DRAFT FINAL INVESTIGATON REPORT AND REMEDIAL ACTION ALTERNATIVES ANALYSIS
FOR THE
QUINLAN RUSSELL LAGOON PARCEL
MERIDEN, CT

EPA ID# CTD000842906
Region I RCRA Corrective Action

Prepared by:

U.S. Environmental Protection Agency Region I

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Table of Contents

LIST OF TABLES

1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) and the Connecticut Department of Energy and Environmental Protection (CTDEEP) have prepared this draft remedial alternative analysis for informational purposes to document recent site investigation work for the Quinlan Russell Corrective Action Site's lagoon parcel (hereby referred to as the "lagoon parcel" or the "site") and to present potential remedial approaches to address contamination that remains on site from historical activities. This report was prepared to assist potential future property owners in their understanding of outstanding obligations currently existing on the property and how such issues might be addressed.

Information used in the generation of this report was obtained through file review conducted at EPA and CTDEEP, through telephone interviews with city officials and other persons knowledgeable of the Quinlan Russell site, through environmental media sampling events taking place in 2017 and 2018, and conversations with other Federal, State, and local agencies.

The street address, coordinates, and contaminant locations presented in this report identify the general area in which the site is located. They represent the location that EPA and CTDEEP consider to be the site based upon current property boundaries and areas of historical industrial use as gathered in the course of this and previous investigation(s).

2.0 SITE DESCRIPTION

The Quinlan Russell Site has a long history of industrial uses which included a brass foundry, plating, and injection molding operations. A surface impoundment receiving wastes from the manufacturing processes of the now-defunct J.B. Coggins Manufacturing Company on site was located in the back of the property. The surface impoundment was regulated under the Resource Conservation and Recovery Act (RCRA). The site has since been separated into two parcels with different property owners. The front parcel ("the Ogle portion") is owned by Ogle Specialties, LLC and houses several small businesses including a machining shop, a herpetology supply business, and a wholesale florist. The rear parcel ("the lagoon parcel/portion") contains the former waste impoundment, as well as a portion of the former foundry which has since been demolished. It has been used intermittently as a parking lot, and is partially covered in gravel.

The lagoon property is approximately 1/3 of an acre in size, with a center point found at approximately 41º32'28.05" N by 72º47.59.09" W. To the north of the property is the northern portion of the former JB Coggins facility, now owned by Ogle Specialty and used for light machining work. An air conditioning installation contractor is adjacent to the western boundary of the site, across Clark Brook. Railroad tracks lie to the east. The area to the south of the parcel is currently a parking lot. The Map/Lot number as indicated on the City of Meriden's GIS database is 0104-0018-005A-0000.

Recent site investigation was done as two separate but related projects. Ogle Specialties, LLC has been performing investigative work under the CT Property Transfer Act. EPA, in collaboration with CTDEEP, performed sampling work in the rear parcel. Although the individual properties were assessed by different entities, both parcels are together regulated under RCRA Corrective Action as the single "Quinlan Russell" site. This report, however, details only the joint CTDEEP-EPA field investigation and other information gathering related to the rear parcel.

2.1 GEOLOGY

The Site is underlain by fine, sandy loam and by Allington Metadiabase bedrock. This information comes from the “Bedrock Geologic Map of the Meriden Quadrangle, Connecticut” dated 1963- 1965 and has not been confirmed by investigations either by USEPA, CTDEEP, or the LEP on the Ogle portion of the Quinlan Russell site.

2.2 HYDROLOGY AND HYDROGEOLOGY

The nearest surficial water body to the property is Clark Brook, which bounds the property to the west. It flows through an artificial channel in a southwesterly direction from the site. Site groundwater is shallow, found at depths between 4 and 6 feet. It generally flows to the west, where it discharges into Clark Brook. Clark Brook eventually flows into Harbor Brook approximately 0.25 miles downgradient of the site. There are no known private drinking water supply wells located within a 4-mile radius of the site.

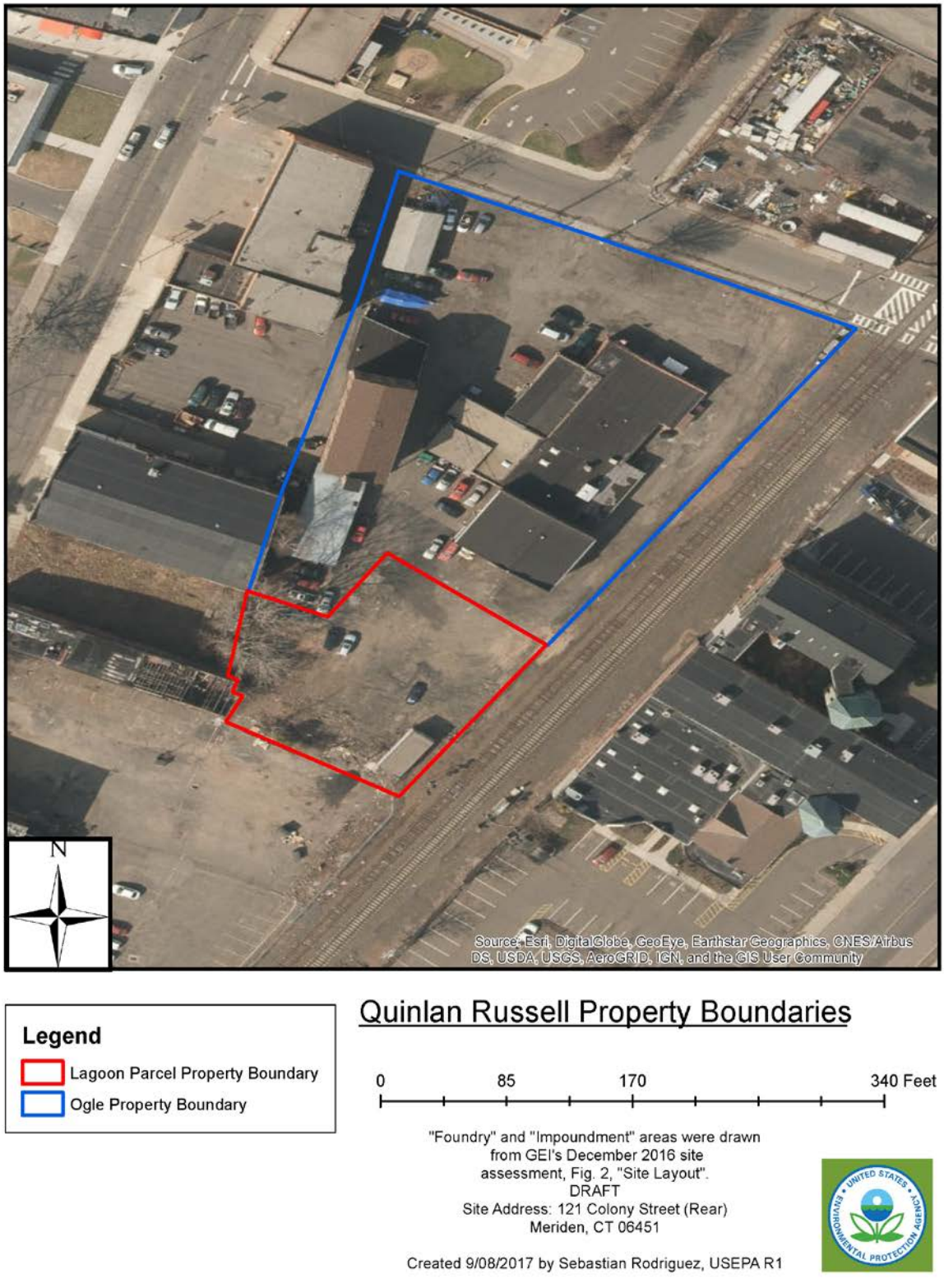

Figure 1. Current Quinlan Russell site property boundaries. The parcel highlighted in red is the subject of this investigation report.

3.0 OWNERSHIP, OPERATIONAL AND REGULATORY HISTORY

The site has a long history of industrial use dating back over 100 years. Prior to 1932, the site was owned by Foster Merriam, Co. who operated a plating and foundry business. After this date, property ownership transferred to the J.B. Coggins Manufacturing Company. J.B. Coggins constructed the previously mentioned surface impoundment in approximately 1965, and operated it for approximately 20 years until closure in 1985. Russell J. Quinlan purchased the property on June 26, 1990 and agreed to be responsible for further remediation under the Connecticut Property Transfer Act. Mr. Quinlan has since passed away. Town records indicate that the property deed remains in Mr. Quinlan's name.

The previously referenced surface impoundment was "closed" in 1985, and CTDEEP issued a certificate of closure in June of that year, with further groundwater monitoring obligations. Closure activities involved the excavation of the surface impoundment to a depth of 5 feet, with a single composite sample collected comprising of soil from 6 different 12-inch core samples in the vicinity of the lagoon. This composite sample was collected as clean water was being continuously added to the waste pit, and so results may not necessarily be indicative of true site conditions at the time.

The results of the soil samples and groundwater monitoring indicated soil contaminated with lead (up to 0.05 ppm), zinc (up to 0.64 ppm), copper (0.15 ppm), nickel (0.08 ppm), chromium (0.005 ppm), trichloroethane (24 ppb), TCE (55 ppb), and PCE (up to 32 ppb). At the time, downgradient monitoring well sample showed contamination with chromium (<0.02 mg/L), copper (0.02 ppm), nickel (<0.04 ppm), zinc (0.17 ppm), lead (<0.04 ppm), and 1,1,1-trichloroethane (42 ppb).

In 2017, EPA and CTDEEP jointly decided to perform further investigation of the property on which the surface impoundment was located as a result of the lagoon's questionable RCRA closure and lack of viable responsible party.

4.0 APPLICABLE CRITERIA

The site is in an industrial area and is located in a GB groundwater area. GB groundwater areas are generally within historically highly urbanized areas or areas of intense industrial activity and where public water supply service is available. Groundwater beneath GB areas is presumed to be unsuitable for human consumption without treatment. Because the groundwater is classified as GB and a public water supply is available in the vicinity of the Site, the Groundwater Protection Criteria (GWPC) do not apply. Additionally, as previously mentioned, no drinking water wells were located in the vicinity of the site.

The Connecticut Remediation Standard Regulation (RSR) Direct Exposure Criteria (DEC) for residential and industrial/commercial areas currently apply to the site. Following recording of a proposed environmental land use restriction (ELUR) prohibiting residential use at the site (see Section 8.0, *Proposed Remedial Activities*), only the industrial/commercial direct exposure criteria will apply. The GB Pollutant Mobility Criteria (PMC) also apply at the site. The Surface Water Protection Criteria (SWPC) apply to those monitoring stations located near the western edge of the property where groundwater discharges to Clark Brook.

5.0 CHARACTERIZATION

For the 2017 field investigation, soil boring locations in the northern portion of the property were roughly chosen based on a grid-based sampling plan to a depth of approximately 4 ft bgs. Deeper borings were advanced on what were thought to be the edges of the historic lagoon excavation, with the most extensive sampling performed in the footprint of the former lagoon itself to a maximum depth of 12 feet bgs. A sample was collected and analyzed from every 2' of boring depth, for a total of 57 soil samples across the entire site. 3 sediment samples were taken from the bed of Clark Brook. SED-1 was taken at the last accessible downstream point of the property, SED-2 was taken in the middle of the stream near the outfall of a pipe, and SED-3 was collected upgradient from that. Monitoring wells were installed in locations expected to be downgradient of areas of concern on the property. There are ten (10) monitoring wells installed on the Quinlan Russell site: 6 on the Ogle parcel, and 4 on the lagoon parcel. Data from wells on both properties were used to assess lagoon parcel conditions. Wells on the lagoon parcel are ¾ inch in diameter, and were installed to a depth of 12 feet bgs. The wells were installed with 10 ft screens, from 2 ft bgs to 12 ft bgs.

Sediment and soil samples were analyzed in the field for metals using a Niton XL3t 600 x-ray fluorescence (XRF) instrument equipped with a 50 kV X-ray tube and a high resolution Si pin detector provided by EPA Region I's mobile lab. Soil samples were analyzed for VOA by GC/MS. Samples were introduced to the GC via a Tekmar preconcentrator and an Archon auto-sampler. Confirmation samples sent to EPA's New England Regional Laboratory were analyzed using a Perkin Elmer Dual View Inductively Coupled Plasma - Optical Emission Spectrometer.

Groundwater samples were analyzed using a Perkin Elmer Dual View Inductively Coupled Plasma – Optical Emission Spectrometer for metals, with VOA concentration analyzed using a Shimadzu gas chromatograph equipped with a 30 meter, 0.53 mm id. DBPS-624 column, electron capture, and photoionization detectors. Concentrations of volatile organics were then calculated using the external standard techniques. Information about the soil and sediment samples and reference tables of findings are included in the following pages. Analytical reports from EPA's laboratory are included as Appendix E of this report.

Table 1.
Status of Contaminated Media on The Quinlan Russell Lagoon Parcel.

	Media Contaminated?			
	Yes	No	**?**	Rationale / Key Contaminants
Groundwater	X			Groundwater has been shown in some samples to be above the standard Surface Water Protection Criteria (SWPC) established in the Connecticut Remediation Standard Regulations (RSRs) for copper (SWPC of 48 ppb) and zinc (SWPC of 123 ppb).
Air (indoors)1		X		There are no buildings on the property.
Soil (surface, e.g., <2 ft)	X			Surface soil is contaminated with arsenic and lead above the RSR Industrial/Commercial (I/C) Direct Exposure Criteria (DEC) of 10 mg/kg and 1,000 mg/kg, respectively.
Surface Water			X	Clark Brook is a small brook that runs to the west of the site. Surface water samples were not taken due to the fact that the area upstream was covered, rendering collection of an upgradient sample implausible. *The brook on the site runs underneath a covered surface both up and downgradient, and only daylights at the site itself.*
Sediment	X			Sediment is contaminated with zinc, nickel, lead, copper, and total chromium above Threshold Effect and Probable Effect Concentrations as provided by NOAA's Screening Quick Reference Tables (SQuiRTs).
Soil (subsurface e.g., >2 ft)	X			Subsurface soil is contaminated with lead and arsenic above the RSR I/C DEC of 1000 mg/kg and 10 mg/kg, respectively. The highest observed concentration of lead was 1628 mg/kg and the highest observed concentration of subsurface arsenic was 44 mg/kg. Total chromium was detected at concentrations up to 7200 mg/kg. RSR I/C DEC for total chromium has not been established but has 100 mg/kg for hexavalent chromium.
Air (outdoors)		X		Outdoor air does not act as an exposure route due to the nature and concentrations of the observed contaminants on site.

1 "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

Table 2.
Potential Receptors to Quinlan Russell Lagoon Property Contamination

	Potential **Human Receptors** (Under Current Conditions)						
Contaminated Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food
Groundwater	N	N	N	Y	N	N	N
~~Air (indoors)~~							
Soil (surface, e.g., <2 ft)	N	Y	N	Y	Y	N	N
Surface Water	N	N	N	Y	Y	N	N
Sediment	N	N	N	Y	Y	N	N
Soil (subsurface e.g., >2 ft)	N	N	N	Y	N	N	N
~~Air (outdoors)~~							

Table 3.
Soil and Sediment Sample Locations- Quinlan Russell Lagoon Property

Sample ID	Sample Location	Sample Max Depth (feet bgs)	Latitude North	Longitude West	Sample Notes
SB-01 A	Downgradient (west) of Foundry	2’	41º32’28.356”	72º47’59.214	
SB-01 B	Downgradient (west) of Foundry	4’	41º32’28.356”	72º47’59.214	
SB-02 A	Footprint of former foundry area	2’	41º32’28.249”	72º47’58.995”	
SB-02 B	Footprint of former foundry area	4’	41º32’28.249”	72º47’58.995”	
SB-03 A	Footprint of former foundry area	2’	41º32’28.088”	72º47’58.747”	
SB-03 B	Footprint of former foundry area	4’	41º32’28.088”	72º47’58.747”	
SB-04 A	Downgradient (west) of Foundry	2’	41º32’28.168”	72º47’59.377”	
SB-04 B	Downgradient (west) of Foundry	4’	41º32’28.168”	72º47’59.377”	
SB-05 A	Footprint of former foundry area	2’	41º32’28.025”	72º47’59.158”	
SB-05 B	Footprint of former foundry area	4’	41º32’28.025”	72º47’59.158”	
SB-06 A	Footprint of former foundry area	2’	41º32’27.858”	72º47’58.899”	
SB-06 B	Footprint of former foundry area	4’	41º32’27.858”	72º47’58.899”	
SB-07 A	Downgradient (west) of Foundry	2’	41º32’27.963”	72º47’59.535”	
SB-07 B	Downgradient (west) of Foundry	4’	41º32’27.963”	72º47’59.535”	
SB-08 A	Footprint of former foundry area	2’	41º32’27.853”	72º47’59.295”	
SB-08 B	Footprint of former foundry area	4’	41º32’27.853”	72º47’59.295”	
SB-09 A	Footprint of former foundry area	2’	41º32’27.685”	72º47’59.033”	
SB-09 B	Footprint of former foundry area	4’	41º32’27.685”	72º47’59.033”	
SB-10 A	Upgradient (east) of former foundry area	2’	41º32’27.627”	72º47’58.662”	

SB-10 B	Upgradient (east) of Foundry	4’	41º32’27.627”	72º47’58.662”	
SB-11 A	Downgradient (west) of Foundry	2’	41º32’28.035”	72º47’59.882”	
SB-11 B	Downgradient (west) of Foundry	4’	41º32’28.035”	72º47’59.882”	Highest detection of arsenic in soil.
SB-12 A	NW edge of former lagoon	2’	41º32’27.843”	72º47’59.796”	
SB-12 B	NW edge of former lagoon	4’	41º32’27.843”	72º47’59.796”	
SB-13 A	North-Central edge of former lagoon	2’	41º32’27.671”	72º47’59.425”	
SB-13 B	North-Central edge of former lagoon	4’	41º32’27.671”	72º47’59.425”	
SB-13 C	North-Central edge of former lagoon	6’	41º32’27.671”	72º47’59.425”	
SB-13 D	North-Central edge of former lagoon	8’	41º32’27.671”	72º47’59.425”	
SB-14 A	NE edge of former lagoon	2’	41º32’27.479”	72º47’59.088”	
SB-14 B	NE edge of former lagoon	4’	41º32’27.479”	72º47’59.088”	
SB-14 C	NE edge of former lagoon	6’	41º32’27.479”	72º47’59.088”	
SB-14 D	NE edge of former lagoon	8’	41º32’27.479”	72º47’59.088”	
SB-15	W Edge of former lagoon	18”	41º32’27.695”	72º47’59.918”	GeoProbe hit refusal at 18” after multiple attempts, sample collected from that depth.
SB-16 A	Former lagoon area	2’	41º32’27.603”	72º47’59.747”	
SB- 16 B	Former lagoon area	4’	41º32’27.603”	72º47’59.747”	Highest detection of copper, still below I/C DEC.
SB-16 C	Former lagoon area	6’	41º32’27.603”	72º47’59.747”	
SB-16 D	Former lagoon area	8’	41º32’27.603”	72º47’59.747”	
SB-16 E	Former lagoon area	10’	41º32’27.603”	72º47’59.747”	

SB-16 F	Former lagoon area	12’	41º32’27.603”	72º47’59.747”	
SB-17 A	Former lagoon area	2’	41º32’27.511”	72º47’59.579”	
SB-17 B	Former lagoon area	4’	41º32’27.511”	72º47’59.579”	
SB-17 C	Former lagoon area	6’	41º32’27.511”	72º47’59.579”	
SB-17 D	Former lagoon area	8’	41º32’27.511”	72º47’59.579”	Highest detection of lead, waste sludge visible in sample.
SB-17 E	Former lagoon area	10’	41º32’27.511”	72º47’59.579”	
SB-17 F	Former lagoon area	12’	41º32’27.511”	72º47’59.579”	
SB-18 A	Former lagoon area	2’	41º32’27.423”	72º47’59.408”	
SB-18 B	Former lagoon area	4’	41º32’27.423”	72º47’59.408”	
SB-18 C	Former lagoon area	6’	41º32’27.423”	72º47’59.408”	
SB-18 D	Former lagoon area	8’	41º32’27.423”	72º47’59.408”	
SB-19 A	SW corner of property	2’	41º32’27.618”	72º48’0.126”	
SB-19 B	SW corner of property	4’	41º32’27.618”	72º48’0.126”	
SB-20 A	Southern edge of property	2’	41º32’27.339”	72º47’59.708”	
SB-20 B	Southern edge of property	4’	41º32’27.339”	72º47’59.708”	
SB-21 A	SE corner of property	2’	41º32’27.166”	72º47’59.333”	
SB-21 B	SE corner of property	4’	41º32’27.166”	72º47’59.333”	
SED-1	Southern portion of Clark Brook on property	Surface	41º32’27.924”	72º48’0.11”	
SED-2	Center of Clark Brook on property	Surface	41º32’28.302”	72º47’59.984”	
SED-3	Northern portion of Clark Brook on property	Surface	41º32’28.682”	72º47’59.842”	

Table 4.
Groundwater Sample Locations- Quinlan Russell Former Lagoon

Sample ID	Sample Location	Sample Depth (feet bgs)	Latitude North	Longitude West	Sample Description
MW-1	Upgradient, east side of property	10’ screen, well screened from 2-12’.	41º32’27.627”	72º47’58.662”	
MW-2	Due west of former foundry area and dust-collector area	10’ screen, well screened from 2-12’.	41º32’28.035”	72º47’59.882”	
MW-3	Immediately downgradient of surface impoundment	10’ screen, well screened from 2-12’.	41º32’27.618”	72º48’0.126”	
MW-4	Southern edge of property/lagoon	10’ screen, well screened from 2-12’.	41º32’27.339”	72º47’59.708”	

Notes:
Samples Collected by EPA Personnel on July 19 and 20, 2017. Additional samples were collected on April 11 and 12, 2018.
Coordinates are given in degrees/minutes/seconds; Datum = WGS1984.
bgs = Below ground surface

Table 5. Soil Analysis Summary- Quinlan Russell Former Lagoon

Soil Analytical Results (Analyzed in July 2017, unless noted)

Quinland Russel -Lagoon Parcel

Analyte	GB PMC*	CTDEEP RES DEC	CTDEEP I/C DEC	Sample ID:	SB-01 A(M2)	SB-01 B	SB-02 A	SB-02 B	SB-03 A (M2)	SB-03 A (M2)	SB-03 B	SB-04 A	SB-04 B	SB-04 B	SB-05 A	SB-05 B (M2)	SB-06 A (M2)	SB-06 B	SB-07	SB-07 B	SB-08	SB-08 B	SB-09 A	SB-09	SB-09 B	SB-09 B (Dup)	SB-10 A	SB-10 A	SB-10 B	SB-11 A	SB-11 B	SB-12	SB-12	SB-13 A	SB-13	SB-13
				Depth:	0-2'	2'-4'	0-2'	2'-4'	0-2'	0-2'	2'-4'	0-2'	2'-4'	2'-4'	0-2'	2'-4'	0-2'	2'-4'	0-2'	2'-4'	0-2'	4'	0-2'	2'-4'	2'-4'	2'-4'	0-2'	0-2'	2'-4'	0-2'	2'-4'	0-2'	2'-4'	0-2'	2'-4'	0-2'	4'-6'
Contaminant (Total Metals in PPM)				Analyzed Date:						#######				#######											#######	#######										
Copper	13	2,500	76,000		210	300	1,600	1,000	5,200	6,500	1,000	3,500	2,600	3,500	1,500	1,000	730	680	####	360	370	321	570	260	290	220	3,400	4,600	400	6,200	670	3,500	680	530	970	900
Zinc	50	20,000	610,000		400	620	1,900	2,100	7,400	5,200	1,100	6,500	7,600	7,900	1,800	790	900	6,800	####	1,200	1,100	2,220	3,000	950	1,100	1,000	2,700	4,200	550	15,000	2,100	2,500	1,800	900	560	980
Chromium, total**	0.5	NE	NE		76	420	55	<65	61	36	48	<43	<67	28	42	<63	<36	<35	<41	<47	<37	<35	<43	<48	20	21	50	<35	<52	<45	<51	<39	<53	<32	<28	770
Chromium, trivalent	NE	3,900	51,000		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium, hexavale	NE	100	100		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	0.15	400	1,000		51	26	180	85	390	680	110	930	530	1,100	140	110	82	330	180	42	90	189	130	110	110	97	230	270	79	590	290	160	120	64	35	72
Nickel	1.0	1,400	7,500		61	70	46	<60	89	77	74	200	83	88	130	<53	<38	<35	39	<39	<38	<38	50	<43	28	26	44	67	<52	170	100	92	200	<33	71	350
Arsenic	0.5	10	10		<8	8	<12	<11	<20	<38	<10	<30	<25	<40	<12	<12	<9	17	<12	<7	<10	<13	<11	<11	<39	<39	<14	<15	<11	46	31	<13	21	<8	<6	<8
Silver	0.36	340	10,000		<6	<6	<6	<6	<7	<9.6	<6	13	<7	<10	10	<6	<6	<6	<6	<6	<6	<6	<6	<6	<9.8	<9.8	<6	<6	<6	7	<6	<7	<6	<6	<6	<6
Cadmium	0.05	34	1,000		<9	<10	<10	<10	<10	<9.6	<9	23	49	59	11	<9	<10	17	<10	<10	<9	<10	14	<9	<9.8	<9.8	<10	11	<10	23	<9	<10	<9	<9	11	<9
Mercury	0.02	20	610		<7	<9	<8	<11	<12	--	<8	<12	<13	--	<8	<6	<8	<10	<8	<8	<7	<8	<9	<8	--	--	<9	<10	<9	<15	<7	<10	<8	<7	<6	<8
Selenium	0.50	340	10,000		<3	<4	<3	<4	<4	<38	<3	<5	<5	<40	<3	<4	<4	<4	<3	<3	<3	<3	<4	<3	<39	<39	<4	<4	<4	<5	<4	<4	<4	<3	<3	<5
Barium	10	4,700	140,000		390	160	440	270	420	67	410	510	310	130	500	190	460	410	330	370	330	421	430	110	45	48	380	450	260	550	250	400	280	420	370	390
Vanadium	0.50	470	14,000		--	--	--	--	--	42	--	--	--	45	--	--	--	--	--	--	--	--	--	--	24	26	--	--	--	--	--	--	--	--	--	--
Aluminium	NE	NE	NE		--	--	--	--	--	11,000	--	--	--	8,000	--	--	--	--	--	--	--	--	--	--	6,100	6,500	--	--	--	--	--	--	--	--	--	--
Beryllium	0.04	2	2		--	--	--	--	--	<7.7	--	--	--	<8.0	--	--	--	--	--	--	--	--	--	--	<7.8	<7.8	--	--	--	--	--	--	--	--	--	--
Cobalt	NE	NE	NE		--	--	--	--	--	<19	--	--	--	31	--	--	--	--	--	--	--	--	--	--	<20	<20	--	--	--	--	--	--	--	--	--	--
Iron	NE	NE	NE		--	--	--	--	--	26,000	--	--	--	130,000	--	--	--	--	--	--	--	--	--	--	73,000	64,000	--	--	--	--	--	--	--	--	--	--
Magnesium	NE	NE	NE		--	--	--	--	--	5,600	--	--	--	1,800	--	--	--	--	--	--	--	--	--	--	1,800	1,800	--	--	--	--	--	--	--	--	--	--
Manganese	NE	NE	NE		--	--	--	--	--	330	--	--	--	2,200	--	--	--	--	--	--	--	--	--	--	1,100	1,000	--	--	--	--	--	--	--	--	--	--
Anitmony	0.01	27	8,200		--	--	--	--	--	<19	--	--	--	<20	--	--	--	--	--	--	--	--	--	--	<20	<20	--	--	--	--	--	--	--	--	--	--
Thallium	0.05	5	160		--	--	--	--	--	<38	--	--	--	<40	--	--	--	--	--	--	--	--	--	--	<39	<39	--	--	--	--	--	--	--	--	--	--

Analyte		CTDEEP RES DEC	CTDEEP I/C DEC																																	
Contaminant (VOA in PPB, wet weight)																																				
(1,1,1)-TCA	40,000	500,000	1,000,000		11	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	<69	4	ND	ND	ND	ND	ND	--	--	ND	ND	ND	<67	ND	ND	ND	ND	ND	<65
TCE	1,000	56,000	520,000		ND	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	270	ND	ND	ND	ND	ND	ND
PCE	1,000	12,000	110,000		8	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	<69	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	100	ND	ND	ND	ND	ND	ND

Notes

* PMC does not compare to total metals

NS - not sampled, NE- not established

"--" - not analyzed

Concentrations in red font exceed Residential Direct Exposure Criteria (RES DEC).

