO_3, NP=None, S=H_2SO_4, SB=$NaHSO_4$, SH=NaOH, T=$Na_2S_2O_3$, Z=ZnOAc
Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, SL=Sludge, A=Air, B=Bulk/Solid, O=_____