Concentrations highlighted in yellow color exceed Indistrial/Commercial Direct Exposure Criteria (I/C DEC).

**Total chromium was compared to CTDEEP RES and I/C DEC for haxevalent chromium.

Table 5 (continued): Soil Analysis Summary- Quinlan Russell Former Lagoon

Soil Analytical Results (Analyzed in July 2017, unless no																																				
Quinland Russel -Lagoon Parcel																																				
Analyte	GB PMC*	CTDEEP RES DEC	CTDEEP I/C DEC	SB-13	SB-13	SB-14A	SB-14B	SB-14C	SB-14D	SB-14D	SB-15A	SB-16A	SB-16B	SB-16C	SB-16D	SB-16E	SB-16E	SB-16	SB-17	SB-17	SB-17	SB-17D	SB-17D	SB-17E	SB-17	SB-18	SB-18	SB-18	SB-19	SB-19	SB-20	SB-20	SB-21	SB-21	SB-21B
				4'-6'	6'-8'	0-2'	2'-4'	4'-6'	6'-8'	6-8'	18 "	0-2'	2'-4'	4'-6'	6'-8'	8'-10'	8'-10'	10'-12	0-2'	2'-4'	4'-6'	6'-8'	6'-8'	8'-10'	10'-12	0-2'	2'-4'	4'-6'	6'-8'	0-2'	2'-4'	0-2'	2'-4'	0-2'	2'-4'	2'-4'
Contaminant (Total Metals in PPM)										#######												#######													8/1/2017
Copper	13	2,500	76,000	900	790	61	19	18,000	6,900	61,000	6,100	13,000	24,000	810	270	230	220	25	160	<16	260	24,000	42,000	8,500	150	170	22	1,700	850	270	820	130	<17	160	160	95
Zinc	50	20,000	610,000	980	1,700	87	30	20,000	10,000	24,000	3,800	7,500	20,000	1,300	370	290	250	34	120	21	460	21,000	21,000	5,400	140	220	18	1,100	510	490	730	130	15	130	130	75
Chromium, total**	0.5	NE	NE	770	7,200	<29	<27	1,100	3,300	2,400	220	230	420	870	390	150	160	<34	<30	<27	52	2,500	960	710	36	<30	<28	<33	47	<39	<56	<29	<27	<29	<27	<20
Chromium, trivalent	NE	3,900	51,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium, hexavale	NE	100	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	0.15	400	1,000	72	81	22	17	980	770	2,100	220	390	900	61	300	90	160	17	30	13	51	1,600	4,000	440	28	26	13	110	51	77	110	31	14	31	40	<20
Nickel	1.0	1,400	7,500	350	3,200	<31	<28	760	1,200	1,800	150	250	570	320	280	150	130	<30	<32	<28	<30	1,300	1,400	690	<34	<30	<29	59	44	<35	93	<30	<29	<31	<29	<20
Arsenic	0.5	10	10	<8	<13	<5	<5	<31	<27	<80	<15	<18	<29	<7	<14	<10	<12	5	<6	<5	<7	44	<78	<20	<6	<6	<5	<10	<7	11	13	<6	<5	<6	<6	<39
Silver	0.36	340	10,000	<6	<9	<6	<6	13	<7	33	<7	13	8	<5	<5	7	<6	<6	6	<6	<6	11	25	8	<6	<6	<6	<6	<6	<6	<6	<6	<5	<6	<6	<9.8
Cadmium	0.05	34	1,000	<9	21	<9	<9	19	<10	<20	12	19	14	<8	<8	14	<10	<9	11	12	<9	27	<20	16	<10	<9	<9	<9	<9	<9	<10	<9	<9	14	<9	<9.8
Mercury	0.02	20	610	<8	<16	<6	<6	<18	<15	--	<10	<12	<18	<7	<6	<7	<7	<6	<6	<6	<6	<19	--	<12	<7	<6	<6	<7	<6	<7	<8	<6	<6	<6	<6	--
Selenium	0.50	340	10,000	<5	<6	<3	<3	<5	<5	<80	<4	<4	<5	<3	<3	<4	<3	<3	<3	<3	<3	<6	<78	<4	<3	<3	<3	<3	<3	<3	<4	<3	<3	<3	<3	<39
Barium	10	4,700	140,000	390	650	360	410	310	320	78	470	470	450	370	170	550	410	470	370	420	370	410	72	530	460	450	390	220	410	290	550	410	390	410	390	27
Vanadium	0.50	470	14,000	--	--	--	--	--	--	46	--	--	--	--	--	--	--	--	--	--	--	--	110	--	--	--	--	--	--	--	--	--	--	--	--	<20
Aluminium	NE	NE	NE	--	--	--	--	--	--	10,000	--	--	--	--	--	--	--	--	--	--	--	--	9,600	--	--	--	--	--	--	--	--	--	--	--	--	3,800
Beryllium	0.04	2	2	--	--	--	--	--	--	<16	--	--	--	--	--	--	--	--	--	--	--	--	<16	--	--	--	--	--	--	--	--	--	--	--	--	<7.8
Cobalt	NE	NE	NE	--	--	--	--	--	--	<40	--	--	--	--	--	--	--	--	--	--	--	--	<39	--	--	--	--	--	--	--	--	--	--	--	--	<20
Iron	NE	NE	NE	--	--	--	--	--	--	58,000	--	--	--	--	--	--	--	--	--	--	--	--	15,000	--	--	--	--	--	--	--	--	--	--	--	--	7,500
Magnesium	NE	NE	NE	--	--	--	--	--	--	2,400	--	--	--	--	--	--	--	--	--	--	--	--	1,600	--	--	--	--	--	--	--	--	--	--	--	--	7,100
Manganese	NE	NE	NE	--	--	--	--	--	--	720	--	--	--	--	--	--	--	--	--	--	--	--	270	--	--	--	--	--	--	--	--	--	--	--	--	340
Anitmony	0.01	27	8,200	--	--	--	--	--	--	<40	--	--	--	--	--	--	--	--	--	--	--	--	<39	--	--	--	--	--	--	--	--	--	--	--	--	<20
Thallium	0.05	5	160	--	--	--	--	--	--	<80	--	--	--	--	--	--	--	--	--	--	--	--	<78	--	--	--	--	--	--	--	--	--	--	--	--	<39
Analyte		CTDEEP RES DEC	CTDEEP I/C DEC																																	
Contaminant (VOA in PPB, wet weight)																																				
(1,1,1)-TCA	40,000	500,000	1,000,000	<65	ND	ND	ND	ND	<88	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
TCE	1,000	56,000	520,000	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
PCE	1,000	12,000	110,000	ND	ND	ND	ND	<86	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	170	76	ND	ND	ND	ND	--
Notes	* PMC does not compare to to																																			
	NS - not sampled, NE- not establis																																			
	"--" - not analyzed																																			
	Concentrations in red font exc																																			
	Concentrations highlighted in																																			
	**Total chromium was compa																																			

Table 6.
Summary of Sediment Sample Analysis from
Clark Brook

Sediment Analytical Results									
Quinlan Russell Lagoon Parcel									
Analyte (mg/L)	**SQuiRT TEC**	**SQuiRT PEC**	Sample ID	SED-1	SED-1	SED-2	SED-2	SED-3	SED-3
			Sample Date	7/18/2017	7/18/2017	7/18/2017	7/18/2017	7/18/2017	7/18/2017
Cadmium	0.99	4.98		<9	<10	<8	<10	<9	<10
Chromium, total	43.4	111		200	87	160	54	68	67
Copper	31.6	149		370	1,400	210	400	470	3,000
Lead	35.8	128		91	140	39	82	56	170
Mercury	0.18	1.06		<7	--	<6	--	<6	--
Nickel	22.7	48.6		60	37	<32	39	39	41
Selenium	NE	NE		<3	<40	<3	<40	<3	<40
Silver	NE	NE		<6	<10	<5	<10	<6	<10
Zinc	121	459		270	420	170	320	250	490
Vanadium	NE	NE		--	42	--	44	--	52
Aluminum	NE	NE		--	6,500	--	8,900	--	9,200
Beryllium	NE	NE		--	<8.0	--	<8.0	--	<8.0
Cobalt	NE	NE		--	<20	--	<20	--	<20
Iron	20,000[1]	NE		--	26,000	--	33,000	--	48,000
Magnesium	NE	NE		--	3,500	--	4,900	--	4,100
Manganese	460[2]	NE		--	360	--	580	--	780
Anitmony	NE	NE		--	<20	--	<20	--	<20
Thallium	NE	NE		--	<40	--	<40	--	<40

Notes:
SQuiRT-NOAA's Screening Quick Reference Table.
TEC - Thredshold Effect Concentration.
PEC - Probable Effect Concentration.
Concentrations in red font exceed TEC screening levels.
Concentrations highlighted in yellow color exceed PEC screening levels.
CT DEEP RES DEC and I/C DEC do not apply to sediment samples.
NE -not established
"--" - not analyzed
(1)- TEC and PEC are not available for this constituent, USEPA Region 3 Freshwater Sediment Screening Benchmarks (USEPA 2014) were used as screening value.
(2) - TEC and PEC are not available for this constituent, guidelines for the protection and management of aquatic sediment quality in Ontario Aug 1993 were used as screening value.

Table 7.
Summary of Analytical Results
Groundwater Samples for Quinlan Russell Lagoon Parcel

Compound/ Element	SWPC (µg/L)	MW-1	MW-1	MW-2	MW-2	MW-3	MW-3	MW-4	MW-4
Date of Sample		**8/3/2017**	**4/12/2018**	**8/3/2017**	**4/12/2018**	**8/3/2017**	**4/12/2018**	**8/3/2017**	**4/12/2018**
Aluminum	*SS-121,400*	160	73	<220	<5.0	790	36	<220	8.6
Antimony	86,000	<20	<0.50	<20	<0.50	<20	<0.50	<20	0.50
Arsenic	4	<4.0	<0.50	<4.0	<0.50	<4.0	2.1	<4.0	<0.50
Barium	*SS-4,540*	31	21	84	60	560	220	46	15
Beryllium	4	<8.0	<0.20	<8.0	<0.20	<8.0	<0.20	<8.0	<0.20
Cadmium	6	<2.0	<0.20	<2.0	0.26	<2.0	<0.20	<2.0	<0.20
Calcium		44000	48000	64000	58000	59000	53000	28000	17000
Chromium, trivalent	1,200	*See total chromium*							
Chromium, hexavalent	110	*See total chromium*							
Chromium, total	NE	<20	3.5	<20	<0.50	<20	<0.50	<20	<0.50
Cobalt	*NE*	<20	<0.20	<20	0.67	<20	0.76	<20	<0.20
Copper	48	<20	18	<20	3.2	<20	5.2	**87**	38
Iron		250	99	2800	3800	3300	8700	430	<50
Lead	13	<10	0.86	<10	<0.20	<10	0.44	<10	0.47
Magnesium		4100	4900	14000	9700	16000	13000	3600	2800
Manganese	*NE*	290	2.8	1400	340	4100	940	290	16
Nickel	880	<20	1.8	21	10	<20	6.4	<20	1.5
Selenium	50	<100	5.9	<100	<1	<100	<1	<100	<1
Silver	12	<10	<0.20	<10	<0.20	<10	<0.20	<10	<0.20
Thallium	63	<20	<0.50	<20	<0.50	<20	<0.50	<20	<0.50
Vanadium	NE	<20	0.60	<20	<0.50	<20	<0.50	<20	<0.50
Zinc	123	<40	14	**610**	**340**	<40	40	**160**	41
1,1,1 Trichloroethane	NE	ND (0.1)	Not Tested	ND (0.1)	Not Tested	ND (0.1)	Not Tested	ND (0.1)	Not Tested
Tetrachloroethylene	NE	ND (0.1)	Not Tested	ND (0.05)	Not Tested	0.09	Not Tested	ND (0.1)	Not Tested
TCE	NE	ND (0.1)	Not Tested	ND (0.1)	Not Tested	ND (0.1)	Not Tested	ND	Not Tested

1. Table was compiled using data from the USEPA New England Regional Laboratory's reports titled "Quinlan Russell- Meriden, CT Volatile Organic Analysis of Water" and "Quinlan Russell- Meriden, CT Total Recoverable Metals in Water by ICP" both dated August 03, 2017, and USEPA New England Regional Laboratory's report titled "Total Recoverable Metals in Water by ICP-MS", dated June 06, 2018.

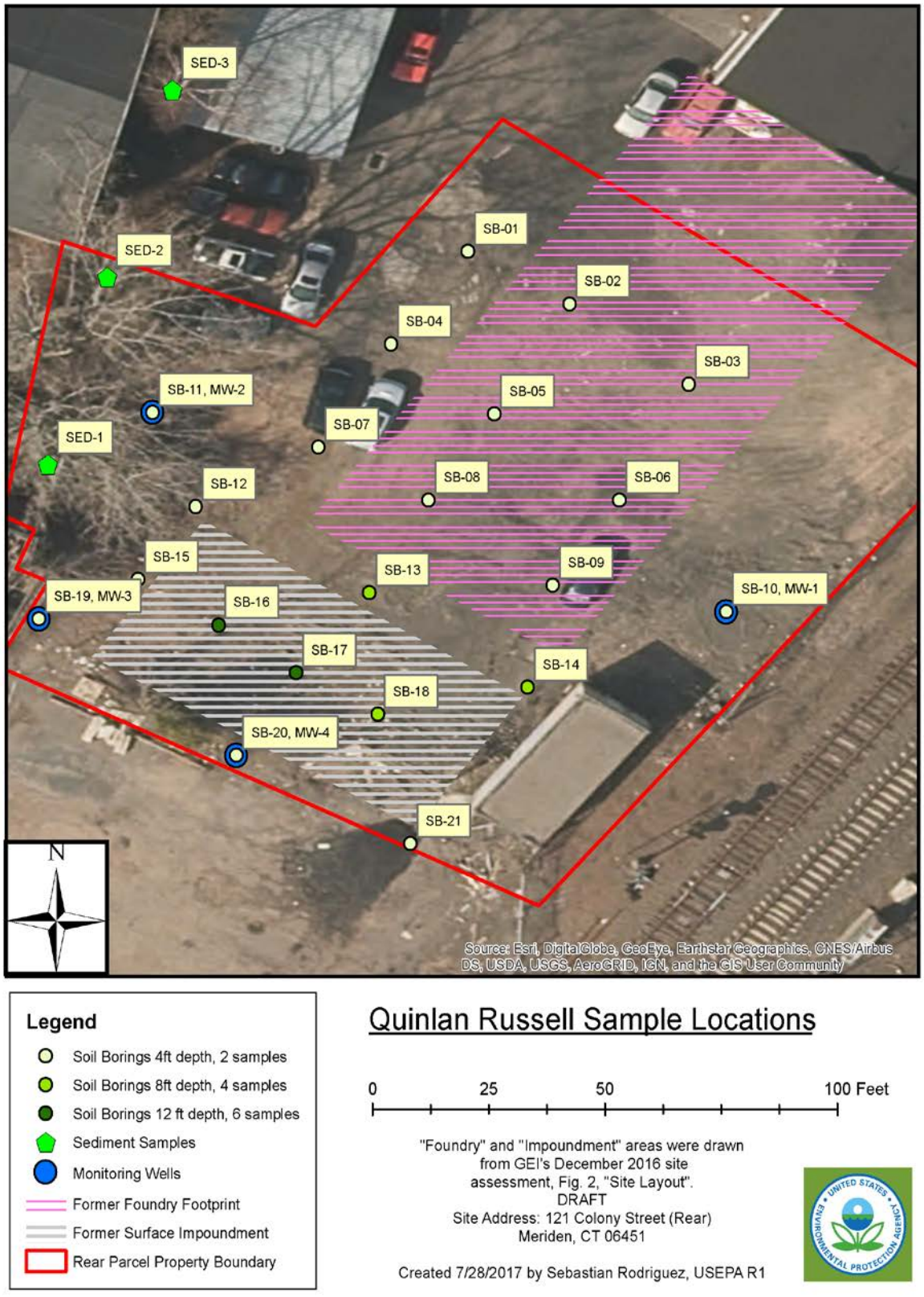

Figure 2. Sampling locations at the rear (former lagoon) parcel of the Quinlan Russell site.

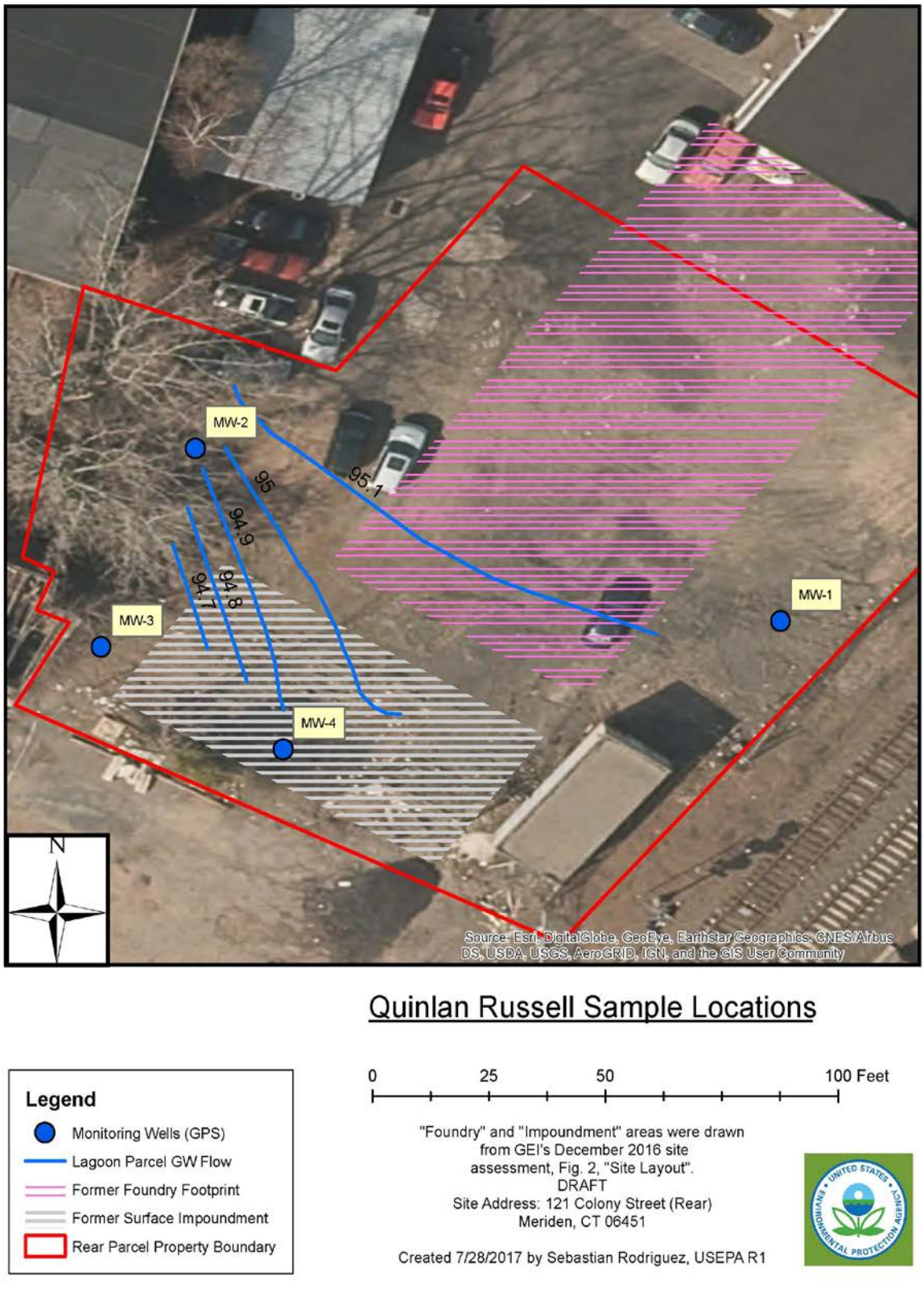

Figure 3. Monitoring well locations and groundwater flow directions on the lagoon parcel of the Quinlan Russell site.

6.0 DATA QUALITY

Quality Assurance/Quality controls included equipment blanks and duplicate samples. 2 duplicate soil samples and 1 duplicate monitoring well sample were analyzed and any variance was within the acceptable limit and likely attributed to the heterogeneity of the matrix.

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-In. Sample preparation and analysis was done following the EPA Region I SOP and following the procedures outlined in the site-specific sampling and analysis plan (SAP) provided by EPA and dated July 10, 2017. Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

7.0 INVESTIGATION SUMMARY

Sampling indicates that waste from site operations remain both at the surface and at depth in soil, groundwater, and sediments at the site. In the vicinity of the former lagoon area along the southern border of the property, elevated levels of lead, arsenic, chromium, zinc, and copper remain at depth in soil beneath the extent of the historic excavation. Zinc and copper contamination are present in the footprint of the foundry (near the northern boundary of the site) in surface soils. There is a cluster of elevated arsenic detections in surface soil along the western border of the site, in an area formerly used as a garage. Lead is also present above standards in surface soil.

Groundwater on site is currently contaminated above the Connecticut RSRs' Surface Water Protection Criteria with both zinc and copper. Based on contaminant distribution, it appears that this contamination is related to the former brass (a copper-zinc alloy) foundry and associated processes. High copper detections above SWPC in Ogle wells on the eastern and northern site boundary indicate that this contaminant is also migrating onto the site from other upgradient sources. Lead and arsenic, both found above the industrial/commercial Direct Exposure Criteria in certain soils, do not appear to have negatively impacted groundwater above applicable criteria based on recent sampling events. Further sampling events are expected to take place to confirm conditions.

To further assess the levels of copper and zinc in groundwater, EPA and CTDEEP have calculated alternative SWPC as allowed for in the RSRs in Sec. 22a-133k-3(b)(3)(A) by multiplying the base fresh water aquatic life criteria by dilution factor, where Q99 plume is equal to the average daily discharge of polluted ground water from the subject ground-water plume to surface water body. The Q99 were calculated using data from the USGS for two areas: a small basin area near the site and the entirety of Harbor Brook, where on-site Clark Brook eventually discharges. The small basin area provided a smaller dilution factor and yielded the more conservative alternative SWPC. The results are displayed in the following table:

Table 8.

Alternative Surface Water Protection Criteria Calculation Results

	Conservative Discharge Location		Full Harbor Basin	
Copper - Alternative SWPC	105.02	ug/L	1,192.32	ug/L
Zinc - Alternative SWPC	1,422.20	ug/L	16,146.00	ug/L

After two rounds of sampling from four wells performed by EPA and CTDEEP, all measured compounds were below the more conservative of these alternative SWPC.

8.0 PROPOSED REMEDIAL ACTIVITIES

Prior to the commencement of any remedial actions, a remedial action plan (RAP or plan) is required to go for public notice in accordance with RCSA Section 22a-449(c)-105(h)(7)(A). Two potential remedial options are proposed here that a property owner may undertake to come into compliance with the RSRs. Please note that there may be other potential remedial actions or strategies available for the site, and a Licensed Environmental Professional (LEP) should evaluate the available remedial actions/strategies.

8.1 OPTION 1. GROUNDWATER MONITORING, ENGINEERED CONTROL FOR DEC, AND ELUR

Soil on the property must come into compliance with both the direct exposure criteria (DEC) and the pollutant mobility criteria (PMC). Option 1 proposes using exception for groundwater infiltration to come into compliance with the pollutant mobility criteria in accordance with Sec. 22a-133k-2 (c)(4)(C) of the RSRs. It states that the PMC does not apply to substances, other than volatile substances, provided:

(i) Such release area

(I) Is located in an area in which at least eighty percent of the release area has been subject to infiltration, and not obstructed by anthropogenic features, for a minimum of five years; or

(II) Has been determined by the Commissioner, in writing, to have been subject to sufficient infiltration of precipitation such that the concentration of the substance and the areal extent of the ground-water plume will not likely increase if any obstruction to infiltration is removed in the future; and

(ii) The analytical results of four consecutive quarterly samples of ground water for such substance:

(I) For a GA area or for an aquifer protection area or other ground-water area used as a source of public drinking water supply located in a GB area are all less than the surface-water protection criterion and the ground-water protection criterion; or

(II) For a GB area, are all less than the surface-water protection criterion; and

(iii) The ground-water sampling locations are representative of the areal extent of the ground-water plume and the areal extent of such ground-water plume which exceeds an applicable remedial criterion is not increasing over time;

(iv) Except for seasonal variations, the concentration of the subject substance is not increasing at any point over time; and

(v) The ground-water samples are collected at locations where ground water is most likely to have been impacted by such substance from the release area.

The most recent groundwater monitoring event was performed by EPA/CTDEEP in mid-April, 2018. Thus, a potential property owner would only need three additional rounds of consecutive quarterly sampling to qualify for condition (*ii*) of the above (as long as such analytical results return below standards) were they to perform further sampling in the summer of 2018.

Upon achieving compliance with pollutant mobility criteria (occurs with four consecutive quarters of groundwater monitoring), Option 1 proposes that the direct exposure criteria be addressed via installation of an *engineered control* to physically isolate the impacted soil beneath a cap in accordance with Sec. 22a-133k-2(f)(2).

This *engineered control* should consist of an asphalt cap of suitable thickness to physically isolate impacted soil and prevent any potential exposure risks. Prior to construction of the *engineered control*, the property owner should submit an Engineered Control Variance application to the CTDEEP. This Variance also requires the property owner to implement a plan for the maintenance and monitoring of the *engineered control's* structural integrity and provide a financial assurance (FA) mechanism to be maintained by the state should the engineered control fail.

Finally, Option 1 requires that an Environmental Land Use Restriction (ELUR) be recorded to restrict the property to industrial/commercial use and restrict any activity that could disturb the *engineered control* or the polluted soil.

8.2 OPTION 2. ENGINEERED CONTROL FOR PMC AND DEC AND ELUR

Under Option 2, the property owner should submit an Engineered Control Variance application (four consecutive quarters of groundwater monitoring not needed under this option) to the CTDEEP to address both DEC exceedances and potential PMC exceedances in accordance with Sec. 22a-133k-2(f)(2) of the RSRs. In addition to the requirements for the engineered control proposed in Option 1, the cap must be constructed with a membrane with a permeability of less than 10^{-6} cm/sec to minimize migration of liquids through soil (this cap construction would cost significantly more than the cap proposed in Option 1).

Similar to Option 1, a plan for maintenance and monitoring of the cap and FA (FA costs higher than Option 1) are required for the engineered control. In addition, a groundwater monitoring plan should be implemented following the installation of the engineered control.

Following the installation of the *engineered control*, the property owner should record an ELUR to restrict the property to industrial/commercial uses and include restrictions on any activities that could disturb the *engineered control* or the polluted soil underneath.

APPENDIX A ADDITIONAL
Quinlan Russell Lagoon Parcel
FIGURES

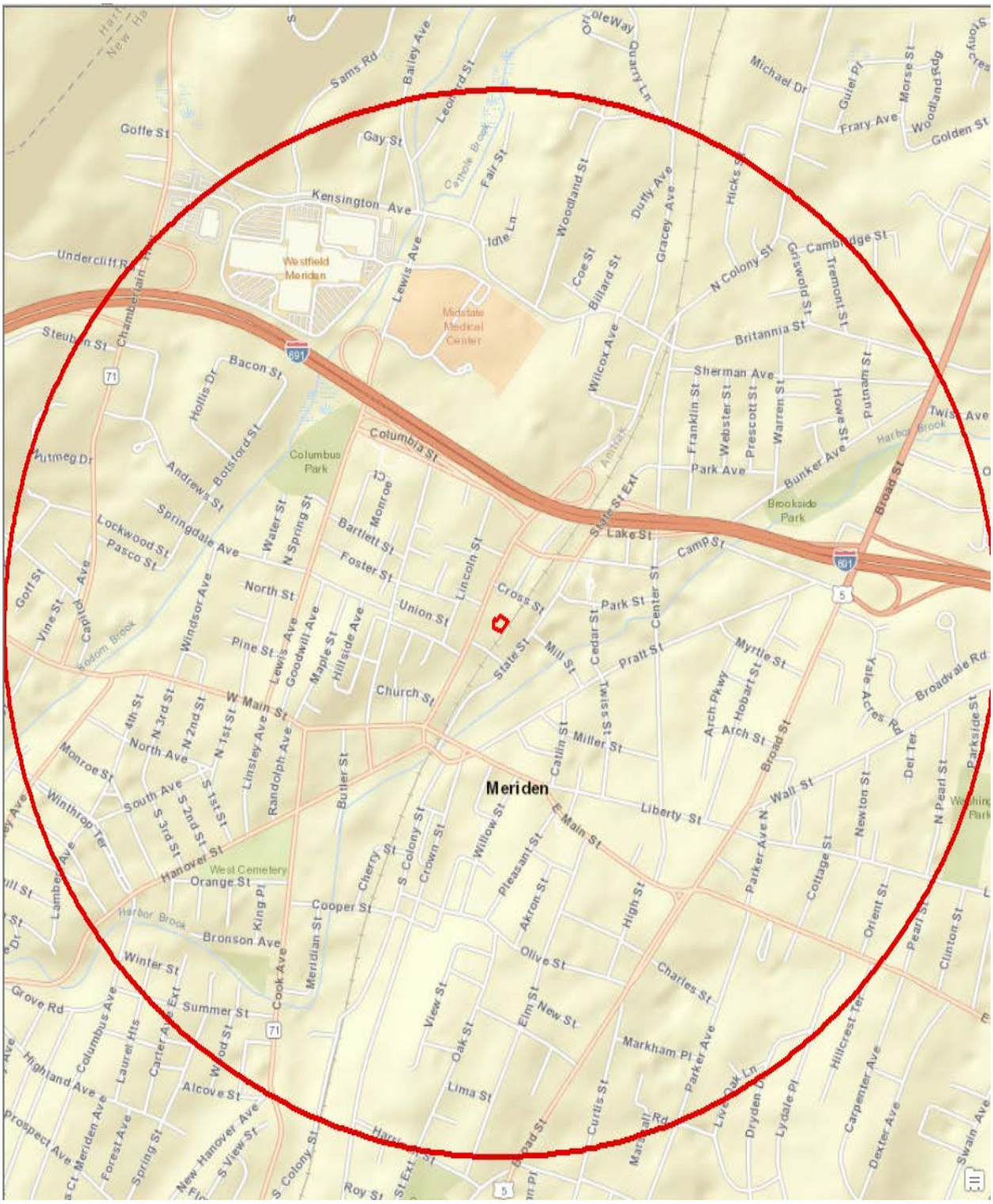

Figure 4. Site Locus. The buffer represents a 1-mile radius.

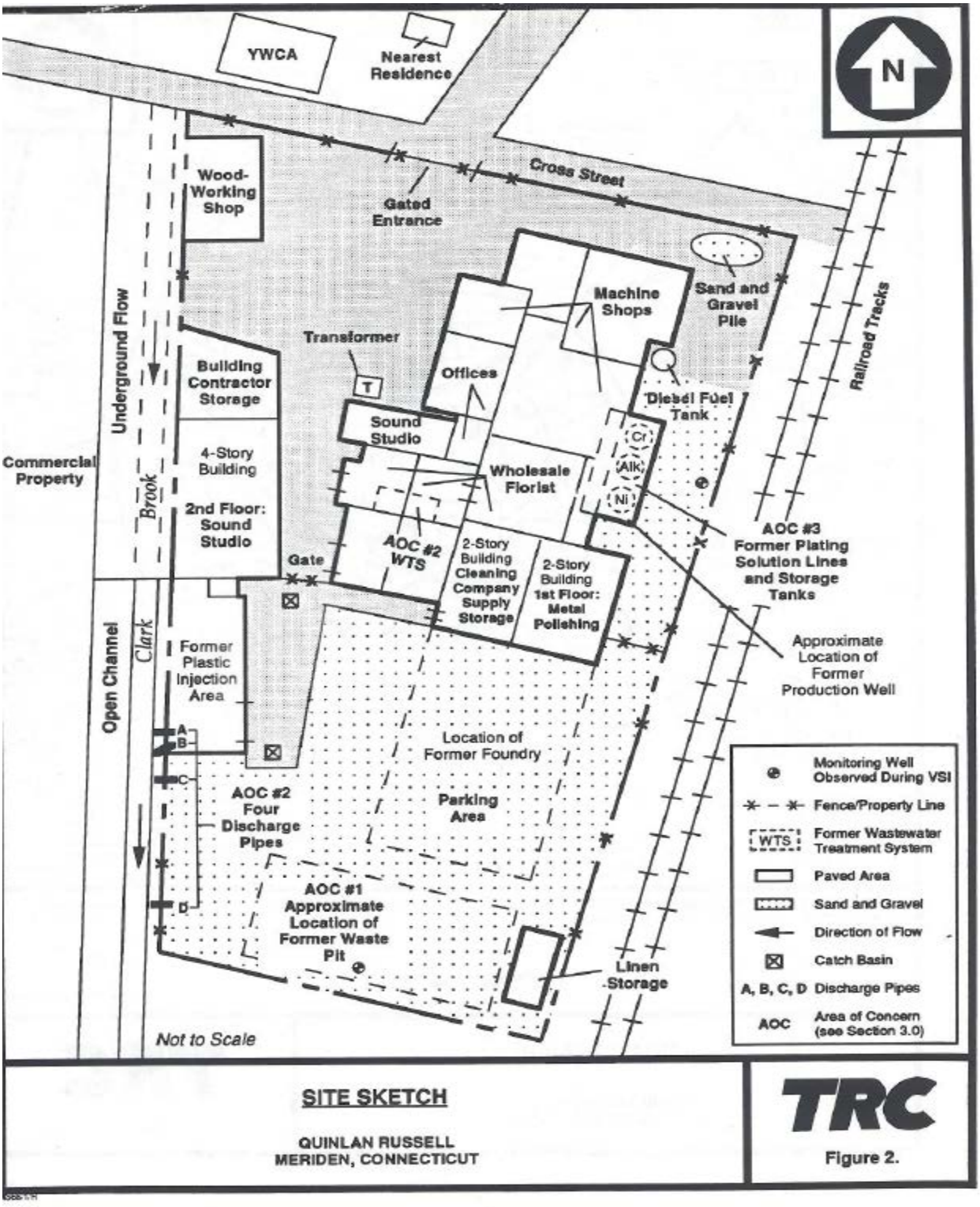

Figure 5. Historic Site layout, from TRC's "Final RCRA Facility Assessment, Quinlan Russell, Meriden, Connecticut" prepared for USEPA and delivered on August 27, 1993.The "lagoon parcel" is located in the rear of the former facility.

Figure 6. Natural Diversity Data Base Areas within a 1-mile radius of the site, denoted by the hashed green mark. Natural Diversity Data Base Areas represent known locations, both historic and extant, of state listed species and significant natural communities. State listed species are those listed as Endangered, Threatened or Special Concern under the Connecticut Endangered Species Act.

APPENDIX B
QUINLAN RUSSELL LAGOON PARCEL
REFERENCES

[1] TRC Environmental Corporation. 1993. *Final RCRA Facility Assessment*, Quinlan Russell. August 27, 1993.

[2] PRC Environmental Management Inc. 1987. *Draft Report. J.B. Coggins Manufacturing Company, Meriden, Connecticut Clean Closed Facilities Evaluation.* November 9, 1987.

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[4] PRC Environmental Management Inc. 1988. *Final Facilities Evaluation, J.B. Coggins Manufacturing Company, Meriden, Connecticut Clean Closed.* February 3, 1988.

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APPENDIX C

QUINLAN RUSSELL LAGOON PARCEL

PHOTOGRAPH LOG

On-Site Reconnaissance Photograph Log: Quinlan Russel Lagoon Parcel
Meriden, CT.

	
The former lagoon area, facing south.	The site, taken from the northern parcel boundary facing south.

	
Clark Brook, facing north from the southern part of the brook.	Clark Brook, facing south from the northern part of the brook. The pipe in the foreground was previously associated with site wastewater discharge.

APPENDIX D

QUINLAN RUSSELL LAGOON PARCEL

BORINGS LOGS AND PURGE DATA

Monitoring Well Purge and Sample Data Sheet

EIASOP-GWSAMPLE2

Site Name: Cavalier Rossell BCBA
Well #: MW-3
Date: 4/11/18
Static Water Level (ft.): 3.81 ft
Identify MP: Top of PVC @ Blackline
Purge Start Time: 1115
Purging Device (pump type): Peristaltic

Sampling Organization: EPA OEME
Samplers: J Keefe · W Semmler
Total Depth (ft.): 17?
Well Diameter: 1" PVC
Screen Interval: 5-17
Formation: Sh. overburden
Pump Intake (ft. below MP): 11.5
Water Quality Instrument Type/ID#: EIA #2

Time	Water Level	Flow	DO	Temp.	Cond.	pH	ORP	Turb.	Comments
24 hr	ft. below MP	mL/min	mg/L	°C	mS or µS	S.U.	mV	NTU	
1125	4.6	1m 15sec							Very turbid - Purged out of Flow Thru
1135	4.55	1m 5sec	2.7	11.0	560	7.01	-56.1	472	Pump dial slowed
1145	4.51	1m 5sec	0.72	9.6	557	6.98	-72.7	229	Pump dial slowed - Appx 2L Purged
~~1150~~	4.51	1m 10sec	0.63	10.2	558	6.97	-79.0	163	
1205	4.50	1m 10sec	0.66	9.9	570	6.97	-79.8	98.9	
1215	4.48	1m 8sec	0.61	10.0	574	6.98	-81.1	35.8	Appx 4L Purged
1220	4.48	1m 7sec	0.62	9.8	576	6.98	-80.9	29.2	
1225	4.49	1m 8sec	0.64	9.9	582	6.98	-80.8	28.8	
1230	4.49	1m 8sec	0.61	9.7	583	6.98	-80.8	36.3	
1235	4.50	1m 5sec	0.57	9.9	585	6.98	-82.0	34.4	
1240	4.50	1m 4sec	0.54	10.0	586	6.98	-81.6	56.8	Appx 7.5 L Purged
1245	4.50	1m 5sec	0.57	9.8	587	6.98	-81.3	47.4	
1250	4.50	1m 5sec	0.60	9.7	589	6.98	-81.2	72.2	
1255	4.50	1m 4sec	0.57	9.8	591	6.98	-82.2	48.2	
1300	4.52	1m 4sec	0.60	9.7	592	6.98	-80.7	90.0	
1305	4.51	1m 4sec	0.56	9.7	594	6.98	-81.9	38.6	
1310	4.52	1m 4sec	0.54	9.9	595	6.98	-82.2	30.9	
1315	4.52	1m 4sec	0.49	10.0	597	6.99	-84.3	23.5	2 HV Max Reached - Sample taken @ 1335

Equilibrium Goals: 3 consecutive readings btw. 3-5 min. apart

Flow = 1-2 mL/min.	Cond. + 3%
Water Level + 0.01	pH + 0.1
Cond. + 0.01	ORP + 10 mV
Turbidity + 0.01	Temp. + 0.1

MP = Measuring point (i.e. top of inner or outer well casing)

mL/Ft. info:
3/4" well = 87 mL/ft.
2" well = 617 mL/ft.
4" well = 2470 mL/ft.

Record all instrument calibrations in instrument cal. log book/data sheet and field log book

Cumulative volume purged (L): 12.5 L
Sample #: MW03
Field Duplicate sample #: N/A
Analytical Parameters: VOC, Total Metals

Monitoring Well Purge and Sample Data Sheet

EIASOP-GWSAMPLE2

Site Name: Quinton Russell RCRA
Well #: MW-2
Date: 4/11/18
Static Water Level (ft.): 3.59 ft
Identify MP: Top of PVC Black Mark
Purge Start Time: 1500
Purging Device (pump type): Peristaltic

Sampling Organization: EPA OEME
Samplers: Sommer - keefe
Total Depth (ft.): 12 ft
Well Diameter: 3/4" PVC
Screen Interval:
Formation: shallow aerbarden
Water Quality Instrument Type/ID#: 2

Pump Intake (ft. below MP): 9.5 ft

Time	Water Level	Flow	DO	Temp.	Cond.	pH	ORP	Turb.	Comments
24 hr	ft. below MP	mL/min	mg/L	°C	mS or µS	S.U.	mV	NTU	
1510	3.61	48sec	6.85	10.9	592	6.85	21.0	20.6	
1515	3.68	45sec	1.06	8.4	599	6.80	-17.8	7.45	
1530	3.65	50sec	0.81	8.3	605	6.81	-27.7	2.25	
1540	3.65	51sec	0.77	8.3	610	6.81	-30.6	2.25	
1545	3.61	50sec	0.74	8.2	612	6.81	-31.9	1.19	Appx 4 L Purged
1550	3.61	50sec	0.74	8.2	612	6.81	-32.5	1.23	
1555	3.61	50sec	0.73	8.2	615	6.81	-33.6	0.78	
1600	3.62	50sec	0.73	8.0	616	6.81	-33.8	0.93	
1605	3.61	49sec	0.73	8.00	617	6.81	-33.5	1.3/0.80	≈ 8L purged @ 1610
1610	3.61	52 sec	0.74	8.00	617	6.81	-33.4	1.5/	collect Sample @ 1620
1620			Sample						

Equilibrium Goals: 3 consecutive readings btw. 3-5 min. apart
Flow = 1-2 mL/min. Cond. + 3%
Water Level + 0.01 pH + 0.1
Cond. + 0.01 ORP + 10 mV
Turbidity + 0.01 Temp. + 0.1
MP = Measuring point (i.e. top of inner or outer well casing)

mL/Ft. info:
3/4" well = 87 mL/ft.
2" well = 617 mL/ft.
4" well = 2470 mL/ft.
Record all instrument calibrations in instrument cal. log book/data sheet and field log book

Cumulative volume purged (L):
Sample #:
Field Duplicate sample #:
Analytical Parameters:

Monitoring Well Purge and Sample Data Sheet

EIASOP-GWSAMPLE2

Site Name: Quantico Russell
Well #: MW-1
Date: 04-12-2018
Static Water Level (ft.): 4.52
Identify MP: Mark on inner casing
Purge Start Time: 0921
Purging Device (pump type): Peristaltic Pump #2

Sampling Organization: USEPA NERL - Cincinnati
Samplers: Terry Hoff, Will Seymour
Total Depth (ft.): 11.55 DTB of well
Well Diameter: 3/4" pvc
Screen Interval: 2.5' from bottom of well 9.0'
Formation:
Pump Intake (ft. below MP):
Water Quality Instrument Type/ID#:

Time	Water Level	Flow	DO	Temp.	Cond.	pH	ORP	Turb.	pp #2	Comments
24 hr	ft. below MP	mL/min	mg/L	°C	mS or µS	S.U.	mV	NTU		
					352.9					Grapevine water level
0940	5.35	44/sec 100mL	13.09	9.4	~~465.3~~	6.41	165.3	96.2/148		Hach #1 ; YSI #1
0950	5.44	835/100mL	13.08	9.4	361.8	6.58	159.2	31.1/30.4		Turb = 266 931
0959	5.55	825/100mL	13.02	9.5	361.9	6.65	153.3	11.1/12		YSI Hooked up @ 0933
1005	5.55	83sec	12.97	9.6	364.1	12.44?	153.9	8.7/10.1		* Note Flow is very slow and drawn down 2', still accruing. 0935 - 5.45'
1010	5.60	90 sec	12.98	9.6	369.3	6.69	152.5	7.4/10.9		
1015	5.55	81	12.93	9.7	364.4	6.70	151.8	7.1/6.45		Note: slowed pump rate to reduce draw-down
1020	5.57	80 sec	12.94	9.7	363.9	6.70	151.2	6.3/6.00		
1025	5.55	81 sec	12.93	9.7	365.3	6.71	150.7	3.4/4.64		
1030	5.57	79	12.93	9.7	365.1	6.71	150.3	4.7/3.64		
1035	5.59	80	12.89	9.7	364.7	6.72	149.5	2.9/3.21		≈ 5 L purged
										Collect sample @ 1040
										Shut pump off @ 1052 * after sampling

Equilibrium Goals: 3 consecutive readings btw. 3-5 min. apart

Flow = 1-2 mL/min.	Cond. + 3%
Water Level + 0.01	pH + 0.1
Cond. + 0.01	ORP + 10 mV
Turbidity + 0.01	Temp. + 0.1

MP = Measuring point (i.e. top of inner or outer well casing)

mL/Ft. info:
3/4" well = 87 mL/ft.
2" well = 617 mL/ft.
4" well = 2470 mL/ft.

Record all instrument calibrations in instrument cal. log book/data sheet and field log book

Cumulative volume purged (L): ≈ 6 L
Sample #:
Field Duplicate sample #:
Analytical Parameters:

YSI - EIA #1
Hach Turb. Liq-#1

Monitoring Well Purge and Sample Data Sheet

EIASOP-GWSAMPLE2

Site Name: Quinlin Rossel
Well #: MW - 4
Date: 4/11/18
Static Water Level (ft.): 3.76
Identify MP: Black mark on inner casing
Purge Start Time: 1212
Purging Device (pump type): Peristaltic Pump

Sampling Organization: USEPA NERL - EIA
Samplers: Jerry Kile, William Sommer
Total Depth (ft.): 11.55 ft TDW
Well Diameter: 3/4
Screen Interval: 2.5 ft above bottom
Formation:
Water Quality Instrument Type/ID#:

Pump Intake (ft. below MP): 9.0 ft IWC

Time	Water Level	Flow	DO	Temp.	Cond.	pH	ORP	Turb.	Comments
24 hr	ft. below MP	mL/min	mg/L	°C	mS or µS	S.U.	mV	YSI NTU/Hach	
1230	4.02	48 sec/100	14.29	7.2	119.3	8.33	180.7	15.6/11.8	Initial turbidity was 25 NTU Start flow thru cell @ 1228
1240	4.20	44 sec/100	14.24	7.3	120.8	8.04	173.3	2.9/2.48	Slowed down pump rate
1250	4.12	47 sec/100	14.40	7.0	122.6	7.44	166.0	2.5/2.68	
1300	4.15	47 sec/100	14.41	7.0	123.5	7.80	159.9	3.9/1.38	
1305	4.12	48 sec/100	14.36	7.1	122.3	7.84	157.7	2.1/1.12	
1310	4.17	48	14.38	7.1	122.8	7.82	156.1	2.0/1.18	
1315	4.17	48	14.33	7.1	123.5	7.81	153.7	2.2/1.37	≈ 8L purged
1320	4.20	47	14.33	7.1	122.8	7.81	152.2	1.7/0.99	
1325	4.25	45	14.35	7.1	124.4	7.79	151.8	2.1/1.23	Slowed pump dist (No change)
1330	4.26	44	14.39	7.0	124.7	7.77	150.6	2.2/1.03	Slowed pump speed
1335	4.18	48	14.29	7.2	124.1	7.76	149.9	1.8	No turbidity taken w/ Hach < 5 NTU
~~1330~~ 1340	4.18	49	14.27	7.2	123.3	7.77	147.8	1.7	
1345	4.20		14.24	7.3	123.1	7.78	146.9	1.7	≈ 10 L purged
1350	4.17	51	14.30	7.2	123.6	7.74	149.5	2.2	
1355	4.20	49	14.33	7.1	123.9	7.73	150.5	1.4	
1400	4.20	47	14.33	7.1	123.8	7.72	151.5	1.8	collect sample @ 1405
									≈ 12 L purged

Equilibrium Goals: 3 consecutive readings btw. 3-5 min. apart
Flow = 1-2 mL/min. Cond. + 3%
Water Level + 0.01 pH + 0.1
Cond. + 0.01 ORP + 10 mV
Turbidity + 0.01 Temp. + 0.1
MP = Measuring point (i.e. top of inner or outer well casing)

mL/Ft. info:
3/4" well = 87 mL/ft.
2" well = 617 mL/ft.
4" well = 2470 mL/ft.
Record all instrument calibrations in instrument cal. log book/data sheet and field log book

Cumulative volume purged (L): ≈ 12 L
Sample #: MW-4 + ~~Dup~~ TCK 4/11/18
Field Duplicate sample #: MW-4 Dup
Analytical Parameters: VOC + Metals

Gwinlan Russell RCRA Correction
Meriden CT

11/18/2017

SB-19 @ 0945

1-3 ft A	- Light colored Sandy Material - Packed / cohesive @ top - No elev VOC on PID - foundry Material
3-4 ft B	- darker colored - clay / silty - foundry Material / Slag - Cohesive / right at GW table
SB-20 1-2 ft	@ 1030 7.3 gmw - Brown - Red colored Sand/clay - cohesive - foundry Material - Rock / Pebbles
3-4 ft	- Brown - red colored Sand/Clay - cohesive - Foundry Material - Pebbles

- No PID indication
Good for GW/Sample

SB 21 @ 1105

1-2 ft
A
- Brown color
- Sandy
- Cohesive and Packed
- No PID indication
- Dark Brown rocky layer

2-4 ft
B
- Brown color
- Sandy
- Cohesive and Packed
- No PID indication

SB-10 @ 1120

1-2ft
A
- Rocky
- Sandy
- Light Brown Color
- Dark Gray Packed Cohesive layer

2-4ft
B
- Dark Brown
- Rocky
- Sandy
- Black, Mica-like flakes
- Fine, packed

SB 11 @ 1245 25in recovery

1-2 ft
A
- Organic Layer light brown color
- Brick (red)

2-4ft
B
- Brick (red)
- Dark gray rocky coarse

Sed 1 @ 10:55 BNAs Metals
0-3"

Sed 2 @ 11:00 BNAs Metals
0-3"

Sed 3 @ 11:10 BNAs Metals
0-3"

SB12 @ 1330 24.4in recovery

1-2ft
A
- Brown color
- Rocky
- Sandy
- Gray sandy layer

2-4ft
B
- Small rocks
- Dark brown
- Large cobbles

MRC 7/18/1

* VOAs not taken before sample composite. *

SB12 @ 1341 30in recovery

1-2ft
A
- Brown color
- Sandy
- Large cobbles

2-4ft

7/18/17

SB 15 @ 1405 14in recovery ★ 0-2' refusal ▽ 2'

1-2 Ft A
- Large cobbles
- Leafy organics
- Brown Color
- Sandy

One Sample loc. ∴ SB15A interval only

2-4 Ft B
- Large cobbles
- Gray/Brown color
- Sandy, fine grains

SB 16 @ 1420 Recovery = 26" PID = None

0-2' A
- Large Cobbles - Sandy
- Dark Brown - Consolidated, packed

2-4' B
- Dark Brown
- Sandy
- Medium grains

4-6'
- Dark gray Clay
- Dark Brown
- Water Level
- Clay Size

6-8'
- Dark Brown / Black
- Clay/silt
- cohesive
- oily section @ Bottom - Black
- 1 in section of Gravel - White

SB 17 22" Recovery No elev. VOC

0-2' A
- Rocky
- Fine Sand
- Dark Brown color
- Consolidated

4-8 Core: 13 3/4 in recovery

2-4' B
- Fine Sand
- Dark Brown color
- Consolidated

6-6"

SB 18 25" Recovery @ 1515 no elev VC

0-2" A
- Rocky
- Reddish/Brown color
- Sandy
- Consolidated

2-4" B
- Sandy
- Reddish/Brown color
- Consolidated

4-6" C
10" Recovery @ 1524 No elev. VOCs
- Brown color
- Sandy
- Small Cobbles

6-8" D
- Brown Color
- Sandy
- Small cobbles

MRC 7/18

SB-17 ~~22"~~ 22" Recovery @ 1538

0-10" E
- Dark Gray
- Mucky / wet
- Fine Sand

10-12" F
- Dark Gray
- Mucky / wet
- Fine Sand

SB-16 @ 1550 22" recovery NO VOCs measured

0-10" E
- Dark gray color
- Fine Sand
- Consolidated
- Mucky / wet

10-12" F
- Dark Gray Color
- Fine Sand
- Consolidated
- Mucky / Wet

7/19/17 Begin Sampling @ 0930

SB14 @ 0935 24" recovery

0-2 A
- Black color
- Large cobbles
- Dark Brown sandy layer
- Consolidated

2-4 B
- Dark Brown sandy layer
- White Quartz
- Dark Brown Sandy

4-6 C
10" Recovery @ 0950 Tot VOCs = 0.
- Red / Brown Color
- Sandy
- Medium cobbles

6-8 D
- Dark gray color
- Fine sediment
- Clay consistency
- Mucky

SB 13 @ 1006 26" recovery

6-2
- Large cobbles
- Light Brown color
- Darker Brown, medium cobbles
- Reddish Brown color, Fine sandy

2-4
- Reddish Brown color, Fine Sand

SB13	@ 1017 20" recovery
4-6 C	- Brown color -Sandy, consolidated
6-8 D	-Dark gray - Mucky - Large cobbles - Loosely packed
SB8	28" recovery @ 1030
0-2 A	-Dark Brown color - Large cobbles - Small layer of medium cobbles - Tan color sandy layer
2-4 B	- Dark Brown color - Reddish brown - Fine sandy sediment - Medium cobbles, reddish brown
SB7	29" recovery @ 1045
0-2 A	-Light Brown color -Fine sandy consolidated -Dark gray color - Fine Sandy
2-4 B	- Dark gray sandy material - Reddish Brown Medium cobbles

SB9	@ 1100 26" recovery
0-2 A	-Brown color - Medium cobbles - Reddish material - brick
2-4 B	-Dark Brown color - Fine sediment - Consolidated - Dark gray
SB4	@ 1130 24" recovery
0-2 A	-Large gray cobbles - Light gray sand
2-4 B	-Light gray sand - Dark gray sand -Reddish/Brown -Mucky/wet sediment
SB5 M2	@ 1147 22" recovery Tar/Petroleum scent 1.3 VOC PID
0-2 A	-Brown color - Sandy -Consolidated - Gray rocky layer - Tan sandy sediment
2-4 B	-Tan sandy - Brown Sandy - Dirk gray -Medium cobbles

SB 6 M2 @ 1215 18" recovery

0-2
A
- Red brick material
- Gray concrete material

2-4
B
- Tan sandy
- Small cobbles
- Red brick
- Dark gray sandy
- Dark Brown clay, fine sediment

SB01 M2 @ 1232 29" recovery

0-2
A
- Dark gray color
- Small cobbles
- Sandy, consolidated

2-4
B
- Dark gray color
- Small cobbles
- Shiny/metallic material
- Mucky/wet

SB02 M2 @ 1300 24" recovery

0-2"
A
- Light tan/dark brown color
- Medium cobbles
- Sandy

2-4"
B
- Dark gray
- Small cobbles
- Wet

SB03-M2 @ 1320 20" recovery

0-2 Ft
A
- Large cobbles
- Brown color
- Sandy
- Reddish layer

2-4 Ft
B
- Light gray
- Medium cobbles
- Dark gray
- Sandy
- Small cobbles
- Loosely packed

MW3 yeild 4.33 ft / 12 ft Begin Purse @ 1206

$V = 0.041 D^2 (d_2 - d_1)$

$D = 3/4 in = 0.0625 ft$ $d_2 = 12 ft$ $d_1 = 4.33 ft$

$V = 0.041 (3/4 in)^2 (12 ft - 4.33 ft)$

$V = 0.1769$ gal X 3 ws

V = 0.5307 gal = 2.0089 L

-Wsommer
7/20/17

MW2 yeild 3.78 ft Begin Purse @ 1442

$D = 0.0625 ft$ ws $d_2 = 12 ft$ $d_1 = 3.78 ft$
3/4 in

$V = 0.041 (3/4 in)^2 (12 ft - 3.78 ft)$

$V = 0.1896$ gal X 3 ws

V = 0.5688 gal = 2.153 L

-Wsommer
7/20/17

MW1 ws yeild 4.64 ft / 12 ft Begin Purse @ 1742

$D = 0.0625$ ws $d_2 = 12 ft$ $d_1 = 4.64 ft$
3/4 in

$V = 0.041 (3/4 in)^2 (12 ft - 4.64 ft)$

$V = 0.1697$ gal X 3

V =

V = 0.5091 gal = 1.9271 L

Wsommer
7/20/17

MW4 yeild 4.05 ft / 12 ft Begin Purse 1647

$D = 0.0625$ ws ft $d_2 = 12 ft$ $d_1 = 4.05 ft$
3/4 in

$V = 0.041 (3/4 in)^2 (12 ft - 4.05 ft)$

$V = 0.1833$ gal X 3

V

V = 0.5499 gal = 2.082 L

-Wsommer
7/20/17

APPENDIX E

QUINLAN RUSSELL LAGOON PARCEL

LABORATORY ANALYTICAL REPORTS

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

August 03, 2017

Sebastian Rodríguez - Mail Code OSRR07-3
Jerry Keefe - OEME/EIA
US EPA New England R1

Project Number: 17070028
Project: Quinlan Russell - Meriden, CT
Analysis: Field Analysis of Metals by XRF
EPA Chemist: Scott Clifford

Date Samples Received by the Laboratory: 07/20/2017

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, FLDXRFOLYMPUS.

Samples were analyzed using a Niton XL3t 600 x-ray fluorescence (XRF) instrument equipped with a 50 kV X-ray tube and a high resolution Si pin detector.

Samples were placed into XRF cups for analysis.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2017.08.03 10:37:18 -04'00'

17070028$FXRF

Qualifiers

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Quinlan Russell - Meriden, CT

Field Analysis of Metals by XRF

Client Sample ID:	SB 19A	Lab Sample ID:	AB68476
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**270**	25	
7440-66-6	Zinc	**490**	30	
7440-47-3	Chromium	ND	39	
7439-92-1	Lead	**77**	10	
7440-02-0	Nickel	ND	35	
7440-38-2	Arsenic	**11**	10	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**290**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 19B	Lab Sample ID:	AB68477
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**820**	25	
7440-66-6	Zinc	**730**	30	
7440-47-3	Chromium	ND	56	
7439-92-1	Lead	**110**	10	
7440-02-0	Nickel	**93**	30	
7440-38-2	Arsenic	**13**	10	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	8.0	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**550**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 20A	Lab Sample ID:	AB68478
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**130**	25	
7440-66-6	Zinc	**130**	30	
7440-47-3	Chromium	ND	29	
7439-92-1	Lead	**31**	10	
7440-02-0	Nickel	ND	30	
7440-38-2	Arsenic	ND	6.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**410**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 20B	Lab Sample ID:	AB68479
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	ND	17	
7440-66-6	Zinc	**15**	9.0	
7440-47-3	Chromium	ND	27	
7439-92-1	Lead	**14**	10	
7440-02-0	Nickel	ND	29	
7440-38-2	Arsenic	ND	5.0	
7440-22-4	Silver	ND	5.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**390**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 21A	Lab Sample ID:	AB68480
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**160**	25	
7440-66-6	Zinc	**130**	30	
7440-47-3	Chromium	ND	29	
7439-92-1	Lead	**31**	10	
7440-02-0	Nickel	ND	31	
7440-38-2	Arsenic	ND	6.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	**14**	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**410**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 21B	Lab Sample ID:	AB68481
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**160**	25	
7440-66-6	Zinc	**130**	30	
7440-47-3	Chromium	ND	27	
7439-92-1	Lead	**40**	10	
7440-02-0	Nickel	ND	29	
7440-38-2	Arsenic	ND	6.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**390**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 10A	Lab Sample ID:	AB68482
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**3400**	25	
7440-66-6	Zinc	**2700**	30	
7440-47-3	Chromium	**50**	40	
7439-92-1	Lead	**230**	10	
7440-02-0	Nickel	**44**	30	
7440-38-2	Arsenic	ND	14	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	9.0	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**380**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 10A Lab Dup	Lab Sample ID:	AB68483
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**4600**	25	
7440-66-6	Zinc	**4200**	30	
7440-47-3	Chromium	ND	35	
7439-92-1	Lead	**270**	10	
7440-02-0	Nickel	**67**	30	
7440-38-2	Arsenic	ND	15	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	**11**	9.0	
7439-97-6	Mercury	ND	10	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**450**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 10B	Lab Sample ID:	AB68484
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**400**	25	
7440-66-6	Zinc	**550**	30	
7440-47-3	Chromium	ND	52	
7439-92-1	Lead	**79**	10	
7440-02-0	Nickel	ND	52	
7440-38-2	Arsenic	ND	11	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	9.0	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**260**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	Sed-1	Lab Sample ID:	AB68485
Date of Collection:	7/18/2017	Matrix:	Sediment
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**370**	25	
7440-66-6	Zinc	**270**	30	
7440-47-3	Chromium	**200**	40	
7439-92-1	Lead	**91**	10	
7440-02-0	Nickel	**60**	30	
7440-38-2	Arsenic	ND	9.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**310**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	Sed-2	Lab Sample ID:	AB68486
Date of Collection:	7/18/2017	Matrix:	Sediment
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**210**	25	
7440-66-6	Zinc	**170**	30	
7440-47-3	Chromium	**160**	40	
7439-92-1	Lead	**39**	10	
7440-02-0	Nickel	ND	32	
7440-38-2	Arsenic	ND	6.0	
7440-22-4	Silver	ND	5.0	
7440-43-9	Cadmium	ND	8.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**340**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	Sed-3	Lab Sample ID:	AB68487
Date of Collection:	7/18/2017	Matrix:	Sediment
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**470**	25	
7440-66-6	Zinc	**250**	30	
7440-47-3	Chromium	**68**	40	
7439-92-1	Lead	**56**	10	
7440-02-0	Nickel	**39**	30	
7440-38-2	Arsenic	ND	8.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**280**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 11A	Lab Sample ID:	AB68488
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**6200**	25	
7440-66-6	Zinc	**15000**	30	
7440-47-3	Chromium	ND	45	
7439-92-1	Lead	**590**	10	
7440-02-0	Nickel	**170**	30	
7440-38-2	Arsenic	**46**	10	
7440-22-4	Silver	**7.0**	7.0	
7440-43-9	Cadmium	**23**	9.0	
7439-97-6	Mercury	ND	15	
7782-49-2	Selenium	ND	5.0	
7740-39-3	Barium	**550**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 11B	Lab Sample ID:	AB68489
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**670**	25	
7440-66-6	Zinc	**2100**	30	
7440-47-3	Chromium	ND	51	
7439-92-1	Lead	**290**	10	
7440-02-0	Nickel	**100**	30	
7440-38-2	Arsenic	**31**	10	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**250**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 12A	Lab Sample ID:	AB68490
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**3500**	25	
7440-66-6	Zinc	**2500**	30	
7440-47-3	Chromium	ND	39	
7439-92-1	Lead	**160**	10	
7440-02-0	Nickel	**92**	30	
7440-38-2	Arsenic	ND	13	
7440-22-4	Silver	ND	7.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	10	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**400**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 12B	Lab Sample ID:	AB68491
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**680**	25	
7440-66-6	Zinc	**1800**	30	
7440-47-3	Chromium	ND	53	
7439-92-1	Lead	**120**	10	
7440-02-0	Nickel	**200**	30	
7440-38-2	Arsenic	**21**	10	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	8.0	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**280**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 15A	Lab Sample ID:	AB68492
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**6100**	25	
7440-66-6	Zinc	**3800**	30	
7440-47-3	Chromium	**220**	40	
7439-92-1	Lead	**220**	10	
7440-02-0	Nickel	**150**	30	
7440-38-2	Arsenic	ND	15	
7440-22-4	Silver	ND	7.0	
7440-43-9	Cadmium	**12**	9.0	
7439-97-6	Mercury	ND	10	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**470**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	AB 16A	Lab Sample ID:	AB68493
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**13000**	25	
7440-66-6	Zinc	**7500**	30	
7440-47-3	Chromium	**230**	40	
7439-92-1	Lead	**390**	10	
7440-02-0	Nickel	**250**	30	
7440-38-2	Arsenic	ND	18	
7440-22-4	Silver	**13**	7.0	
7440-43-9	Cadmium	**19**	9.0	
7439-97-6	Mercury	ND	12	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**470**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 16B	Lab Sample ID:	AB68494
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**24000**	25	
7440-66-6	Zinc	**20000**	30	
7440-47-3	Chromium	**420**	40	
7439-92-1	Lead	**900**	10	
7440-02-0	Nickel	**570**	30	
7440-38-2	Arsenic	ND	29	
7440-22-4	Silver	**8.0**	7.0	
7440-43-9	Cadmium	**14**	9.0	
7439-97-6	Mercury	ND	18	
7782-49-2	Selenium	ND	5.0	
7740-39-3	Barium	**450**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 16C	Lab Sample ID:	AB68495
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**810**	25	
7440-66-6	Zinc	**1300**	30	
7440-47-3	Chromium	**870**	40	
7439-92-1	Lead	**61**	10	
7440-02-0	Nickel	**320**	30	
7440-38-2	Arsenic	ND	7.0	
7440-22-4	Silver	ND	5.0	
7440-43-9	Cadmium	ND	8.0	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**370**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 16D	Lab Sample ID:	AB68496
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**270**	25	
7440-66-6	Zinc	**370**	30	
7440-47-3	Chromium	**390**	40	
7439-92-1	Lead	**300**	10	
7440-02-0	Nickel	**280**	30	
7440-38-2	Arsenic	ND	14	
7440-22-4	Silver	ND	5.0	
7440-43-9	Cadmium	ND	8.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**170**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 17A	Lab Sample ID:	AB68497
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**160**	25	
7440-66-6	Zinc	**120**	30	
7440-47-3	Chromium	ND	30	
7439-92-1	Lead	**30**	10	
7440-02-0	Nickel	ND	32	
7440-38-2	Arsenic	ND	6.0	
7440-22-4	Silver	**6.0**	6.0	
7440-43-9	Cadmium	**11**	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**370**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 17A Lab Dup	Lab Sample ID:	AB68498
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**160**	25	
7440-66-6	Zinc	**130**	30	
7440-47-3	Chromium	ND	31	
7439-92-1	Lead	**35**	10	
7440-02-0	Nickel	ND	30	
7440-38-2	Arsenic	ND	6.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**370**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 17B	Lab Sample ID:	AB68499
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	ND	16	
7440-66-6	Zinc	**21**	21	
7440-47-3	Chromium	ND	27	
7439-92-1	Lead	**13**	10	
7440-02-0	Nickel	ND	28	
7440-38-2	Arsenic	ND	5.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	**12**	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**420**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 17C	Lab Sample ID:	AB68500
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**260**	25	
7440-66-6	Zinc	**460**	30	
7440-47-3	Chromium	**52**	40	
7439-92-1	Lead	**51**	10	
7440-02-0	Nickel	ND	30	
7440-38-2	Arsenic	ND	7.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**370**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 17D	Lab Sample ID:	AB68501
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**24000**	25	
7440-66-6	Zinc	**21000**	30	
7440-47-3	Chromium	**2500**	40	
7439-92-1	Lead	**1600**	10	
7440-02-0	Nickel	**1300**	30	
7440-38-2	Arsenic	**44**	10	
7440-22-4	Silver	**11**	7.0	
7440-43-9	Cadmium	**27**	9.0	
7439-97-6	Mercury	ND	19	
7782-49-2	Selenium	ND	6.0	
7740-39-3	Barium	**410**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 18A	Lab Sample ID:	AB68502
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**170**	25	
7440-66-6	Zinc	**220**	30	
7440-47-3	Chromium	ND	30	
7439-92-1	Lead	**26**	10	
7440-02-0	Nickel	ND	30	
7440-38-2	Arsenic	ND	6.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**450**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 18B	Lab Sample ID:	AB68503
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**22**	22	
7440-66-6	Zinc	**18**	18	
7440-47-3	Chromium	ND	28	
7439-92-1	Lead	**13**	10	
7440-02-0	Nickel	ND	29	
7440-38-2	Arsenic	ND	5.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**390**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 18C	Lab Sample ID:	AB68504
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**1700**	25	
7440-66-6	Zinc	**1100**	30	
7440-47-3	Chromium	ND	33	
7439-92-1	Lead	**110**	10	
7440-02-0	Nickel	**59**	30	
7440-38-2	Arsenic	ND	10	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**220**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 18D	Lab Sample ID:	AB68505
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/18/2017	Amount Prepared:	N/A
Date of Analysis:	7/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**850**	25	
7440-66-6	Zinc	**510**	30	
7440-47-3	Chromium	**47**	40	
7439-92-1	Lead	**51**	10	
7440-02-0	Nickel	**44**	30	
7440-38-2	Arsenic	ND	7.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**410**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 16F	Lab Sample ID:	AB68506
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**25**	25	
7440-66-6	Zinc	**34**	30	
7440-47-3	Chromium	ND	34	
7439-92-1	Lead	**17**	10	
7440-02-0	Nickel	ND	30	
7440-38-2	Arsenic	**5.0**	5.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**470**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 16E	Lab Sample ID:	AB68507
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**230**	25	
7440-66-6	Zinc	**290**	30	
7440-47-3	Chromium	**150**	40	
7439-92-1	Lead	**90**	10	
7440-02-0	Nickel	**150**	30	
7440-38-2	Arsenic	ND	10	
7440-22-4	Silver	**7.0**	7.0	
7440-43-9	Cadmium	**14**	9.0	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**550**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 16E Lab Dup	Lab Sample ID:	AB68508
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**220**	25	
7440-66-6	Zinc	**250**	30	
7440-47-3	Chromium	**160**	40	
7439-92-1	Lead	**160**	10	
7440-02-0	Nickel	**130**	30	
7440-38-2	Arsenic	ND	12	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**410**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 17E	Lab Sample ID:	AB68509
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**8500**	25	
7440-66-6	Zinc	**5400**	30	
7440-47-3	Chromium	**710**	40	
7439-92-1	Lead	**440**	10	
7440-02-0	Nickel	**690**	30	
7440-38-2	Arsenic	ND	20	
7440-22-4	Silver	**8.0**	7.0	
7440-43-9	Cadmium	**16**	9.0	
7439-97-6	Mercury	ND	12	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**530**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 17F	Lab Sample ID:	AB68510
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**150**	25	
7440-66-6	Zinc	**140**	30	
7440-47-3	Chromium	**36**	40	
7439-92-1	Lead	**28**	10	
7440-02-0	Nickel	ND	34	
7440-38-2	Arsenic	ND	6.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**460**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 13A	Lab Sample ID:	AB68511
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**530**	25	
7440-66-6	Zinc	**900**	30	
7440-47-3	Chromium	ND	32	
7439-92-1	Lead	**64**	10	
7440-02-0	Nickel	ND	33	
7440-38-2	Arsenic	ND	8.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**420**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 13B	Lab Sample ID:	AB68512
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**970**	25	
7440-66-6	Zinc	**560**	30	
7440-47-3	Chromium	ND	28	
7439-92-1	Lead	**35**	10	
7440-02-0	Nickel	**71**	30	
7440-38-2	Arsenic	ND	6.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	**11**	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**370**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 8A	Lab Sample ID:	AB68513
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**370**	25	
7440-66-6	Zinc	**1100**	30	
7440-47-3	Chromium	ND	37	
7439-92-1	Lead	**90**	10	
7440-02-0	Nickel	ND	38	
7440-38-2	Arsenic	ND	10	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**330**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 14A	Lab Sample ID:	AB68514
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**61**	25	
7440-66-6	Zinc	**87**	30	
7440-47-3	Chromium	ND	29	
7439-92-1	Lead	**22**	10	
7440-02-0	Nickel	ND	31	
7440-38-2	Arsenic	ND	5.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**360**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 14B	Lab Sample ID:	AB68515
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**19**	19	
7440-66-6	Zinc	**30**	30	
7440-47-3	Chromium	ND	27	
7439-92-1	Lead	**17**	10	
7440-02-0	Nickel	ND	28	
7440-38-2	Arsenic	ND	5.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	**12**	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**410**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 7A	Lab Sample ID:	AB68516
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**1000**	25	
7440-66-6	Zinc	**2100**	30	
7440-47-3	Chromium	ND	41	
7439-92-1	Lead	**180**	10	
7440-02-0	Nickel	**39**	30	
7440-38-2	Arsenic	ND	12	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	8.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**330**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 7B	Lab Sample ID:	AB68517
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**360**	25	
7440-66-6	Zinc	**1200**	30	
7440-47-3	Chromium	ND	47	
7439-92-1	Lead	**42**	10	
7440-02-0	Nickel	ND	39	
7440-38-2	Arsenic	ND	7.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	8.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**370**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 13C	Lab Sample ID:	AB68518
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**900**	25	
7440-66-6	Zinc	**980**	30	
7440-47-3	Chromium	**770**	40	
7439-92-1	Lead	**72**	10	
7440-02-0	Nickel	**350**	30	
7440-38-2	Arsenic	ND	8.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	8.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**390**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 14C	Lab Sample ID:	AB68519
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**18000**	25	
7440-66-6	Zinc	**20000**	30	
7440-47-3	Chromium	**1100**	40	
7439-92-1	Lead	**980**	10	
7440-02-0	Nickel	**760**	30	
7440-38-2	Arsenic	ND	31	
7440-22-4	Silver	**13**	7.0	
7440-43-9	Cadmium	**19**	9.0	
7439-97-6	Mercury	ND	18	
7782-49-2	Selenium	ND	5.0	
7740-39-3	Barium	**310**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 14D	Lab Sample ID:	AB68520
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**6900**	25	
7440-66-6	Zinc	**10000**	30	
7440-47-3	Chromium	**3300**	40	
7439-92-1	Lead	**770**	10	
7440-02-0	Nickel	**1200**	30	
7440-38-2	Arsenic	ND	27	
7440-22-4	Silver	ND	7.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	15	
7782-49-2	Selenium	ND	5.0	
7740-39-3	Barium	**320**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 13D	Lab Sample ID:	AB68521
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**790**	25	
7440-66-6	Zinc	**1700**	30	
7440-47-3	Chromium	**7200**	40	
7439-92-1	Lead	**81**	10	
7440-02-0	Nickel	**3200**	30	
7440-38-2	Arsenic	ND	13	
7440-22-4	Silver	ND	9.0	
7440-43-9	Cadmium	**21**	9.0	
7439-97-6	Mercury	ND	16	
7782-49-2	Selenium	ND	6.0	
7740-39-3	Barium	**650**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 4A	Lab Sample ID:	AB68522
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**3500**	25	
7440-66-6	Zinc	**6500**	30	
7440-47-3	Chromium	ND	43	
7439-92-1	Lead	**930**	10	
7440-02-0	Nickel	**200**	30	
7440-38-2	Arsenic	ND	30	
7440-22-4	Silver	**13**	7.0	
7440-43-9	Cadmium	**23**	9.0	
7439-97-6	Mercury	ND	12	
7782-49-2	Selenium	ND	5.0	
7740-39-3	Barium	**510**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 4B	Lab Sample ID:	AB68523
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**2600**	25	
7440-66-6	Zinc	**7600**	30	
7440-47-3	Chromium	ND	67	
7439-92-1	Lead	**530**	10	
7440-02-0	Nickel	**83**	30	
7440-38-2	Arsenic	ND	25	
7440-22-4	Silver	ND	7.0	
7440-43-9	Cadmium	**49**	9.0	
7439-97-6	Mercury	ND	13	
7782-49-2	Selenium	ND	5.0	
7740-39-3	Barium	**310**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 5A M2	Lab Sample ID:	AB68524
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**1500**	25	
7440-66-6	Zinc	**1800**	30	
7440-47-3	Chromium	**42**	40	
7439-92-1	Lead	**140**	10	
7440-02-0	Nickel	**130**	30	
7440-38-2	Arsenic	ND	12	
7440-22-4	Silver	**10**	7.0	
7440-43-9	Cadmium	**11**	9.0	
7439-97-6	Mercury	ND	8.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**500**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 5B M2	Lab Sample ID:	AB68525
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**1000**	25	
7440-66-6	Zinc	**790**	30	
7440-47-3	Chromium	ND	63	
7439-92-1	Lead	**110**	10	
7440-02-0	Nickel	ND	53	
7440-38-2	Arsenic	ND	12	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	6.0	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**190**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 9A	Lab Sample ID:	AB68526
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**570**	25	
7440-66-6	Zinc	**3000**	30	
7440-47-3	Chromium	ND	43	
7439-92-1	Lead	**130**	10	
7440-02-0	Nickel	**50**	30	
7440-38-2	Arsenic	ND	11	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	**14**	9.0	
7439-97-6	Mercury	ND	9.0	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**430**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 9B	Lab Sample ID:	AB68527
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**260**	25	
7440-66-6	Zinc	**950**	30	
7440-47-3	Chromium	ND	48	
7439-92-1	Lead	**110**	10	
7440-02-0	Nickel	ND	43	
7440-38-2	Arsenic	ND	11	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	8.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**110**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 03A M2	Lab Sample ID:	AB68528
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**5200**	25	
7440-66-6	Zinc	**7400**	30	
7440-47-3	Chromium	**61**	40	
7439-92-1	Lead	**390**	10	
7440-02-0	Nickel	**89**	30	
7440-38-2	Arsenic	ND	20	
7440-22-4	Silver	ND	7.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	12	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**420**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 03B M2	Lab Sample ID:	AB68529
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**1000**	25	
7440-66-6	Zinc	**1100**	30	
7440-47-3	Chromium	**48**	40	
7439-92-1	Lead	**110**	10	
7440-02-0	Nickel	**74**	30	
7440-38-2	Arsenic	ND	10	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	8.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**410**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 06A M2	Lab Sample ID:	AB68530
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**730**	25	
7440-66-6	Zinc	**900**	30	
7440-47-3	Chromium	ND	36	
7439-92-1	Lead	**82**	10	
7440-02-0	Nickel	ND	38	
7440-38-2	Arsenic	ND	9.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	8.0	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**460**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 06B M2	Lab Sample ID:	AB68531
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**680**	25	
7440-66-6	Zinc	**6800**	30	
7440-47-3	Chromium	ND	35	
7439-92-1	Lead	**330**	10	
7440-02-0	Nickel	ND	35	
7440-38-2	Arsenic	**17**	10	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	**17**	9.0	
7439-97-6	Mercury	ND	10	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**410**	150	

Quinlan Russell - Meriden, CT

Field Analysis of Metals by XRF

Client Sample ID:	SB 01A M2	Lab Sample ID:	AB68532
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**210**	25	
7440-66-6	Zinc	**400**	30	
7440-47-3	Chromium	**76**	40	
7439-92-1	Lead	**51**	10	
7440-02-0	Nickel	**61**	30	
7440-38-2	Arsenic	ND	8.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	9.0	
7439-97-6	Mercury	ND	7.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**390**	150	

Quinlan Russell - Meriden, CT

Field Analysis of Metals by XRF

Client Sample ID:	SB 01B M2	Lab Sample ID:	AB68533
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**300**	25	
7440-66-6	Zinc	**620**	30	
7440-47-3	Chromium	**420**	40	
7439-92-1	Lead	**26**	10	
7440-02-0	Nickel	**70**	30	
7440-38-2	Arsenic	**8.0**	8.0	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	9.0	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**160**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 02A M2	Lab Sample ID:	AB68534
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**1600**	25	
7440-66-6	Zinc	**1900**	30	
7440-47-3	Chromium	**55**	40	
7439-92-1	Lead	**180**	10	
7440-02-0	Nickel	**46**	30	
7440-38-2	Arsenic	ND	12	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	8.0	
7782-49-2	Selenium	ND	3.0	
7740-39-3	Barium	**440**	150	

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Field Analysis of Metals by XRF

Client Sample ID:	SB 02B M2	Lab Sample ID:	AB68535
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/19/2017	Amount Prepared:	N/A
Date of Analysis:	7/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-50-8	Copper	**1000**	25	
7440-66-6	Zinc	**2100**	30	
7440-47-3	Chromium	ND	65	
7439-92-1	Lead	**85**	10	
7440-02-0	Nickel	ND	60	
7440-38-2	Arsenic	ND	11	
7440-22-4	Silver	ND	6.0	
7440-43-9	Cadmium	ND	10	
7439-97-6	Mercury	ND	11	
7782-49-2	Selenium	ND	4.0	
7740-39-3	Barium	**270**	150	

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

August 07, 2017

Sebastian Rodríguez - Mail Code OSRR07-3
Jerry Keefe - OEME/EIA
US EPA New England R1

Project Number: 17070027
Project: Quinlan Russell - Meriden, CT
Analysis:Metals in Soil Medium Level by ICP
EPA Chemists: Allison Connors and Janet Paquin

Date Samples Received by the Laboratory: 07/20/2017

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-OPTIMAS0.

Samples were prepared following the EPA Region I SOP, EIASOP-INGMETALSPREP8

Preparation and analysis SOP's are based on "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, Revision 2, Final Update III, Methods 3050B and 6010B," respectively.

Samples were analyzed using a Perkin Elmer Dual View Inductively Coupled Plasma - Optical Emission Spectrometer.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2017.08.07 16:19:38 -04'00'

17070027$METMS_PE

Qualifiers

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

All sample results are in mg/Kg dry weight.

Quinlan Russell - Meriden, CT

Metals in Soil Medium Level by ICP

Client Sample ID:	SB-14D	Lab Sample ID:	AB68456
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	20
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	**33**	20	
7429-90-5	Aluminum	**10000**	220	
7440-38-2	Arsenic	ND	80	
7440-39-3	Barium	**78**	40	
7440-41-7	Beryllium	ND	16	
7440-70-2	Calcium	**4800**	200	
7440-43-9	Cadmium	ND	20	
7440-48-4	Cobalt	ND	40	
7440-47-3	Chromium	**2400**	40	
7440-50-8	Copper	**61000**	40	
7439-89-6	Iron	**58000**	80	
7439-95-4	Magnesium	**2400**	200	
7439-96-5	Manganese	**720**	40	
7440-02-0	Nickel	**1800**	40	
7439-92-1	Lead	**2100**	40	
7440-36-0	Antimony	ND	40	
7782-49-2	Selenium	ND	80	
7440-28-0	Thallium	ND	80	
7440-62-2	Vanadium	**46**	40	
7440-66-6	Zinc	**24000**	40	

Quinlan Russell - Meriden, CT

Metals in Soil Medium Level by ICP

Client Sample ID:	SB-04B	Lab Sample ID:	AB68459
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**8000**	110	
7440-38-2	Arsenic	ND	40	
7440-39-3	Barium	**130**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**8600**	100	
7440-43-9	Cadmium	**59**	10	
7440-48-4	Cobalt	**31**	20	
7440-47-3	Chromium	**28**	20	
7440-50-8	Copper	**3500**	20	
7439-89-6	Iron	**130000**	40	
7439-95-4	Magnesium	**1800**	100	
7439-96-5	Manganese	**2200**	20	
7440-02-0	Nickel	**88**	20	
7439-92-1	Lead	**1100**	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	40	
7440-62-2	Vanadium	**45**	20	
7440-66-6	Zinc	**7900**	20	

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Metals in Soil Medium Level by ICP

Client Sample ID:	SB-17D	Lab Sample ID:	AB68460
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	20
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	**25**	20	
7429-90-5	Aluminum	**9600**	220	
7440-38-2	Arsenic	ND	78	
7440-39-3	Barium	**72**	39	
7440-41-7	Beryllium	ND	16	
7440-70-2	Calcium	**2700**	200	
7440-43-9	Cadmium	ND	20	
7440-48-4	Cobalt	ND	39	
7440-47-3	Chromium	**960**	39	
7440-50-8	Copper	**42000**	39	
7439-89-6	Iron	**15000**	78	
7439-95-4	Magnesium	**1600**	200	
7439-96-5	Manganese	**270**	39	
7440-02-0	Nickel	**1400**	39	
7439-92-1	Lead	**4000**	39	
7440-36-0	Antimony	ND	39	
7782-49-2	Selenium	ND	78	
7440-28-0	Thallium	ND	78	
7440-62-2	Vanadium	**110**	39	
7440-66-6	Zinc	**21000**	39	

Quinlan Russell - Meriden, CT

Metals in Soil Medium Level by ICP

Client Sample ID:	SB-03A	Lab Sample ID:	AB68461
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	9.6	
7429-90-5	Aluminum	**11000**	110	
7440-38-2	Arsenic	ND	38	
7440-39-3	Barium	**67**	19	
7440-41-7	Beryllium	ND	7.7	
7440-70-2	Calcium	**27000**	96	
7440-43-9	Cadmium	ND	9.6	
7440-48-4	Cobalt	ND	19	
7440-47-3	Chromium	**36**	19	
7440-50-8	Copper	**6500**	19	
7439-89-6	Iron	**26000**	38	
7439-95-4	Magnesium	**5600**	96	
7439-96-5	Manganese	**330**	19	
7440-02-0	Nickel	**77**	19	
7439-92-1	Lead	**680**	19	
7440-36-0	Antimony	ND	19	
7782-49-2	Selenium	ND	38	
7440-28-0	Thallium	ND	38	
7440-62-2	Vanadium	**42**	19	
7440-66-6	Zinc	**5200**	19	

Quinlan Russell - Meriden, CT

Metals in Soil Medium Level by ICP

Client Sample ID:	SB-09B	Lab Sample ID:	AB68462
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	9.8	
7429-90-5	Aluminum	**6100**	110	
7440-38-2	Arsenic	ND	39	
7440-39-3	Barium	**45**	20	
7440-41-7	Beryllium	ND	7.8	
7440-70-2	Calcium	**1500**	98	
7440-43-9	Cadmium	ND	9.8	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	**20**	20	
7440-50-8	Copper	**290**	20	
7439-89-6	Iron	**73000**	39	
7439-95-4	Magnesium	**1800**	98	
7439-96-5	Manganese	**1100**	20	
7440-02-0	Nickel	**28**	20	
7439-92-1	Lead	**110**	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	39	
7440-28-0	Thallium	ND	39	
7440-62-2	Vanadium	**24**	20	
7440-66-6	Zinc	**1100**	20	

Quinlan Russell - Meriden, CT

Metals in Soil Medium Level by ICP

Client Sample ID:	SB-21B	Lab Sample ID:	AB68463
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	9.8	
7429-90-5	Aluminum	**3800**	110	
7440-38-2	Arsenic	ND	39	
7440-39-3	Barium	**27**	20	
7440-41-7	Beryllium	ND	7.8	
7440-70-2	Calcium	**10000**	98	
7440-43-9	Cadmium	ND	9.8	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	**95**	20	
7439-89-6	Iron	**7500**	39	
7439-95-4	Magnesium	**7100**	98	
7439-96-5	Manganese	**340**	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	J1
7782-49-2	Selenium	ND	39	
7440-28-0	Thallium	ND	39	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	**75**	20	

Quinlan Russell - Meriden, CT

Metals in Soil Medium Level by ICP

Client Sample ID:	SB-09B (DUP)	Lab Sample ID:	AB68464
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	9.8	
7429-90-5	Aluminum	**6500**	110	
7440-38-2	Arsenic	ND	39	
7440-39-3	Barium	**48**	20	
7440-41-7	Beryllium	ND	7.8	
7440-70-2	Calcium	**1400**	98	
7440-43-9	Cadmium	ND	9.8	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	**21**	20	
7440-50-8	Copper	**220**	20	
7439-89-6	Iron	**64000**	39	
7439-95-4	Magnesium	**1800**	98	
7439-96-5	Manganese	**1000**	20	
7440-02-0	Nickel	**26**	20	
7439-92-1	Lead	**97**	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	39	
7440-28-0	Thallium	ND	39	
7440-62-2	Vanadium	**26**	20	
7440-66-6	Zinc	**1000**	20	

Quinlan Russell - Meriden, CT

Metals in Soil Medium Level by ICP

Client Sample ID:	SED-1	Lab Sample ID:	AB68472
Date of Collection:	7/18/2017	Matrix:	Sediment
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**6500**	110	
7440-38-2	Arsenic	ND	40	
7440-39-3	Barium	**79**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**2900**	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	**87**	20	
7440-50-8	Copper	**1400**	20	
7439-89-6	Iron	**26000**	40	
7439-95-4	Magnesium	**3500**	100	
7439-96-5	Manganese	**360**	20	
7440-02-0	Nickel	**37**	20	
7439-92-1	Lead	**140**	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	40	
7440-62-2	Vanadium	**42**	20	
7440-66-6	Zinc	**420**	20	

Quinlan Russell - Meriden, CT

Metals in Soil Medium Level by ICP

Client Sample ID:	SED-2	Lab Sample ID:	AB68473
Date of Collection:	7/18/2017	Matrix:	Sediment
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**8900**	110	
7440-38-2	Arsenic	ND	40	
7440-39-3	Barium	**130**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**6500**	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	**54**	20	
7440-50-8	Copper	**400**	20	
7439-89-6	Iron	**33000**	40	
7439-95-4	Magnesium	**4900**	100	
7439-96-5	Manganese	**580**	20	
7440-02-0	Nickel	**39**	20	
7439-92-1	Lead	**82**	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	40	
7440-62-2	Vanadium	**44**	20	
7440-66-6	Zinc	**320**	20	

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Metals in Soil Medium Level by ICP

Client Sample ID:	SED-3	Lab Sample ID:	AB68474
Date of Collection:	7/18/2017	Matrix:	Sediment
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**9200**	110	
7440-38-2	Arsenic	ND	40	
7440-39-3	Barium	**120**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**5800**	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	**67**	20	
7440-50-8	Copper	**3000**	20	
7439-89-6	Iron	**48000**	40	
7439-95-4	Magnesium	**4100**	100	
7439-96-5	Manganese	**780**	20	
7440-02-0	Nickel	**41**	20	
7439-92-1	Lead	**170**	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	40	
7440-62-2	Vanadium	**52**	20	
7440-66-6	Zinc	**490**	20	

Quinlan Russell - Meriden, CT

Laboratory Reagent Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Sediment
Date of Preparation:	7/27/2017	Amount Prepared:	N/A
Date of Analysis:	8/01/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	110	
7440-38-2	Arsenic	ND	40	
7440-39-3	Barium	ND	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	ND	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	ND	40	
7439-95-4	Magnesium	ND	100	
7439-96-5	Manganese	ND	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	40	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	20	

Quinlan Russell - Meriden, CT

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB68463

PARAMETER	SPIKE ADDED mg/Kg	SAMPLE CONCENTRATION mg/Kg	MS CONCENTRATION mg/Kg	MS % REC	QC LIMITS (% REC)
Antimony	98.0	ND	46.0	47	75 - 125
Arsenic	98.0	ND	101	103	75 - 125
Barium	98.0	27.0	126	101	75 - 125
Beryllium	39.0	ND	40.0	103	75 - 125
Cadmium	49.0	ND	52.0	106	75 - 125
Chromium	98.0	ND	110	112	75 - 125
Cobalt	98.0	ND	105	107	75 - 125
Copper	98.0	95.0	204	111	75 - 125
Lead	98.0	ND	115	117	75 - 125
Manganese	98.0	340	436	98	75 - 125
Nickel	98.0	ND	114	116	75 - 125
Selenium	98.0	ND	97.0	99	75 - 125
Silver	20.0	ND	20.0	101	75 - 125
Thallium	98.0	ND	99.0	101	75 - 125
Vanadium	98.0	ND	112	114	75 - 125
Zinc	98.0	75.0	191	118	75 - 125

Quinlan Russell - Meriden, CT

Laboratory Duplicate Results

Sample ID: AB68460

PARAMETER	SAMPLE RESULT mg/Kg	SAMPLE DUPLICATE RESULT mg/Kg	PRECISION RPD %	QC LIMITS
Aluminum	9600	10000	4.1	30
Antimony	ND	ND	NC	30
Arsenic	ND	ND	NC	30
Barium	72.0	67.0	7.2	30
Beryllium	ND	ND	NC	30
Cadmium	ND	ND	NC	30
Calcium	2700	2700	0.0	30
Chromium	960	860	11	30
Cobalt	ND	ND	NC	30
Copper	42000	31000	30	30
Iron	15000	15000	0.0	30
Lead	4000	3000	29	30
Magnesium	1600	1700	6.1	30
Manganese	270	240	12	30
Nickel	1400	1300	7.4	30
Selenium	ND	ND	NC	30
Silver	25.0	ND	NC	30
Thallium	ND	ND	NC	30
Vanadium	110	100	9.5	30
Zinc	21000	18000	15	30

Quinlan Russell - Meriden, CT

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aluminum	1000	961	96	85 - 115
Antimony	1000	939	94	85 - 115
Arsenic	1000	922	92	85 - 115
Barium	1000	989	99	85 - 115
Beryllium	400	375	94	85 - 115
Cadmium	500	460	92	85 - 115
Calcium	10000	10100	101	85 - 115
Chromium	1000	978	98	85 - 115
Cobalt	1000	933	93	85 - 115
Copper	1000	985	99	85 - 115
Iron	1000	1000	100	85 - 115
Lead	1000	973	97	85 - 115
Magnesium	10000	9810	98	85 - 115
Manganese	1000	976	98	85 - 115
Nickel	1000	934	93	85 - 115
Selenium	1000	894	89	85 - 115
Silver	200	191	96	85 - 115
Thallium	1000	911	91	85 - 115
Vanadium	1000	996	100	85 - 115
Zinc	1000	910	91	85 - 115

Comments:

Quinlan Russell - Meriden, CT

Solid Laboratory Control Sample (LCS) Results

PARAMETER	LCS RESULTS mg/Kg	CONTROL LIMITS mg/Kg
Aluminum	7430	3200 - 13000
Antimony	46.6	21.4 - 255
Arsenic	98.2	69.6 - 131
Barium	221	160 - 278
Beryllium	149	111 - 185
Cadmium	82.2	61.3 - 110
Calcium	5680	4430 - 7590
Chromium	107	74.3 - 144
Cobalt	125	91.4 - 160
Copper	174	125 - 213
Iron	12800	5270 - 23900
Lead	90.9	61.8 - 115
Magnesium	2910	1930 - 3940
Manganese	314	233 - 390
Nickel	53.6	34.4 - 67.3
Selenium	88.6	56.2 - 119
Silver	40.7	27.3 - 55.4
Thallium	57.8	37.1 - 79.2
Vanadium	138	97.8 - 181
Zinc	142	98.2 - 192

Comments:

Samples in Batch: AB68456, AB68459, AB68460, AB68461, AB68462, AB68463, AB68464, AB68472, AB68473, AB68474

ENVIRONMENTAL PROTECTION AGENCY
REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO.: 17070027
PROJECT NAME: Quinlan, Russell – Subsurface Soil Sampling
SAMPLERS: (Signature) Ryland M. Coombs

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOAs (40ml Amber Vial w/ DI & weight)	Total Metals (4oz Amber Jar)	BNA (Amber Jar)	REMARKS
	18 JUL 2017	1040		X	MB-01	1	1			
	19 JUL 2017	1100		X	MB-02	1	1			
	18 JUL 2017	0945		X	SB-19A	2	2			
	18 JUL 2017	1245		X	SB-11A	2	2			
	19 JUL 2017	0950	Beta X	VOA X	SB-14D	3	2	1		
	19 JUL 2017	0950		X	SB-14C	2	2			
	18 JUL 2017	1017		X	SB-13C	2	2			
	19 JUL 2017	1130	X		SB-04B	1		1		
	18 JUL 2017	1455	X		SB-17D	1		1		
	19 JUL 2017	1320	X		SB-03A	1		1		
	19 JUL 2017	1100	X		SB-09B	1		1		
	18 JUL 2017	1105	X		SB-21B	1		1		
	19 JUL 2017	1100	X		SB-09B (DUP)	1		1		
	19 JUL 2017	1232			SB-01AM2	2	2			
	19 JUL 2017	1215			SB-6BM2	2	2			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	19 JUL 2017 1826				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) ESAT	Date / Time	Remarks	
	7/20/17 8:33		7/20/17 13:33		

Remarks:
17070027 $VOAMW
17070027 $METMS_PE
17070027$VOAHS
17070027 $METW_PE

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

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1- 20120

(2)

ENVIRONMENTAL PROTECTION AGENCY

REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO. 170027

PROJECT NAME: Quinlan Russell

SAMPLERS: (Signature) Mitchell Conner

. NO.	DATE 2017	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Total Metals (250ml HNO3) GW	Total Metals (4 oz. Amber Jar) Soil	VOA (40ml Amber Vial w/HCl) GW				REMARKS
	20JUL	0940		X	MW-1	5	1		4				
	19JUL	1550		X	MW-2	5	1		4				
	19JUL	1550		X	MW-2D	5	1		4				
	19JUL	1320		X	MW-3	4	1		3				3 vials for MW-3 VOAs
	19JUL	1805		X	MW-4	5	1		4				
	18JUL	1055		X	SED-1	1		1					
	18JUL	1100		X	SED-2	1		1					
	18JUL	1110		X	SED-3	1		1					
	13JUL	1300		X	Trip Blank	4			4				

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	20 JUL 2017 1333				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) EST	Date / Time 7/20/17 13:33	Remarks	

~~17070027 $VOAMW~~
17070027 $METMS_PE
17070027$VOAHS
17070027 $METW_PE

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

DOC

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

August 03, 2017

Sebastian Rodríguez - Mail Code OSRR07-3
Jerry Keefe - OEME/EIA
US EPA New England R1

Project Number: 17070027
Project: Quinlan Russell - Meriden, CT
Analysis:Total Recoverable Metals in Water by ICP
EPA Chemist: A. Connors

Date Samples Received by the Laboratory: 07/20/2017

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-OPTIMAS0.

Samples were prepared following the EPA Region I SOP, EIASOP-INGMETALSPREP8.

The sample preparation and analysis SOP's are based on Methods 3010A or 3005A and 6010B as stated in "Test Methods for Evaluating Solid Waste, 3rd ed., Final Update III, 7/92 and 12/96."

The samples were analyzed using a Perkin Elmer Dual View Inductively Coupled Plasma - Optical Emission Spectrometer.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2017.08.03 13:50:11 -04'00'

17070027$METW_PE

Qualifiers

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Quinlan Russell - Meriden, CT

Total Recoverable Metals in Water by ICP

Client Sample ID:	MW-1	Lab Sample ID:	AB68467
Date of Collection:	7/20/2017	Matrix:	GW
Date of Preparation:	7/24/2017	Percent Solids:	N/A
Date of Analysis:	7/27/2017	Extract Dilution:	1
Dry Weight Prepared:	N/A	pH:	<2
Wet Weight Prepared:	N/A		
Volume Prepared:	50 mL		
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**160**	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**31**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**44000**	200	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	**250**	40	
7439-95-4	Magnesium	**4100**	100	
7439-96-5	Manganese	**290**	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	100	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	200	

Quinlan Russell - Meriden, CT

Total Recoverable Metals in Water by ICP

Client Sample ID:	MW-2	Lab Sample ID:	AB68468
Date of Collection:	7/19/2017	Matrix:	GW
Date of Preparation:	7/24/2017	Percent Solids:	N/A
Date of Analysis:	7/27/2017	Extract Dilution:	1
Dry Weight Prepared:	N/A	pH:	<2
Wet Weight Prepared:	N/A		
Volume Prepared:	50 mL		
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**84**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**64000**	200	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	**2800**	40	
7439-95-4	Magnesium	**14000**	100	
7439-96-5	Manganese	**1400**	20	
7440-02-0	Nickel	**21**	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	100	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	**540**	200	

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Total Recoverable Metals in Water by ICP

Client Sample ID:	MW-2D	Lab Sample ID:	AB68469
Date of Collection:	7/19/2017	Matrix:	GW
Date of Preparation:	7/24/2017	Percent Solids:	N/A
Date of Analysis:	7/27/2017	Extract Dilution:	1
Dry Weight Prepared:	N/A	pH:	<2
Wet Weight Prepared:	N/A		
Volume Prepared:	50 mL		
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**86**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**63000**	200	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	**2700**	40	
7439-95-4	Magnesium	**14000**	100	
7439-96-5	Manganese	**1300**	20	
7440-02-0	Nickel	**22**	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	100	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	**550**	200	

Quinlan Russell - Meriden, CT

Total Recoverable Metals in Water by ICP

Client Sample ID:	MW-3	Lab Sample ID:	AB68470
Date of Collection:	7/19/2017	Matrix:	GW
Date of Preparation:	7/24/2017	Percent Solids:	N/A
Date of Analysis:	7/27/2017	Extract Dilution:	1
Dry Weight Prepared:	N/A	pH:	<2
Wet Weight Prepared:	N/A		
Volume Prepared:	50 mL		
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**790**	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**560**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**59000**	200	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	**3300**	40	
7439-95-4	Magnesium	**16000**	100	
7439-96-5	Manganese	**4100**	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	100	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	200	

Quinlan Russell - Meriden, CT

Total Recoverable Metals in Water by ICP

Client Sample ID:	MW-4	Lab Sample ID:	AB68471
Date of Collection:	7/19/2017	Matrix:	GW
Date of Preparation:	7/24/2017	Percent Solids:	N/A
Date of Analysis:	7/27/2017	Extract Dilution:	1
Dry Weight Prepared:	N/A	pH:	<2
Wet Weight Prepared:	N/A		
Volume Prepared:	50 mL		
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**46**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**28000**	200	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	**87**	20	
7439-89-6	Iron	**430**	40	
7439-95-4	Magnesium	**3600**	100	
7439-96-5	Manganese	**290**	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	100	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	**140**	200	

Quinlan Russell - Meriden, CT

Laboratory Reagent Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	GW
Date of Preparation:	7/24/2017	Percent Solids:	N/A
Date of Analysis:	7/27/2017	Extract Dilution:	1
Dry Weight Prepared:	N/A	pH:	<2
Wet Weight Prepared:	N/A		
Volume Prepared:	50 mL		
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	ND	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	ND	200	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	ND	40	
7439-95-4	Magnesium	ND	100	
7439-96-5	Manganese	ND	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	100	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	200	

Quinlan Russell - Meriden, CT

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB68470

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
Aluminum	500	790	1170	76	75 - 125
Antimony	500	ND	475	95	75 - 125
Arsenic	500	ND	487	97	75 - 125
Barium	500	560	1060	100	75 - 125
Beryllium	200	ND	193	97	75 - 125
Cadmium	250	ND	236	94	75 - 125
Chromium	500	ND	478	96	75 - 125
Cobalt	500	ND	467	93	75 - 125
Copper	500	ND	487	97	75 - 125
Iron	500	3300	3750	R	75 - 125
Lead	500	ND	498	100	75 - 125
Manganese	500	4100	4580	R	75 - 125
Nickel	500	ND	472	94	75 - 125
Selenium	500	ND	478	96	75 - 125
Silver	100	ND	98.0	98	75 - 125
Thallium	500	ND	469	94	75 - 125
Vanadium	500	ND	485	97	75 - 125
Zinc	500	ND	472	94	75 - 125

Quinlan Russell - Meriden, CT

Laboratory Duplicate Results

Sample ID: AB68467

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
Aluminum	160	190	17	20
Antimony	ND	ND	NC	20
Arsenic	ND	ND	NC	20
Barium	31.0	30.0	3.3	20
Beryllium	ND	ND	NC	20
Cadmium	ND	ND	NC	20
Calcium	44000	44000	0.0	20
Chromium	ND	ND	NC	20
Cobalt	ND	ND	NC	20
Copper	ND	ND	NC	20
Iron	250	270	7.7	20
Lead	ND	ND	NC	20
Magnesium	4100	4100	0.0	20
Manganese	290	290	0.0	20
Nickel	ND	ND	NC	20
Selenium	ND	ND	NC	20
Silver	ND	ND	NC	20
Thallium	ND	ND	NC	20
Vanadium	ND	ND	NC	20
Zinc	ND	ND	NC	20

Quinlan Russell - Meriden, CT

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aluminum	500	447	89	85 - 115
Antimony	500	479	96	85 - 115
Arsenic	500	475	95	85 - 115
Barium	500	498	100	85 - 115
Beryllium	200	188	94	85 - 115
Cadmium	250	239	96	85 - 115
Calcium	5000	5010	100	85 - 115
Chromium	500	492	98	85 - 115
Cobalt	500	479	96	85 - 115
Copper	500	489	98	85 - 115
Iron	500	494	99	85 - 115
Lead	500	504	101	85 - 115
Magnesium	5000	4980	100	85 - 115
Manganese	500	485	97	85 - 115
Nickel	500	485	97	85 - 115
Selenium	500	478	96	85 - 115
Silver	100	98.0	98	85 - 115
Thallium	500	473	95	85 - 115
Vanadium	500	489	98	85 - 115
Zinc	500	459	92	85 - 115

Comments:

Samples in Batch: AB68467, AB68468, AB68469, AB68470, AB68471

ENVIRONMENTAL PROTECTION AGENCY
REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO.: 17070027
PROJECT NAME: Quinlan, Russell – Subsurface Soil Sampling
SAMPLERS: (Signature) Wyland M. Coombs

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOAs (40ml Amber Vial w/ DI by weight)	Total Metals (4oz Amber Jar)	BNA (Same Jar as BRE)	REMARKS
	18 JUL 2017	1040		X	MB-01	1	1			
	19 JUL 2017	1100		X	MB-02	1	1			
	18 JUL 2017	0945		X	SB-19A	2	2			
	18 JUL 2017	1245		X	SB-11A	2	2			
	19 JUL 2017	0950	Beta X	VOA X	SB-14D	3	2	1		
	19 JUL 2017	0950		X	SB-14C	2	2			
	18 JUL 2017	1017		X	SB-13C	2	2			
	19 JUL 2017	1130	X		SB-04B	1		1		
	18 JUL 2017	1455	X		SB-17D	1		1		
	19 JUL 2017	1320	X		SB-03A	1		1		
	19 JUL 2017	1100	X		SB-09B	1		1		
	18 JUL 2017	1105	X		SB-21B	1		1		
	19 JUL 2017	1100	X		SB-09B (DUP)	1		1		
	19 JUL 2017	1232			SB-01AM2	2	2			
	19 JUL 2017	1215			SB-6BM2	2	2			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	19 JUL 2017 1826				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) ESAT	Date / Time	Remarks	
	7/20/17 8:33		7/20/17 13:33		

Remarks:
17070027 $VOAMW
17070027 $METMS_PE
17070027$VOAHS
17070027 $METW_PE

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

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ENVIRONMENTAL PROTECTION AGENCY

REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO. 170027 | PROJECT NAME: Quinlan Russell

SAMPLERS: (Signature) Mitchell Conder

. NO.	DATE 2017	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	Total Metals (250ml HNO3) GW	Total Metals (4 oz. Amber Jar) Soil	VOA (40ml Amber Vial w/HCl) GW	REMARKS
	20JUL	0940		X	MW-1	5	1		4	
	19JUL	1550		X	MW-2	5	1		4	
	19JUL	1550		X	MW-2D	5	1		4	
	19JUL	1320		X	MW-3	4	1		3	3 vials for MW-3 VOAs
	19JUL	1805		X	MW-4	5	1		4	
	18JUL	1055		X	SED-1	1		1		
	18JUL	1100		X	SED-2	1		1		
	18JUL	1110		X	SED-3	1		1		
	13JUL	1300		X	Trip Blank	4			4	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	20 JUL 2017 1333				
	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	Date / Time	Received for Laboratory by: (Signature) EST	Date / Time 7/20/17 13:33	Remarks	

~~17070027 $VOAMW~~
17070027 $METMS_PE
17070027$VOAHS
17070027 $METW_PE

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

DOC

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

August 03, 2017

Sebastian Rodríguez - Mail Code OSRR07-3
Jerry Keefe - OEME/EIA
US EPA New England R1

Project Number: 17070028
Project: Quinlan Russell - Meriden, CT
Analysis: Volatile Organic Analysis of Water
Analyst: Scott Clifford

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-FLDVOA2.

Aqueous samples were collected in 40 mL vials. The samples were analyzed using a Shimadzu gas chromatograph equipped with a 30 meter, 0.53 mm id. DBPS-624 column, electron capture, and photoionization detectors. Concentrations of volatile organics were calculated using the external standard technique.

Analytes reported by this field method should be treated as tentatively identified compounds and concentrations are approximate.

Date Samples Received by the Laboratory: 7/20/17

If you have any questions please call me at 617-918-8340 .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2017.08.03 10:38:52 -04'00'

Qualifiers

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

Quinlan Russell - Meriden, CT

Volatile Organic Analysis of Water

Lab Sample ID	Client Sample ID	1,1,1-Trichloroethane ug/L	Tetrachloroethylene ug/L	Trichloroethylene ug/L
AB68592	MW-3	ND (0.1)	0.09	ND (0.1)
AB68593	MW-2	ND (0.1)	ND (0.05)	ND (0.1)
AB68594	MW-2d	ND (0.1)	ND (0.05)	ND (0.1)

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

August 01, 2017

Sebastian Rodríguez - Mail Code OSRR07-3
Jerry Keefe - OEME/EIA
US EPA New England R1

Project Number: 17070027
Project: Quinlan Russell - Meriden, CT
Analysis:VOAs in Soil High Level Method
EPA Chemist: Joseph Montanaro

Date Samples Received by the Laboratory: 07/20/2017

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-VOAGCMS9.

Samples were analyzed by GC/MS. Samples were introduced to the GC via a Tekmar preconcentrator and an Archon auto-sampler. The analysis SOP is based on US EPA Method 8260B, revision 2.0, 1996 and Method 5035A, draft revision 1, 2002, from SW-846.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Digitally signed by Dan Boudreau
DN: cn=Dan Boudreau, o=EPA, ou=EIA, email=boudreau.dan@epa.gov, c=US
Date: 2017.08.01 17:29:18 -04'00'

17070027$VOAHS

Qualifiers

RL = Reporting limit
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NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
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R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	MB-01	Lab Sample ID:	AB68452
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	50
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
74-87-3	Chloromethane	ND	50	
75-01-4	Vinyl Chloride	ND	50	
74-83-9	Bromomethane	ND	50	
75-00-3	Chloroethane	ND	50	
75-69-4	Trichlorofluoromethane	ND	50	
60-29-7	Ethyl Ether	ND	50	
67-64-1	2-Propanone (acetone)	ND	50	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	50	
75-35-4	1,1-Dichloroethylene	ND	50	
75-15-0	Carbon Disulfide	ND	50	
75-71-8	Dichlorodifluoromethane	ND	50	
75-09-2	Methylene Chloride	ND	50	
107-13-1	Acrylonitrile	ND	50	
1634-04-4	Methyl-t-Butyl Ether	ND	50	
156-60-5	Trans-1,2-Dichloroethylene	ND	50	
75-34-3	1,1-dichloroethane	ND	50	
108-05-4	Vinyl Acetate	ND	50	
78-93-3	2-Butanone (MEK)	ND	50	
594-20-7	2,2-Dichloropropane	ND	50	
156-59-2	cis-1,2-Dichloroethylene	ND	50	
67-66-3	Chloroform	ND	50	
74-97-5	Bromochloromethane	ND	50	
109-99-9	Tetrahydrofuran	ND	50	
71-55-6	1,1,1-Trichloroethane	ND	50	
107-06-2	1,2-Dichloroethane	ND	50	
56-23-5	Carbon tetrachloride	ND	50	
71-43-2	Benzene	ND	50	
10061-01-5	c-1,3-dichloropropene	ND	50	
108-88-3	Toluene	ND	50	
10061-02-6	t-1,3-Dichloropropene	ND	50	
79-00-5	1,1,2-Trichloroethane	ND	50	
124-48-1	Dibromochloromethane	ND	50	
108-90-7	Chlorobenzene	ND	50	
563-58-6	1,1-Dichloropropene	ND	50	
79-01-6	Trichloroethylene	ND	50	
78-87-5	1,2-Dichloropropane	ND	50	
75-27-4	Bromodichloromethane	ND	50	
74-95-3	Dibromomethane	ND	50	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	50	
142-28-9	1,3-Dichloropropane	ND	50	
127-18-4	Tetrachloroethylene	ND	50	
106-93-4	1,2-Dibromoethane	ND	50	

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	MB-01	Lab Sample ID:	AB68452
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	50
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
591-78-6	2-Hexanone	ND	50	
630-20-6	1,1,1,2-Tetrachloroethane	ND	50	
100-41-4	Ethylbenzene	ND	50	
108-38-3/106-42-3	M/P Xylene	ND	100	
95-47-6	Ortho Xylene	ND	50	
100-42-5	Styrene	ND	50	
75-25-2	Bromoform	ND	50	
79-34-5	1,1,2,2-Tetrachloroethane	ND	50	
98-82-8	Isopropylbenzene	ND	50	
108-86-1	Bromobenzene	ND	50	
96-18-4	1,2,3-Trichloropropane	ND	50	
103-65-1	N-Propylbenzene	ND	50	
95-49-8	2-Chlorotoluene	ND	50	
106-43-4	4-Chlorotoluene	ND	50	
98-06-6	Tert-Butylbenzene	ND	50	
108-67-8	1,3,5-Trimethylbenzene	ND	50	
95-63-6	1,2,4-Trimethylbenzene	ND	50	
135-98-8	Sec-Butylbenzene	ND	50	
541-73-1	1,3-Dichlorobenzene	ND	50	
99-87-6	Para-Isopropyltoluene	ND	50	
106-46-7	1,4-Dichlorobenzene	ND	50	
95-50-1	1,2-Dichlorobenzene	ND	50	
104-51-8	N-Butylbenzene	ND	50	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	50	
120-82-1	1,2,4-Trichlorobenzene	ND	50	
87-68-3	Hexachlorobutadiene	ND	50	
91-20-3	Naphthalene	ND	50	
87-61-6	1,2,3-Trichlorobenzene	ND	50	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	100	74 - 136
Toluene-D8	96	85 - 118
1,4-Bromofluorobenzene	90	78 - 111

Comments: Methanol blank sample is reported in ug/L.

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	MB-02	Lab Sample ID:	AB68453
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	50
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
74-87-3	Chloromethane	ND	50	
75-01-4	Vinyl Chloride	ND	50	
74-83-9	Bromomethane	ND	50	
75-00-3	Chloroethane	ND	50	
75-69-4	Trichlorofluoromethane	ND	50	
60-29-7	Ethyl Ether	ND	50	
67-64-1	2-Propanone (acetone)	ND	50	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	50	
75-35-4	1,1-Dichloroethylene	ND	50	
75-15-0	Carbon Disulfide	ND	50	
75-71-8	Dichlorodifluoromethane	ND	50	
75-09-2	Methylene Chloride	ND	50	
107-13-1	Acrylonitrile	ND	50	
1634-04-4	Methyl-t-Butyl Ether	ND	50	
156-60-5	Trans-1,2-Dichloroethylene	ND	50	
75-34-3	1,1-dichloroethane	ND	50	
108-05-4	Vinyl Acetate	ND	50	
78-93-3	2-Butanone (MEK)	ND	50	
594-20-7	2,2-Dichloropropane	ND	50	
156-59-2	cis-1,2-Dichloroethylene	ND	50	
67-66-3	Chloroform	ND	50	
74-97-5	Bromochloromethane	ND	50	
109-99-9	Tetrahydrofuran	ND	50	
71-55-6	1,1,1-Trichloroethane	ND	50	
107-06-2	1,2-Dichloroethane	ND	50	
56-23-5	Carbon tetrachloride	ND	50	
71-43-2	Benzene	ND	50	
10061-01-5	c-1,3-dichloropropene	ND	50	
108-88-3	Toluene	ND	50	
10061-02-6	t-1,3-Dichloropropene	ND	50	
79-00-5	1,1,2-Trichloroethane	ND	50	
124-48-1	Dibromochloromethane	ND	50	
108-90-7	Chlorobenzene	ND	50	
563-58-6	1,1-Dichloropropene	ND	50	
79-01-6	Trichloroethylene	ND	50	
78-87-5	1,2-Dichloropropane	ND	50	
75-27-4	Bromodichloromethane	ND	50	
74-95-3	Dibromomethane	ND	50	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	50	
142-28-9	1,3-Dichloropropane	ND	50	
127-18-4	Tetrachloroethylene	ND	50	
106-93-4	1,2-Dibromoethane	ND	50	

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	MB-02	Lab Sample ID:	AB68453
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	50
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
591-78-6	2-Hexanone	ND	50	
630-20-6	1,1,1,2-Tetrachloroethane	ND	50	
100-41-4	Ethylbenzene	ND	50	
108-38-3/106-42-3	M/P Xylene	ND	100	
95-47-6	Ortho Xylene	ND	50	
100-42-5	Styrene	ND	50	
75-25-2	Bromoform	ND	50	
79-34-5	1,1,2,2-Tetrachloroethane	ND	50	
98-82-8	Isopropylbenzene	ND	50	
108-86-1	Bromobenzene	ND	50	
96-18-4	1,2,3-Trichloropropane	ND	50	
103-65-1	N-Propylbenzene	ND	50	
95-49-8	2-Chlorotoluene	ND	50	
106-43-4	4-Chlorotoluene	ND	50	
98-06-6	Tert-Butylbenzene	ND	50	
108-67-8	1,3,5-Trimethylbenzene	ND	50	
95-63-6	1,2,4-Trimethylbenzene	ND	50	
135-98-8	Sec-Butylbenzene	ND	50	
541-73-1	1,3-Dichlorobenzene	ND	50	
99-87-6	Para-Isopropyltoluene	ND	50	
106-46-7	1,4-Dichlorobenzene	ND	50	
95-50-1	1,2-Dichlorobenzene	ND	50	
104-51-8	N-Butylbenzene	ND	50	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	50	
120-82-1	1,2,4-Trichlorobenzene	ND	50	
87-68-3	Hexachlorobutadiene	ND	50	
91-20-3	Naphthalene	ND	50	
87-61-6	1,2,3-Trichlorobenzene	ND	50	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	101	74 - 136
Toluene-D8	96	85 - 118
1,4-Bromofluorobenzene	91	78 - 111

Comments: Methanol blank sample is reported in ug/L.

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-19A	Lab Sample ID:	AB68454
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	87%
Dry Weight Prepared:	4.76 grams	Extract Dilution:	50
Wet Weight Prepared:	5.48 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
74-87-3	Chloromethane	ND	110	
75-01-4	Vinyl Chloride	ND	110	
74-83-9	Bromomethane	ND	110	
75-00-3	Chloroethane	ND	110	
75-69-4	Trichlorofluoromethane	ND	110	
60-29-7	Ethyl Ether	ND	110	
67-64-1	2-Propanone (acetone)	ND	110	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	110	
75-35-4	1,1-Dichloroethylene	ND	110	
75-15-0	Carbon Disulfide	ND	110	
75-71-8	Dichlorodifluoromethane	ND	110	
75-09-2	Methylene Chloride	ND	110	
107-13-1	Acrylonitrile	ND	110	
1634-04-4	Methyl-t-Butyl Ether	ND	110	
156-60-5	Trans-1,2-Dichloroethylene	ND	110	
75-34-3	1,1-dichloroethane	ND	110	
108-05-4	Vinyl Acetate	ND	110	
78-93-3	2-Butanone (MEK)	ND	110	
594-20-7	2,2-Dichloropropane	ND	110	
156-59-2	cis-1,2-Dichloroethylene	ND	110	
67-66-3	Chloroform	ND	110	
74-97-5	Bromochloromethane	ND	110	
109-99-9	Tetrahydrofuran	ND	110	
71-55-6	1,1,1-Trichloroethane	ND	110	
107-06-2	1,2-Dichloroethane	ND	110	
56-23-5	Carbon tetrachloride	ND	110	
71-43-2	Benzene	ND	110	
10061-01-5	c-1,3-dichloropropene	ND	110	
108-88-3	Toluene	ND	110	
10061-02-6	t-1,3-Dichloropropene	ND	110	
79-00-5	1,1,2-Trichloroethane	ND	110	
124-48-1	Dibromochloromethane	ND	110	
108-90-7	Chlorobenzene	ND	110	
563-58-6	1,1-Dichloropropene	ND	110	
79-01-6	Trichloroethylene	ND	110	
78-87-5	1,2-Dichloropropane	ND	110	
75-27-4	Bromodichloromethane	ND	110	
74-95-3	Dibromomethane	ND	110	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	110	
142-28-9	1,3-Dichloropropane	ND	110	
127-18-4	Tetrachloroethylene	**170**	110	
106-93-4	1,2-Dibromoethane	ND	110	

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-19A	Lab Sample ID:	AB68454
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	87%
Dry Weight Prepared:	4.76 grams	Extract Dilution:	50
Wet Weight Prepared:	5.48 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
591-78-6	2-Hexanone	ND	110	
630-20-6	1,1,1,2-Tetrachloroethane	ND	110	
100-41-4	Ethylbenzene	ND	110	
108-38-3/106-42-3	M/P Xylene	ND	220	
95-47-6	Ortho Xylene	ND	110	
100-42-5	Styrene	ND	110	
75-25-2	Bromoform	ND	110	
79-34-5	1,1,2,2-Tetrachloroethane	ND	110	
98-82-8	Isopropylbenzene	ND	110	
108-86-1	Bromobenzene	ND	110	
96-18-4	1,2,3-Trichloropropane	ND	110	
103-65-1	N-Propylbenzene	ND	110	
95-49-8	2-Chlorotoluene	ND	110	
106-43-4	4-Chlorotoluene	ND	110	
98-06-6	Tert-Butylbenzene	ND	110	
108-67-8	1,3,5-Trimethylbenzene	ND	110	
95-63-6	1,2,4-Trimethylbenzene	ND	110	
135-98-8	Sec-Butylbenzene	ND	110	
541-73-1	1,3-Dichlorobenzene	ND	110	
99-87-6	Para-Isopropyltoluene	ND	110	
106-46-7	1,4-Dichlorobenzene	ND	110	
95-50-1	1,2-Dichlorobenzene	ND	110	
104-51-8	N-Butylbenzene	ND	110	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	110	
120-82-1	1,2,4-Trichlorobenzene	ND	110	
87-68-3	Hexachlorobutadiene	ND	110	
91-20-3	Naphthalene	ND	110	
87-61-6	1,2,3-Trichlorobenzene	ND	110	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	99	74 - 136
Toluene-D8	98	85 - 118
1,4-Bromofluorobenzene	90	78 - 111

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-11A	Lab Sample ID:	AB68455
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	91%
Dry Weight Prepared:	7.97 grams	Extract Dilution:	50
Wet Weight Prepared:	8.73 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
74-87-3	Chloromethane	ND	67	
75-01-4	Vinyl Chloride	ND	67	
74-83-9	Bromomethane	ND	67	
75-00-3	Chloroethane	ND	67	
75-69-4	Trichlorofluoromethane	ND	67	
60-29-7	Ethyl Ether	ND	67	
67-64-1	2-Propanone (acetone)	ND	67	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	67	
75-35-4	1,1-Dichloroethylene	ND	67	
75-15-0	Carbon Disulfide	ND	67	
75-71-8	Dichlorodifluoromethane	ND	67	
75-09-2	Methylene Chloride	ND	67	
107-13-1	Acrylonitrile	ND	67	
1634-04-4	Methyl-t-Butyl Ether	ND	67	
156-60-5	Trans-1,2-Dichloroethylene	ND	67	
75-34-3	1,1-dichloroethane	ND	67	
108-05-4	Vinyl Acetate	ND	67	
78-93-3	2-Butanone (MEK)	ND	67	
594-20-7	2,2-Dichloropropane	ND	67	
156-59-2	cis-1,2-Dichloroethylene	ND	67	
67-66-3	Chloroform	ND	67	
74-97-5	Bromochloromethane	ND	67	
109-99-9	Tetrahydrofuran	ND	67	
71-55-6	1,1,1-Trichloroethane	ND	67	
107-06-2	1,2-Dichloroethane	ND	67	
56-23-5	Carbon tetrachloride	ND	67	
71-43-2	Benzene	ND	67	
10061-01-5	c-1,3-dichloropropene	ND	67	
108-88-3	Toluene	ND	67	
10061-02-6	t-1,3-Dichloropropene	ND	67	
79-00-5	1,1,2-Trichloroethane	ND	67	
124-48-1	Dibromochloromethane	ND	67	
108-90-7	Chlorobenzene	ND	67	
563-58-6	1,1-Dichloropropene	ND	67	
79-01-6	Trichloroethylene	**270**	67	
78-87-5	1,2-Dichloropropane	ND	67	
75-27-4	Bromodichloromethane	ND	67	
74-95-3	Dibromomethane	ND	67	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	67	
142-28-9	1,3-Dichloropropane	ND	67	
127-18-4	Tetrachloroethylene	**100**	67	
106-93-4	1,2-Dibromoethane	ND	67	

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-11A	Lab Sample ID:	AB68455
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	91%
Dry Weight Prepared:	7.97 grams	Extract Dilution:	50
Wet Weight Prepared:	8.73 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
591-78-6	2-Hexanone	ND	67	
630-20-6	1,1,1,2-Tetrachloroethane	ND	67	
100-41-4	Ethylbenzene	ND	67	
108-38-3/106-42-3	M/P Xylene	ND	130	
95-47-6	Ortho Xylene	ND	67	
100-42-5	Styrene	ND	67	
75-25-2	Bromoform	ND	67	
79-34-5	1,1,2,2-Tetrachloroethane	ND	67	
98-82-8	Isopropylbenzene	ND	67	
108-86-1	Bromobenzene	ND	67	
96-18-4	1,2,3-Trichloropropane	ND	67	
103-65-1	N-Propylbenzene	ND	67	
95-49-8	2-Chlorotoluene	ND	67	
106-43-4	4-Chlorotoluene	ND	67	
98-06-6	Tert-Butylbenzene	ND	67	
108-67-8	1,3,5-Trimethylbenzene	ND	67	
95-63-6	1,2,4-Trimethylbenzene	ND	67	
135-98-8	Sec-Butylbenzene	ND	67	
541-73-1	1,3-Dichlorobenzene	ND	67	
99-87-6	Para-Isopropyltoluene	ND	67	
106-46-7	1,4-Dichlorobenzene	ND	67	
95-50-1	1,2-Dichlorobenzene	ND	67	
104-51-8	N-Butylbenzene	ND	67	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	67	
120-82-1	1,2,4-Trichlorobenzene	ND	67	
87-68-3	Hexachlorobutadiene	ND	67	
91-20-3	Naphthalene	ND	67	
87-61-6	1,2,3-Trichlorobenzene	ND	67	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	100	74 - 136
Toluene-D8	95	85 - 118
1,4-Bromofluorobenzene	89	78 - 111

Quinlan Russell - Meriden, CT

Laboratory Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	~6
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	1.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	ND	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	

Quinlan Russell - Meriden, CT

Laboratory Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	~6
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
591-78-6	2-Hexanone	ND	1.0	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	104	74 - 136
Toluene-D8	99	85 - 118
1,4-Bromofluorobenzene	96	78 - 111

Comments: Laboratory blank is reported in ug/L.

Laboratory blank is associated with sample AB68452 - AB68455, AB68457, AB68458, AB68465, and AB68466.

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-14D	Lab Sample ID:	AB68456
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	75%
Dry Weight Prepared:	7.07 grams	Extract Dilution:	50
Wet Weight Prepared:	9.39 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
74-87-3	Chloromethane	ND	88	
75-01-4	Vinyl Chloride	ND	88	
74-83-9	Bromomethane	ND	88	
75-00-3	Chloroethane	ND	88	
75-69-4	Trichlorofluoromethane	ND	88	
60-29-7	Ethyl Ether	ND	88	
67-64-1	2-Propanone (acetone)	ND	88	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	88	
75-35-4	1,1-Dichloroethylene	ND	88	
75-15-0	Carbon Disulfide	ND	88	
75-71-8	Dichlorodifluoromethane	ND	88	
75-09-2	Methylene Chloride	ND	88	
107-13-1	Acrylonitrile	ND	88	
1634-04-4	Methyl-t-Butyl Ether	ND	88	
156-60-5	Trans-1,2-Dichloroethylene	ND	88	
75-34-3	1,1-dichloroethane	ND	88	
108-05-4	Vinyl Acetate	ND	88	
78-93-3	2-Butanone (MEK)	ND	88	
594-20-7	2,2-Dichloropropane	ND	88	
156-59-2	cis-1,2-Dichloroethylene	ND	88	
67-66-3	Chloroform	ND	88	
74-97-5	Bromochloromethane	ND	88	
109-99-9	Tetrahydrofuran	ND	88	
71-55-6	1,1,1-Trichloroethane	ND	88	
107-06-2	1,2-Dichloroethane	ND	88	
56-23-5	Carbon tetrachloride	ND	88	
71-43-2	Benzene	ND	88	
10061-01-5	c-1,3-dichloropropene	ND	88	
108-88-3	Toluene	ND	88	
10061-02-6	t-1,3-Dichloropropene	ND	88	
79-00-5	1,1,2-Trichloroethane	ND	88	
124-48-1	Dibromochloromethane	ND	88	
108-90-7	Chlorobenzene	ND	88	
563-58-6	1,1-Dichloropropene	ND	88	
79-01-6	Trichloroethylene	ND	88	
78-87-5	1,2-Dichloropropane	ND	88	
75-27-4	Bromodichloromethane	ND	88	
74-95-3	Dibromomethane	ND	88	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	88	
142-28-9	1,3-Dichloropropane	ND	88	
127-18-4	Tetrachloroethylene	ND	88	
106-93-4	1,2-Dibromoethane	ND	88	

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-14D	Lab Sample ID:	AB68456
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	75%
Dry Weight Prepared:	7.07 grams	Extract Dilution:	50
Wet Weight Prepared:	9.39 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
591-78-6	2-Hexanone	ND	88	
630-20-6	1,1,1,2-Tetrachloroethane	ND	88	
100-41-4	Ethylbenzene	ND	88	
108-38-3/106-42-3	M/P Xylene	ND	180	
95-47-6	Ortho Xylene	ND	88	
100-42-5	Styrene	ND	88	
75-25-2	Bromoform	ND	88	
79-34-5	1,1,2,2-Tetrachloroethane	ND	88	
98-82-8	Isopropylbenzene	ND	88	
108-86-1	Bromobenzene	ND	88	
96-18-4	1,2,3-Trichloropropane	ND	88	
103-65-1	N-Propylbenzene	ND	88	
95-49-8	2-Chlorotoluene	ND	88	
106-43-4	4-Chlorotoluene	ND	88	
98-06-6	Tert-Butylbenzene	ND	88	
108-67-8	1,3,5-Trimethylbenzene	ND	88	
95-63-6	1,2,4-Trimethylbenzene	ND	88	
135-98-8	Sec-Butylbenzene	ND	88	
541-73-1	1,3-Dichlorobenzene	ND	88	
99-87-6	Para-Isopropyltoluene	ND	88	
106-46-7	1,4-Dichlorobenzene	ND	88	
95-50-1	1,2-Dichlorobenzene	ND	88	
104-51-8	N-Butylbenzene	ND	88	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	88	
120-82-1	1,2,4-Trichlorobenzene	ND	88	
87-68-3	Hexachlorobutadiene	ND	88	
91-20-3	Naphthalene	ND	88	
87-61-6	1,2,3-Trichlorobenzene	ND	88	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	101	74 - 136
Toluene-D8	96	85 - 118
1,4-Bromofluorobenzene	93	78 - 111

Quinlan Russell - Meriden, CT

Laboratory Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	N/A
Date of Analysis:	7/25/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
74-87-3	Chloromethane	ND	1.0	
75-01-4	Vinyl Chloride	ND	1.0	
74-83-9	Bromomethane	ND	1.0	
75-00-3	Chloroethane	ND	1.0	
75-69-4	Trichlorofluoromethane	ND	1.0	
60-29-7	Ethyl Ether	ND	1.0	
67-64-1	2-Propanone (acetone)	ND	1.0	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	1.0	
75-35-4	1,1-Dichloroethylene	ND	1.0	
75-15-0	Carbon Disulfide	ND	1.0	
75-71-8	Dichlorodifluoromethane	ND	1.0	
75-09-2	Methylene Chloride	ND	1.0	
107-13-1	Acrylonitrile	ND	1.0	
1634-04-4	Methyl-t-Butyl Ether	ND	1.0	
156-60-5	Trans-1,2-Dichloroethylene	ND	1.0	
75-34-3	1,1-dichloroethane	ND	1.0	
108-05-4	Vinyl Acetate	ND	1.0	
78-93-3	2-Butanone (MEK)	ND	1.0	
594-20-7	2,2-Dichloropropane	ND	1.0	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	
67-66-3	Chloroform	ND	1.0	
74-97-5	Bromochloromethane	ND	1.0	
109-99-9	Tetrahydrofuran	ND	1.0	
71-55-6	1,1,1-Trichloroethane	ND	1.0	
107-06-2	1,2-Dichloroethane	ND	1.0	
56-23-5	Carbon tetrachloride	ND	1.0	
71-43-2	Benzene	ND	1.0	
10061-01-5	c-1,3-dichloropropene	ND	1.0	
108-88-3	Toluene	ND	1.0	
10061-02-6	t-1,3-Dichloropropene	ND	1.0	
79-00-5	1,1,2-Trichloroethane	ND	1.0	
124-48-1	Dibromochloromethane	ND	1.0	
108-90-7	Chlorobenzene	ND	1.0	
563-58-6	1,1-Dichloropropene	ND	1.0	
79-01-6	Trichloroethylene	ND	1.0	
78-87-5	1,2-Dichloropropane	ND	1.0	
75-27-4	Bromodichloromethane	ND	1.0	
74-95-3	Dibromomethane	ND	1.0	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	1.0	
142-28-9	1,3-Dichloropropane	ND	1.0	
127-18-4	Tetrachloroethylene	ND	1.0	
106-93-4	1,2-Dibromoethane	ND	1.0	

Quinlan Russell - Meriden, CT

Laboratory Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	N/A
Date of Analysis:	7/25/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	N/A
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
591-78-6	2-Hexanone	ND	1.0	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	
100-41-4	Ethylbenzene	ND	1.0	
108-38-3/106-42-3	M/P Xylene	ND	2.0	
95-47-6	Ortho Xylene	ND	1.0	
100-42-5	Styrene	ND	1.0	
75-25-2	Bromoform	ND	1.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	
98-82-8	Isopropylbenzene	ND	1.0	
108-86-1	Bromobenzene	ND	1.0	
96-18-4	1,2,3-Trichloropropane	ND	1.0	
103-65-1	N-Propylbenzene	ND	1.0	
95-49-8	2-Chlorotoluene	ND	1.0	
106-43-4	4-Chlorotoluene	ND	1.0	
98-06-6	Tert-Butylbenzene	ND	1.0	
108-67-8	1,3,5-Trimethylbenzene	ND	1.0	
95-63-6	1,2,4-Trimethylbenzene	ND	1.0	
135-98-8	Sec-Butylbenzene	ND	1.0	
541-73-1	1,3-Dichlorobenzene	ND	1.0	
99-87-6	Para-Isopropyltoluene	ND	1.0	
106-46-7	1,4-Dichlorobenzene	ND	1.0	
95-50-1	1,2-Dichlorobenzene	ND	1.0	
104-51-8	N-Butylbenzene	ND	1.0	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	1.0	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	
87-68-3	Hexachlorobutadiene	ND	1.0	
91-20-3	Naphthalene	ND	1.0	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	101	74 - 136
Toluene-D8	97	85 - 118
1,4-Bromofluorobenzene	93	78 - 111

Comments: Laboratory blank is reported in ug/L.

Laboratory blank is associated with sample AB68456.

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-14C	Lab Sample ID:	AB68457
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	74%
Dry Weight Prepared:	7.31 grams	Extract Dilution:	50
Wet Weight Prepared:	9.94 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
74-87-3	Chloromethane	ND	86	
75-01-4	Vinyl Chloride	ND	86	
74-83-9	Bromomethane	ND	86	
75-00-3	Chloroethane	ND	86	
75-69-4	Trichlorofluoromethane	ND	86	
60-29-7	Ethyl Ether	ND	86	
67-64-1	2-Propanone (acetone)	ND	86	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	86	
75-35-4	1,1-Dichloroethylene	ND	86	
75-15-0	Carbon Disulfide	ND	86	
75-71-8	Dichlorodifluoromethane	ND	86	
75-09-2	Methylene Chloride	ND	86	
107-13-1	Acrylonitrile	ND	86	
1634-04-4	Methyl-t-Butyl Ether	ND	86	
156-60-5	Trans-1,2-Dichloroethylene	ND	86	
75-34-3	1,1-dichloroethane	ND	86	
108-05-4	Vinyl Acetate	ND	86	
78-93-3	2-Butanone (MEK)	ND	86	
594-20-7	2,2-Dichloropropane	ND	86	
156-59-2	cis-1,2-Dichloroethylene	ND	86	
67-66-3	Chloroform	ND	86	
74-97-5	Bromochloromethane	ND	86	
109-99-9	Tetrahydrofuran	ND	86	
71-55-6	1,1,1-Trichloroethane	ND	86	
107-06-2	1,2-Dichloroethane	ND	86	
56-23-5	Carbon tetrachloride	ND	86	
71-43-2	Benzene	ND	86	
10061-01-5	c-1,3-dichloropropene	ND	86	
108-88-3	Toluene	ND	86	
10061-02-6	t-1,3-Dichloropropene	ND	86	
79-00-5	1,1,2-Trichloroethane	ND	86	
124-48-1	Dibromochloromethane	ND	86	
108-90-7	Chlorobenzene	ND	86	
563-58-6	1,1-Dichloropropene	ND	86	
79-01-6	Trichloroethylene	ND	86	
78-87-5	1,2-Dichloropropane	ND	86	
75-27-4	Bromodichloromethane	ND	86	
74-95-3	Dibromomethane	ND	86	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	86	
142-28-9	1,3-Dichloropropane	ND	86	
127-18-4	Tetrachloroethylene	ND	86	
106-93-4	1,2-Dibromoethane	ND	86	

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-14C	Lab Sample ID:	AB68457
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	74%
Dry Weight Prepared:	7.31 grams	Extract Dilution:	50
Wet Weight Prepared:	9.94 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
591-78-6	2-Hexanone	ND	86	
630-20-6	1,1,1,2-Tetrachloroethane	ND	86	
100-41-4	Ethylbenzene	ND	86	
108-38-3/106-42-3	M/P Xylene	ND	170	
95-47-6	Ortho Xylene	ND	86	
100-42-5	Styrene	ND	86	
75-25-2	Bromoform	ND	86	
79-34-5	1,1,2,2-Tetrachloroethane	ND	86	
98-82-8	Isopropylbenzene	ND	86	
108-86-1	Bromobenzene	ND	86	
96-18-4	1,2,3-Trichloropropane	ND	86	
103-65-1	N-Propylbenzene	ND	86	
95-49-8	2-Chlorotoluene	ND	86	
106-43-4	4-Chlorotoluene	ND	86	
98-06-6	Tert-Butylbenzene	ND	86	
108-67-8	1,3,5-Trimethylbenzene	ND	86	
95-63-6	1,2,4-Trimethylbenzene	ND	86	
135-98-8	Sec-Butylbenzene	ND	86	
541-73-1	1,3-Dichlorobenzene	ND	86	
99-87-6	Para-Isopropyltoluene	ND	86	
106-46-7	1,4-Dichlorobenzene	ND	86	
95-50-1	1,2-Dichlorobenzene	ND	86	
104-51-8	N-Butylbenzene	ND	86	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	86	
120-82-1	1,2,4-Trichlorobenzene	ND	86	
87-68-3	Hexachlorobutadiene	ND	86	
91-20-3	Naphthalene	ND	86	
87-61-6	1,2,3-Trichlorobenzene	ND	86	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	101	74 - 136
Toluene-D8	96	85 - 118
1,4-Bromofluorobenzene	93	78 - 111

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-13C	Lab Sample ID:	AB68458
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	87%
Dry Weight Prepared:	8.68 grams	Extract Dilution:	50
Wet Weight Prepared:	9.98 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
74-87-3	Chloromethane	ND	65	
75-01-4	Vinyl Chloride	ND	65	
74-83-9	Bromomethane	ND	65	
75-00-3	Chloroethane	ND	65	
75-69-4	Trichlorofluoromethane	ND	65	
60-29-7	Ethyl Ether	ND	65	
67-64-1	2-Propanone (acetone)	ND	65	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	65	
75-35-4	1,1-Dichloroethylene	ND	65	
75-15-0	Carbon Disulfide	ND	65	
75-71-8	Dichlorodifluoromethane	ND	65	
75-09-2	Methylene Chloride	ND	65	
107-13-1	Acrylonitrile	ND	65	
1634-04-4	Methyl-t-Butyl Ether	ND	65	
156-60-5	Trans-1,2-Dichloroethylene	ND	65	
75-34-3	1,1-dichloroethane	ND	65	
108-05-4	Vinyl Acetate	ND	65	
78-93-3	2-Butanone (MEK)	ND	65	
594-20-7	2,2-Dichloropropane	ND	65	
156-59-2	cis-1,2-Dichloroethylene	ND	65	
67-66-3	Chloroform	ND	65	
74-97-5	Bromochloromethane	ND	65	
109-99-9	Tetrahydrofuran	ND	65	
71-55-6	1,1,1-Trichloroethane	ND	65	
107-06-2	1,2-Dichloroethane	ND	65	
56-23-5	Carbon tetrachloride	ND	65	
71-43-2	Benzene	ND	65	
10061-01-5	c-1,3-dichloropropene	ND	65	
108-88-3	Toluene	ND	65	
10061-02-6	t-1,3-Dichloropropene	ND	65	
79-00-5	1,1,2-Trichloroethane	ND	65	
124-48-1	Dibromochloromethane	ND	65	
108-90-7	Chlorobenzene	ND	65	
563-58-6	1,1-Dichloropropene	ND	65	
79-01-6	Trichloroethylene	ND	65	
78-87-5	1,2-Dichloropropane	ND	65	
75-27-4	Bromodichloromethane	ND	65	
74-95-3	Dibromomethane	ND	65	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	65	
142-28-9	1,3-Dichloropropane	ND	65	
127-18-4	Tetrachloroethylene	ND	65	
106-93-4	1,2-Dibromoethane	ND	65	

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-13C	Lab Sample ID:	AB68458
Date of Collection:	7/18/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	87%
Dry Weight Prepared:	8.68 grams	Extract Dilution:	50
Wet Weight Prepared:	9.98 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
591-78-6	2-Hexanone	ND	65	
630-20-6	1,1,1,2-Tetrachloroethane	ND	65	
100-41-4	Ethylbenzene	ND	65	
108-38-3/106-42-3	M/P Xylene	ND	130	
95-47-6	Ortho Xylene	ND	65	
100-42-5	Styrene	ND	65	
75-25-2	Bromoform	ND	65	
79-34-5	1,1,2,2-Tetrachloroethane	ND	65	
98-82-8	Isopropylbenzene	ND	65	
108-86-1	Bromobenzene	ND	65	
96-18-4	1,2,3-Trichloropropane	ND	65	
103-65-1	N-Propylbenzene	ND	65	
95-49-8	2-Chlorotoluene	ND	65	
106-43-4	4-Chlorotoluene	ND	65	
98-06-6	Tert-Butylbenzene	ND	65	
108-67-8	1,3,5-Trimethylbenzene	ND	65	
95-63-6	1,2,4-Trimethylbenzene	ND	65	
135-98-8	Sec-Butylbenzene	ND	65	
541-73-1	1,3-Dichlorobenzene	ND	65	
99-87-6	Para-Isopropyltoluene	ND	65	
106-46-7	1,4-Dichlorobenzene	ND	65	
95-50-1	1,2-Dichlorobenzene	ND	65	
104-51-8	N-Butylbenzene	ND	65	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	65	
120-82-1	1,2,4-Trichlorobenzene	ND	65	
87-68-3	Hexachlorobutadiene	ND	65	
91-20-3	Naphthalene	**240**	65	
87-61-6	1,2,3-Trichlorobenzene	ND	65	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	98	74 - 136
Toluene-D8	98	85 - 118
1,4-Bromofluorobenzene	90	78 - 111

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-01AM2	Lab Sample ID:	AB68465
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	88%
Dry Weight Prepared:	8.63 grams	Extract Dilution:	50
Wet Weight Prepared:	9.81 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
74-87-3	Chloromethane	ND	65	
75-01-4	Vinyl Chloride	ND	65	
74-83-9	Bromomethane	ND	65	
75-00-3	Chloroethane	ND	65	
75-69-4	Trichlorofluoromethane	ND	65	
60-29-7	Ethyl Ether	ND	65	
67-64-1	2-Propanone (acetone)	ND	65	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	65	
75-35-4	1,1-Dichloroethylene	ND	65	
75-15-0	Carbon Disulfide	ND	65	
75-71-8	Dichlorodifluoromethane	ND	65	
75-09-2	Methylene Chloride	ND	65	
107-13-1	Acrylonitrile	ND	65	
1634-04-4	Methyl-t-Butyl Ether	ND	65	
156-60-5	Trans-1,2-Dichloroethylene	ND	65	
75-34-3	1,1-dichloroethane	ND	65	
108-05-4	Vinyl Acetate	ND	65	
78-93-3	2-Butanone (MEK)	ND	65	
594-20-7	2,2-Dichloropropane	ND	65	
156-59-2	cis-1,2-Dichloroethylene	ND	65	
67-66-3	Chloroform	ND	65	
74-97-5	Bromochloromethane	ND	65	
109-99-9	Tetrahydrofuran	ND	65	
71-55-6	1,1,1-Trichloroethane	ND	65	
107-06-2	1,2-Dichloroethane	ND	65	
56-23-5	Carbon tetrachloride	ND	65	
71-43-2	Benzene	ND	65	
10061-01-5	c-1,3-dichloropropene	ND	65	
108-88-3	Toluene	ND	65	
10061-02-6	t-1,3-Dichloropropene	ND	65	
79-00-5	1,1,2-Trichloroethane	ND	65	
124-48-1	Dibromochloromethane	ND	65	
108-90-7	Chlorobenzene	ND	65	
563-58-6	1,1-Dichloropropene	ND	65	
79-01-6	Trichloroethylene	ND	65	
78-87-5	1,2-Dichloropropane	ND	65	
75-27-4	Bromodichloromethane	ND	65	
74-95-3	Dibromomethane	ND	65	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	65	
142-28-9	1,3-Dichloropropane	ND	65	
127-18-4	Tetrachloroethylene	ND	65	
106-93-4	1,2-Dibromoethane	ND	65	

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-01AM2	Lab Sample ID:	AB68465
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	88%
Dry Weight Prepared:	8.63 grams	Extract Dilution:	50
Wet Weight Prepared:	9.81 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
591-78-6	2-Hexanone	ND	65	
630-20-6	1,1,1,2-Tetrachloroethane	ND	65	
100-41-4	Ethylbenzene	ND	65	
108-38-3/106-42-3	M/P Xylene	ND	130	
95-47-6	Ortho Xylene	ND	65	
100-42-5	Styrene	ND	65	
75-25-2	Bromoform	ND	65	
79-34-5	1,1,2,2-Tetrachloroethane	ND	65	
98-82-8	Isopropylbenzene	ND	65	
108-86-1	Bromobenzene	ND	65	
96-18-4	1,2,3-Trichloropropane	ND	65	
103-65-1	N-Propylbenzene	ND	65	
95-49-8	2-Chlorotoluene	ND	65	
106-43-4	4-Chlorotoluene	ND	65	
98-06-6	Tert-Butylbenzene	ND	65	
108-67-8	1,3,5-Trimethylbenzene	ND	65	
95-63-6	1,2,4-Trimethylbenzene	ND	65	
135-98-8	Sec-Butylbenzene	ND	65	
541-73-1	1,3-Dichlorobenzene	ND	65	
99-87-6	Para-Isopropyltoluene	ND	65	
106-46-7	1,4-Dichlorobenzene	ND	65	
95-50-1	1,2-Dichlorobenzene	ND	65	
104-51-8	N-Butylbenzene	ND	65	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	65	
120-82-1	1,2,4-Trichlorobenzene	ND	65	
87-68-3	Hexachlorobutadiene	ND	65	
91-20-3	Naphthalene	ND	65	
87-61-6	1,2,3-Trichlorobenzene	ND	65	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	102	74 - 136
Toluene-D8	96	85 - 118
1,4-Bromofluorobenzene	93	78 - 111

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-6BM2	Lab Sample ID:	AB68466
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	83%
Dry Weight Prepared:	8.97 grams	Extract Dilution:	50
Wet Weight Prepared:	10.84 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
74-87-3	Chloromethane	ND	69	
75-01-4	Vinyl Chloride	ND	69	
74-83-9	Bromomethane	ND	69	
75-00-3	Chloroethane	ND	69	
75-69-4	Trichlorofluoromethane	ND	69	
60-29-7	Ethyl Ether	ND	69	
67-64-1	2-Propanone (acetone)	ND	69	
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	69	
75-35-4	1,1-Dichloroethylene	ND	69	
75-15-0	Carbon Disulfide	ND	69	
75-71-8	Dichlorodifluoromethane	ND	69	
75-09-2	Methylene Chloride	ND	69	
107-13-1	Acrylonitrile	ND	69	
1634-04-4	Methyl-t-Butyl Ether	ND	69	
156-60-5	Trans-1,2-Dichloroethylene	ND	69	
75-34-3	1,1-dichloroethane	ND	69	
108-05-4	Vinyl Acetate	ND	69	
78-93-3	2-Butanone (MEK)	ND	69	
594-20-7	2,2-Dichloropropane	ND	69	
156-59-2	cis-1,2-Dichloroethylene	ND	69	
67-66-3	Chloroform	ND	69	
74-97-5	Bromochloromethane	ND	69	
109-99-9	Tetrahydrofuran	ND	69	
71-55-6	1,1,1-Trichloroethane	ND	69	
107-06-2	1,2-Dichloroethane	ND	69	
56-23-5	Carbon tetrachloride	ND	69	
71-43-2	Benzene	ND	69	
10061-01-5	c-1,3-dichloropropene	ND	69	
108-88-3	Toluene	ND	69	
10061-02-6	t-1,3-Dichloropropene	ND	69	
79-00-5	1,1,2-Trichloroethane	ND	69	
124-48-1	Dibromochloromethane	ND	69	
108-90-7	Chlorobenzene	ND	69	
563-58-6	1,1-Dichloropropene	ND	69	
79-01-6	Trichloroethylene	ND	69	
78-87-5	1,2-Dichloropropane	ND	69	
75-27-4	Bromodichloromethane	ND	69	
74-95-3	Dibromomethane	ND	69	
108-10-1	4-Methyl-2-Pentanone(MIBK)	ND	69	
142-28-9	1,3-Dichloropropane	ND	69	
127-18-4	Tetrachloroethylene	ND	69	
106-93-4	1,2-Dibromoethane	ND	69	

Quinlan Russell - Meriden, CT

VOAs in Soil High Level Method

Client Sample ID:	SB-6BM2	Lab Sample ID:	AB68466
Date of Collection:	7/19/2017	Matrix:	Soil
Date of Preparation:	7/25/2017	Amount Prepared:	5 mL
Date of Analysis:	7/25/2017	Percent Solids:	83%
Dry Weight Prepared:	8.97 grams	Extract Dilution:	50
Wet Weight Prepared:	10.84 grams	pH:	N/A
Volume Extracted:	5 mL	GPC Factor:	N/A
Final Volume:	N/A		

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
591-78-6	2-Hexanone	ND	69	
630-20-6	1,1,1,2-Tetrachloroethane	ND	69	
100-41-4	Ethylbenzene	ND	69	
108-38-3/106-42-3	M/P Xylene	ND	140	
95-47-6	Ortho Xylene	ND	69	
100-42-5	Styrene	ND	69	
75-25-2	Bromoform	ND	69	
79-34-5	1,1,2,2-Tetrachloroethane	ND	69	
98-82-8	Isopropylbenzene	ND	69	
108-86-1	Bromobenzene	ND	69	
96-18-4	1,2,3-Trichloropropane	ND	69	
103-65-1	N-Propylbenzene	ND	69	
95-49-8	2-Chlorotoluene	ND	69	
106-43-4	4-Chlorotoluene	ND	69	
98-06-6	Tert-Butylbenzene	ND	69	
108-67-8	1,3,5-Trimethylbenzene	ND	69	
95-63-6	1,2,4-Trimethylbenzene	ND	69	
135-98-8	Sec-Butylbenzene	ND	69	
541-73-1	1,3-Dichlorobenzene	ND	69	
99-87-6	Para-Isopropyltoluene	ND	69	
106-46-7	1,4-Dichlorobenzene	ND	69	
95-50-1	1,2-Dichlorobenzene	ND	69	
104-51-8	N-Butylbenzene	ND	69	
96-12-8	1,2-Dibromo-3-Chloropropane	ND	69	
120-82-1	1,2,4-Trichlorobenzene	ND	69	
87-68-3	Hexachlorobutadiene	ND	69	
91-20-3	Naphthalene	ND	69	
87-61-6	1,2,3-Trichlorobenzene	ND	69	

Surrogate Compounds	Recoveries (%)	QC Ranges
1,2-Dichloroethane-D4	102	74 - 136
Toluene-D8	96	85 - 118
1,4-Bromofluorobenzene	92	78 - 111

Quinlan Russell - Meriden, CT

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB68456

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
1,1,1,2-Tetrachloroethane	1764	ND	1800	100	74 - 124
1,1,1-Trichloroethane	1764	ND	1800	100	76 - 132
1,1,2,2-Tetrachloroethane	1764	ND	1800	100	69 - 125
1,1,2-Trichloro-1,2,2-Trifluoroetha	1764	ND	1800	100	68 - 144
1,1,2-Trichloroethane	1764	ND	1800	100	75 - 126
1,1-Dichloroethylene	1764	ND	1800	100	65 - 140
1,1-Dichloropropene	1764	ND	1800	100	81 - 125
1,1-dichloroethane	1764	ND	1800	100	77 - 130
1,2,3-Trichlorobenzene	1764	ND	1900	110	64 - 125
1,2,3-Trichloropropane	1764	ND	1800	100	68 - 122
1,2,4-Trichlorobenzene	1764	ND	1900	110	72 - 120
1,2,4-Trimethylbenzene	1764	ND	1900	110	81 - 125
1,2-Dibromo-3-Chloropropane	1764	ND	1600	91	54 - 125
1,2-Dibromoethane	1764	ND	1800	100	73 - 124
1,2-Dichlorobenzene	1764	ND	1800	100	81 - 116
1,2-Dichloroethane	1764	ND	1800	100	74 - 130
1,2-Dichloropropane	1764	ND	1800	100	78 - 120
1,3,5-Trimethylbenzene	1764	ND	1900	110	81 - 125
1,3-Dichlorobenzene	1764	ND	1800	100	82 - 117
1,3-Dichloropropane	1764	ND	1800	100	76 - 123
1,4-Dichlorobenzene	1764	ND	1800	100	80 - 116
2,2-Dichloropropane	1764	ND	1900	110	57 - 147
2-Butanone (MEK)	1764	ND	1700	96	41 - 151
2-Chlorotoluene	1764	ND	1800	100	82 - 119
2-Hexanone	1764	ND	1600	91	51 - 148
2-Propanone (acetone)	1764	ND	1600	91	25 - 161
4-Chlorotoluene	1764	ND	1800	100	82 - 119
4-Methyl-2-Pentanone(MIBK)	1764	ND	1500	85	62 - 130
Acrylonitrile	1764	ND	1800	100	67 - 130
Benzene	1764	ND	1800	100	82 - 124
Bromobenzene	1764	ND	1800	100	79 - 119
Bromochloromethane	1764	ND	1800	100	79 - 125
Bromodichloromethane	1764	ND	1800	100	71 - 126
Bromoform	1764	ND	1500	85	56 - 119
Bromomethane	1764	ND	1600	91	37 - 161
Carbon Disulfide	1764	ND	1700	96	63 - 134
Carbon tetrachloride	1764	ND	1800	100	68 - 136
Chlorobenzene	1764	ND	1800	100	82 - 126
Chloroethane	1764	ND	1700	96	57 - 148
Chloroform	1764	ND	1800	100	78 - 130
Chloromethane	1764	ND	1700	96	56 - 147
Dibromochloromethane	1764	ND	1700	96	62 - 131
Dibromomethane	1764	ND	1800	100	75 - 122
Dichlorodifluoromethane	1764	ND	1700	96	59 - 131
Ethyl Ether	1764	ND	1800	100	65 - 138
Ethylbenzene	1764	ND	1900	110	82 - 122
Hexachlorobutadiene	1764	ND	1900	110	70 - 130

Quinlan Russell - Meriden, CT

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB68456

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
Isopropylbenzene	1764	ND	1900	110	82 - 125
M/P Xylene	3528	ND	3800	110	85 - 120
Methyl-t-Butyl Ether	1764	ND	1700	96	74 - 125
Methylene Chloride	1764	ND	1800	100	67 - 139
N-Butylbenzene	1764	ND	2000	110	80 - 129
N-Propylbenzene	1764	ND	1900	110	81 - 122
Naphthalene	1764	ND	1800	100	59 - 129
Ortho Xylene	1764	ND	1900	110	84 - 122
Para-Isopropyltoluene	1764	ND	1900	110	79 - 129
Sec-Butylbenzene	1764	ND	1900	110	81 - 126
Styrene	1764	ND	1900	110	82 - 125
Tert-Butylbenzene	1764	ND	1900	110	81 - 126
Tetrachloroethylene	1764	ND	1700	96	74 - 133
Tetrahydrofuran	1764	ND	1800	100	60 - 132
Toluene	1764	ND	1800	100	82 - 124
Trans-1,2-Dichloroethylene	1764	ND	1800	100	79 - 127
Trichloroethylene	1764	ND	1800	100	76 - 124
Trichlorofluoromethane	1764	ND	1700	96	65 - 144
Vinyl Acetate	1764	ND	1600	91	14 - 152
Vinyl Chloride	1764	ND	960	54	34 - 142
c-1,3-dichloropropene	1764	ND	1600	91	68 - 133
cis-1,2-Dichloroethylene	1764	ND	1800	100	79 - 131
t-1,3-Dichloropropene	1764	ND	1600	91	65 - 126

Quinlan Russell - Meriden, CT

MATRIX SPIKE DUPLICATE (MSD) RECOVERY

Sample ID:AB68456

PARAMETER	MSD SPIKE ADDED	MSD CONCENTRATION ug/Kg	MSD % REC	RPD %	QC LIMITS RPD
1,1,1,2-Tetrachloroethane	1764	1800	100	0.0	40
1,1,1-Trichloroethane	1764	1800	100	0.0	40
1,1,2,2-Tetrachloroethane	1764	1800	100	0.0	40
1,1,2-Trichloro-1,2,2-Trifluoroetha	1764	1700	96	4.1	40
1,1,2-Trichloroethane	1764	1800	100	0.0	40
1,1-Dichloroethylene	1764	1800	100	0.0	52
1,1-Dichloropropene	1764	1800	100	0.0	40
1,1-dichloroethane	1764	1800	100	0.0	40
1,2,3-Trichlorobenzene	1764	1900	110	0.0	40
1,2,3-Trichloropropane	1764	1800	100	0.0	40
1,2,4-Trichlorobenzene	1764	2000	110	0.0	40
1,2,4-Trimethylbenzene	1764	1900	110	0.0	40
1,2-Dibromo-3-Chloropropane	1764	1600	91	0.0	40
1,2-Dibromoethane	1764	1800	100	0.0	40
1,2-Dichlorobenzene	1764	1800	100	0.0	40
1,2-Dichloroethane	1764	1800	100	0.0	40
1,2-Dichloropropane	1764	1800	100	0.0	40
1,3,5-Trimethylbenzene	1764	1900	110	0.0	40
1,3-Dichlorobenzene	1764	1800	100	0.0	40
1,3-Dichloropropane	1764	1800	100	0.0	40
1,4-Dichlorobenzene	1764	1700	96	4.1	40
2,2-Dichloropropane	1764	1900	110	0.0	40
2-Butanone (MEK)	1764	1900	110	13.6	40
2-Chlorotoluene	1764	1800	100	0.0	40
2-Hexanone	1764	1600	91	0.0	40
2-Propanone (acetone)	1764	1800	100	9.4	40
4-Chlorotoluene	1764	1800	100	0.0	40
4-Methyl-2-Pentanone(MIBK)	1764	1700	96	12.2	40
Acrylonitrile	1764	1900	110	9.5	40
Benzene	1764	1800	100	0.0	24
Bromobenzene	1764	1800	100	0.0	40
Bromochloromethane	1764	1800	100	0.0	40
Bromodichloromethane	1764	1800	100	0.0	40
Bromoform	1764	1500	85	0.0	40
Bromomethane	1764	1600	91	0.0	40
Carbon Disulfide	1764	1700	96	0.0	40
Carbon tetrachloride	1764	1700	96	4.1	40
Chlorobenzene	1764	1800	100	0.0	34
Chloroethane	1764	1700	96	0.0	40
Chloroform	1764	1800	100	0.0	40
Chloromethane	1764	1700	96	0.0	40
Dibromochloromethane	1764	1700	96	0.0	40
Dibromomethane	1764	1800	100	0.0	40
Dichlorodifluoromethane	1764	1700	96	0.0	40
Ethyl Ether	1764	1900	110	9.5	40
Ethylbenzene	1764	1800	100	9.5	40
Hexachlorobutadiene	1764	1800	100	9.5	40
Isopropylbenzene	1764	1800	100	9.5	40

Quinlan Russell - Meriden, CT

MATRIX SPIKE DUPLICATE (MSD) RECOVERY

Sample ID:AB68456

PARAMETER	MSD SPIKE ADDED	MSD CONCENTRATION ug/Kg	MSD % REC	RPD %	QC LIMITS RPD
M/P Xylene	3528	3600	100	9.5	40
Methyl-t-Butyl Ether	1764	1800	100	4.1	40
Methylene Chloride	1764	1800	100	0.0	40
N-Butylbenzene	1764	1900	110	0.0	40
N-Propylbenzene	1764	1900	110	0.0	40
Naphthalene	1764	1900	110	9.5	40
Ortho Xylene	1764	1900	110	0.0	40
Para-Isopropyltoluene	1764	1900	110	0.0	40
Sec-Butylbenzene	1764	1900	110	0.0	40
Styrene	1764	1800	100	9.5	40
Tert-Butylbenzene	1764	1900	110	0.0	40
Tetrachloroethylene	1764	1700	96	0.0	40
Tetrahydrofuran	1764	1800	100	0.0	40
Toluene	1764	1800	100	0.0	33
Trans-1,2-Dichloroethylene	1764	1800	100	0.0	40
Trichloroethylene	1764	1700	96	4.1	27
Trichlorofluoromethane	1764	1700	96	0.0	40
Vinyl Acetate	1764	1700	96	5.3	40
Vinyl Chloride	1764	960	54	0.0	40
c-1,3-dichloropropene	1764	1700	96	5.3	40
cis-1,2-Dichloroethylene	1764	1800	100	0.0	40
t-1,3-Dichloropropene	1764	1700	96	5.3	40

Quinlan Russell - Meriden, CT

Laboratory Duplicate Results

Sample ID: AB68456

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
1,1,1,2-Tetrachloroethane	ND	ND	NC	40
1,1,1-Trichloroethane	ND	ND	NC	40
1,1,2,2-Tetrachloroethane	ND	ND	NC	40
1,1,2-Trichloro-1,2,2-Trifluoroetha	ND	ND	NC	40
1,1,2-Trichloroethane	ND	ND	NC	40
1,1-Dichloroethylene	ND	ND	NC	40
1,1-Dichloropropene	ND	ND	NC	40
1,1-dichloroethane	ND	ND	NC	40
1,2,3-Trichlorobenzene	ND	ND	NC	40
1,2,3-Trichloropropane	ND	ND	NC	40
1,2,4-Trichlorobenzene	ND	ND	NC	40
1,2,4-Trimethylbenzene	ND	ND	NC	40
1,2-Dibromo-3-Chloropropane	ND	ND	NC	40
1,2-Dibromoethane	ND	ND	NC	40
1,2-Dichlorobenzene	ND	ND	NC	40
1,2-Dichloroethane	ND	ND	NC	40
1,2-Dichloropropane	ND	ND	NC	40
1,3,5-Trimethylbenzene	ND	ND	NC	40
1,3-Dichlorobenzene	ND	ND	NC	40
1,3-Dichloropropane	ND	ND	NC	40
1,4-Dichlorobenzene	ND	ND	NC	40
2,2-Dichloropropane	ND	ND	NC	40
2-Butanone (MEK)	ND	ND	NC	40
2-Chlorotoluene	ND	ND	NC	40
2-Hexanone	ND	ND	NC	40
2-Propanone (acetone)	ND	ND	NC	40
4-Chlorotoluene	ND	ND	NC	40
4-Methyl-2-Pentanone(MIBK)	ND	ND	NC	40
Acrylonitrile	ND	ND	NC	40
Benzene	ND	ND	NC	40
Bromobenzene	ND	ND	NC	40
Bromochloromethane	ND	ND	NC	40
Bromodichloromethane	ND	ND	NC	40
Bromoform	ND	ND	NC	40
Bromomethane	ND	ND	NC	40
Carbon Disulfide	ND	ND	NC	40
Carbon tetrachloride	ND	ND	NC	40
Chlorobenzene	ND	ND	NC	40
Chloroethane	ND	ND	NC	40
Chloroform	ND	ND	NC	40
Chloromethane	ND	ND	NC	40
Dibromochloromethane	ND	ND	NC	40
Dibromomethane	ND	ND	NC	40
Dichlorodifluoromethane	ND	ND	NC	40
Ethyl Ether	ND	ND	NC	40
Ethylbenzene	ND	ND	NC	40
Hexachlorobutadiene	ND	ND	NC	40
Isopropylbenzene	ND	ND	NC	40
M/P Xylene	ND	ND	NC	40
Methyl-t-Butyl Ether	ND	ND	NC	40

Quinlan Russell - Meriden, CT

Laboratory Duplicate Results

Sample ID: AB68456

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
Methylene Chloride	ND	ND	NC	40
N-Butylbenzene	ND	ND	NC	40
N-Propylbenzene	ND	ND	NC	40
Naphthalene	ND	ND	NC	40
Ortho Xylene	ND	ND	NC	40
Para-Isopropyltoluene	ND	ND	NC	40
Sec-Butylbenzene	ND	ND	NC	40
Styrene	ND	ND	NC	40
Tert-Butylbenzene	ND	ND	NC	40
Tetrachloroethylene	ND	ND	NC	40
Tetrahydrofuran	ND	ND	NC	40
Toluene	ND	ND	NC	40
Trans-1,2-Dichloroethylene	ND	ND	NC	40
Trichloroethylene	ND	ND	NC	40
Trichlorofluoromethane	ND	ND	NC	40
Vinyl Acetate	ND	ND	NC	40
Vinyl Chloride	ND	ND	NC	40
c-1,3-dichloropropene	ND	ND	NC	40
cis-1,2-Dichloroethylene	ND	ND	NC	40
t-1,3-Dichloropropene	ND	ND	NC	40

Quinlan Russell - Meriden, CT

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/Kg	LFB RESULT ug/Kg	LFB RECOVERY %	QC LIMITS %
1,1,1,2-Tetrachloroethane	20	20.0	101	77 - 122
1,1,1-Trichloroethane	20	20.0	100	80 - 128
1,1,2,2-Tetrachloroethane	20	20.0	102	73 - 118
1,1,2-Trichloro-1,2,2-Trifluoroeth	20	20.0	100	59 - 146
1,1,2-Trichloroethane	20	20.0	101	79 - 117
1,1-Dichloroethylene	20	19.0	97	70 - 130
1,1-Dichloropropene	20	21.0	103	79 - 123
1,1-dichloroethane	20	20.0	99	81 - 122
1,2,3-Trichlorobenzene	20	21.0	106	70 - 119
1,2,3-Trichloropropane	20	20.0	100	73 - 114
1,2,4-Trichlorobenzene	20	21.0	106	74 - 120
1,2,4-Trimethylbenzene	20	21.0	106	79 - 123
1,2-Dibromo-3-Chloropropane	20	18.0	88	63 - 124
1,2-Dibromoethane	20	20.0	102	79 - 116
1,2-Dichlorobenzene	20	20.0	102	77 - 117
1,2-Dichloroethane	20	20.0	99	75 - 124
1,2-Dichloropropane	20	20.0	102	80 - 117
1,3,5-Trimethylbenzene	20	21.0	106	80 - 122
1,3-Dichlorobenzene	20	20.0	100	78 - 117
1,3-Dichloropropane	20	21.0	103	79 - 116
1,4-Dichlorobenzene	20	20.0	99	77 - 115
2,2-Dichloropropane	20	22.0	109	64 - 152
2-Butanone (MEK)	20	21.0	104	55 - 144
2-Chlorotoluene	20	20.0	102	79 - 119
2-Hexanone	20	19.0	93	58 - 147
2-Propanone (acetone)	20	18.0	91	37 - 168
4-Chlorotoluene	20	21.0	103	78 - 120
4-Methyl-2-Pentanone(MIBK)	20	18.0	90	68 - 125
Acrylonitrile	20	20.0	100	68 - 124
Benzene	20	20.0	98	80 - 120
Bromobenzene	20	20.0	100	80 - 115
Bromochloromethane	20	20.0	99	81 - 120
Bromodichloromethane	20	21.0	103	77 - 125
Bromoform	20	18.0	88	62 - 127
Bromomethane	20	19.0	95	60 - 139
Carbon Disulfide	20	20.0	98	73 - 129
Carbon tetrachloride	20	20.0	98	73 - 136
Chlorobenzene	20	19.0	96	82 - 119
Chloroethane	20	19.0	97	69 - 130
Chloroform	20	20.0	99	80 - 122
Chloromethane	20	19.0	94	65 - 129
Dibromochloromethane	20	20.0	99	71 - 129
Dibromomethane	20	20.0	102	79 - 115
Dichlorodifluoromethane	20	19.0	95	69 - 126
Ethyl Ether	20	20.0	100	69 - 127
Ethylbenzene	20	20.0	101	80 - 121
Hexachlorobutadiene	20	21.0	103	72 - 124
Isopropylbenzene	20	21.0	103	79 - 124
M/P Xylene	40	41.0	102	81 - 120
Methyl-t-Butyl Ether	20	21.0	103	78 - 120
Methylene Chloride	20	20.0	99	73 - 129
N-Butylbenzene	20	21.0	107	78 - 126
N-Propylbenzene	20	21.0	104	78 - 122

Quinlan Russell - Meriden, CT

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/Kg	LFB RESULT ug/Kg	LFB RECOVERY %	QC LIMITS %
Naphthalene	20	20.0	98	66 - 124
Ortho Xylene	20	21.0	106	81 - 121
Para-Isopropyltoluene	20	21.0	107	77 - 127
Sec-Butylbenzene	20	21.0	107	79 - 124
Styrene	20	21.0	103	82 - 122
Tert-Butylbenzene	20	21.0	103	78 - 124
Tetrachloroethylene	20	19.0	93	77 - 125
Tetrahydrofuran	20	20.0	101	67 - 124
Toluene	20	20.0	98	81 - 120
Trans-1,2-Dichloroethylene	20	20.0	99	80 - 121
Trichloroethylene	20	20.0	98	80 - 117
Trichlorofluoromethane	20	21.0	103	68 - 137
Vinyl Acetate	20	18.0	92	25 - 150
Vinyl Chloride	20	18.0	90	67 - 134
c-1,3-dichloropropene	20	19.0	93	73 - 133
cis-1,2-Dichloroethylene	20	20.0	101	82 - 122
t-1,3-Dichloropropene	20	18.0	91	69 - 127

Comments:

Quinlan Russell - Meriden, CT

LABORATORY FORTIFIED DUPLICATE (LFB Dup) RECOVERY

COMPOUND	LFB Dup CONCENTRATION ug/Kg	LFB Dup RECOVERY %	RPD %	QC LIMITS RPD
1,1,1,2-Tetrachloroethane	20.2	101	0	50
1,1,1-Trichloroethane	21.3	107	6	50
1,1,2,2-Tetrachloroethane	20.0	100	2	50
1,1,2-Trichloro-1,2,2-Trifluoroetha	19.8	99	1	50
1,1,2-Trichloroethane	19.7	99	2	50
1,1-Dichloroethylene	20.6	103	6	52
1,1-Dichloropropene	21.1	106	3	50
1,1-dichloroethane	20.6	103	4	50
1,2,3-Trichlorobenzene	21.0	105	1	50
1,2,3-Trichloropropane	19.8	99	1	50
1,2,4-Trichlorobenzene	21.1	106	1	50
1,2,4-Trimethylbenzene	21.8	109	3	50
1,2-Dibromo-3-Chloropropane	17.8	89	1	50
1,2-Dibromoethane	20.3	102	1	50
1,2-Dichlorobenzene	20.2	101	1	50
1,2-Dichloroethane	20.0	100	2	50
1,2-Dichloropropane	20.9	105	3	50
1,3,5-Trimethylbenzene	21.8	109	3	50
1,3-Dichlorobenzene	20.2	101	1	50
1,3-Dichloropropane	20.4	102	1	50
1,4-Dichlorobenzene	19.7	99	0	50
2,2-Dichloropropane	23.0	115	6	50
2-Butanone (MEK)	21.1	106	2	50
2-Chlorotoluene	20.6	103	1	50
2-Hexanone	18.0	90	3	50
2-Propanone (acetone)	20.3	102	12	50
4-Chlorotoluene	20.9	105	2	50
4-Methyl-2-Pentanone(MIBK)	18.1	91	1	50
Acrylonitrile	20.4	102	2	50
Benzene	20.0	100	2	50
Bromobenzene	20.0	100	0	50
Bromochloromethane	19.8	99	1	50
Bromodichloromethane	20.6	103	0	50
Bromoform	16.9	85	4	50
Bromomethane	19.4	97	2	50
Carbon Disulfide	20.2	101	4	50
Carbon tetrachloride	20.0	100	3	50
Chlorobenzene	19.8	99	4	34
Chloroethane	20.0	100	3	50
Chloroform	20.4	102	4	50
Chloromethane	18.9	95	1	50
Dibromochloromethane	19.1	96	4	50
Dibromomethane	20.2	101	1	50
Dichlorodifluoromethane	19.3	97	2	50
Ethyl Ether	20.2	101	1	50
Ethylbenzene	20.6	103	2	50
Hexachlorobutadiene	20.3	102	1	50
Isopropylbenzene	21.1	106	3	50
M/P Xylene	41.5	104	2	50
Methyl-t-Butyl Ether	21.6	108	5	50
Methylene Chloride	20.4	102	4	50

Quinlan Russell - Meriden, CT

LABORATORY FORTIFIED DUPLICATE (LFB Dup) RECOVERY

COMPOUND	LFB Dup CONCENTRATION ug/Kg	LFB Dup RECOVERY %	RPD %	QC LIMITS RPD
N-Butylbenzene	22.2	111	4	50
N-Propylbenzene	21.5	108	3	50
Naphthalene	19.4	97	1	50
Ortho Xylene	21.8	109	3	50
Para-Isopropyltoluene	22.3	112	5	50
Sec-Butylbenzene	22.2	111	4	50
Styrene	20.6	103	0	50
Tert-Butylbenzene	21.5	108	5	50
Tetrachloroethylene	18.3	92	2	50
Tetrahydrofuran	22.0	110	9	50
Toluene	19.8	99	1	50
Trans-1,2-Dichloroethylene	20.6	103	5	50
Trichloroethylene	20.4	102	5	27
Trichlorofluoromethane	19.5	98	6	50
Vinyl Acetate	18.9	95	3	50
Vinyl Chloride	17.1	86	5	50
c-1,3-dichloropropene	18.9	95	2	50
cis-1,2-Dichloroethylene	20.7	104	2	50
t-1,3-Dichloropropene	18.3	92	1	50

Samples in Batch: AB68452, AB68453, AB68454, AB68455, AB68456, AB68457, AB68458, AB68465, AB68466

ENVIRONMENTAL PROTECTION AGENCY
REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO.: 17070027
PROJECT NAME: Quinlan, Russell – Subsurface Soil Sampling
SAMPLERS: (Signature) M. Coombs

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	VOAs (40ml Amber Vial w/ DI by weight)	Total Metals (4oz Amber Jar)	BNA (Same Jar)	REMARKS
	18 JUL 2017	1040		X	MB-01	1	1			
	19 JUL 2017	1100		X	MB-02	1	1			
	18 JUL 2017	0945		X	SB-19A	2	2			
	18 JUL 2017	1245		X	SB-11A	2	2			
	19 JUL 2017	0950	Beta X	VOA X	SB-14D	3	2	1		
	19 JUL 2017	0950		X	SB-14C	2	2			
	18 JUL 2017	1017		X	SB-13C	2	2			
	19 JUL 2017	1130	X		SB-04B	1		1		
	18 JUL 2017	1455	X		SB-17D	1		1		
	19 JUL 2017	1320	X		SB-03A	1		1		
	19 JUL 2017	1100	X		SB-09B	1		1		
	18 JUL 2017	1105	X		SB-21B	1		1		
	19 JUL 2017	1100	X		SB-09B (DUP)	1		1		
	19 JUL 2017	1232			SB-01AM2	2	2			
	19 JUL 2017	1215			SB-6BM2	2	2			

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	19 JUL 2017 1826				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) ESAT	Date / Time	Remarks	
	7/20/17 8:33		7/20/17 13:33		

Remarks:
17070027 $VOAMW
17070027 $METMS_PE
17070027$VOAHS
17070027 $METW_PE

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

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1- 20120

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ENVIRONMENTAL PROTECTION AGENCY

REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO. 170027 | PROJECT NAME: Quinlan Russell

SAMPLERS: (Signature) Mitchell Conder

. NO.	DATE 2017	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CON-TAINERS	Total Metals (250ml HNO3) GW	Total Metals (4 oz. Amber Jar) Soil	VOA (40ml Amber Vial w/HCl) GW	REMARKS
	20JUL	0940		X	MW-1	5	1		4	
	19JUL	1550		X	MW-2	5	1		4	
	19JUL	1550		X	MW-2D	5	1		4	
	19JUL	1320		X	MW-3	4	1		3	3 vials for MW-3 VOAs
	19JUL	1805		X	MW-4	5	1		4	
	18JUL	1055		X	SED-1	1		1		
	18JUL	1100		X	SED-2	1		1		
	18JUL	1110		X	SED-3	1		1		
	13JUL	1300		X	Trip Blank	4			4	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	20 JUL 2017 1333				
	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	Date / Time	Received for Laboratory by: (Signature) ESAT	Date / Time 7/20/17 13:33	Remarks	

17070027 $VOAMW
17070027 $METMS_PE
17070027$VOAHS
17070027 $METW_PE

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

DOC

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

June 06, 2018

Sebastian Rodríguez - Mail Code OSRR07-3
US EPA New England R1

Project Number: 18040012
Project: Quinlan Russell - Meriden, CT
Analysis:Total Metals in Water by ICP-MS
EPA Chemist: Allison Connors

Date Samples Received by the Laboratory: 04/12/2018

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-INGICPMS5.

Samples were prepared following USEPA New England Sample Prep SOP: EIA-INGPREP8.SOP.

Samples were analyzed using an Agilent 7800 inductively coupled plasma mass spectrometer. Preparation and analysis SOP's are based on Methods 200.2 and 200.8, respectively, as stated in "Methods for the Determination of Metals in Environmental Samples, Supplement I (EPA/600/R-94/111), Rev. 5.4, May 1994."

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Digitally signed by DANIEL BOUDREAU
DN: c=US, o=U.S. Government, ou=USEPA, ou=Staff, cn=DANIEL BOUDREAU, dnQualifier=0000001239
Date: 2018.06.06 15:37:18 -04'00'

18040012$MTMSW

Qualifiers

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Quinlan Russell - Meriden, CT

Total Metals in Water by ICP-MS

Client Sample ID:	MW-1	Lab Sample ID:	AB74365
Date of Collection:	4/12/2018	Matrix:	Water
Date of Preparation:	5/09/2018	Amount Prepared:	25 mL
Date of Analysis:	5/10/2018	Percent Solids:	N/A
Volume Prepared:	25 mL	Extract Dilution:	1
Final Volume:	25 mL	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7429-90-5	Aluminum	**73**	5.0	J3
7440-62-2	Vanadium	**0.60**	0.50	
7440-47-3	Chromium	**3.5**	0.50	
7439-96-5	Manganese	**2.8**	0.20	
7440-48-4	Cobalt	ND	0.20	
7440-02-0	Nickel	**1.8**	0.20	
7440-50-8	Copper	**18**	0.20	
7440-66-6	Zinc	**14**	5.0	
7440-38-2	Arsenic	ND	0.50	
7782-49-2	Selenium	**5.9**	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	ND	0.20	
7439-98-7	Molybdenum	**0.55**	0.50	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	**21**	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	**0.86**	0.20	
7439-95-4	Magnesium (mg/L)	**4.9**	0.10	
7440-70-2	Calcium (mg/L)	**48**	0.10	
7439-89-6	Iron	**99**	50	
7440-61-1	Uranium	ND	1.0	

Quinlan Russell - Meriden, CT

Total Metals in Water by ICP-MS

Client Sample ID:	MW-2	Lab Sample ID:	AB74366
Date of Collection:	4/11/2018	Matrix:	Water
Date of Preparation:	5/09/2018	Amount Prepared:	25 mL
Date of Analysis:	5/10/2018	Percent Solids:	N/A
Volume Prepared:	25 mL	Extract Dilution:	1
Final Volume:	25 mL	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7429-90-5	Aluminum	ND	5.0	
7440-62-2	Vanadium	ND	0.50	
7440-47-3	Chromium	ND	0.50	
7439-96-5	Manganese	**340**	0.20	
7440-48-4	Cobalt	**0.67**	0.20	
7440-02-0	Nickel	**10**	0.20	
7440-50-8	Copper	**3.2**	0.20	
7440-66-6	Zinc	**340**	5.0	
7440-38-2	Arsenic	ND	0.50	
7782-49-2	Selenium	ND	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	**0.26**	0.20	
7439-98-7	Molybdenum	ND	0.50	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	**60**	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	ND	0.20	
7439-95-4	Magnesium (mg/L)	**9.7**	0.10	
7440-70-2	Calcium (mg/L)	**58**	0.10	
7439-89-6	Iron	**3800**	50	
7440-61-1	Uranium	ND	1.0	

Quinlan Russell - Meriden, CT

Total Metals in Water by ICP-MS

Client Sample ID:	MW-3	Lab Sample ID:	AB74367
Date of Collection:	4/11/2018	Matrix:	Water
Date of Preparation:	5/09/2018	Amount Prepared:	25 mL
Date of Analysis:	5/10/2018	Percent Solids:	N/A
Volume Prepared:	25 mL	Extract Dilution:	1
Final Volume:	25 mL	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7429-90-5	Aluminum	**36**	5.0	B
7440-62-2	Vanadium	ND	0.50	
7440-47-3	Chromium	ND	0.50	
7439-96-5	Manganese	**940**	0.20	
7440-48-4	Cobalt	**0.76**	0.50	
7440-02-0	Nickel	**6.4**	0.20	
7440-50-8	Copper	**5.2**	0.20	
7440-66-6	Zinc	**40**	5.0	
7440-38-2	Arsenic	**2.1**	0.50	
7782-49-2	Selenium	ND	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	ND	0.20	
7439-98-7	Molybdenum	**0.52**	0.50	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	**220**	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	**0.44**	0.20	
7439-95-4	Magnesium (mg/L)	**13**	0.10	
7440-70-2	Calcium (mg/L)	**53**	0.10	
7439-89-6	Iron	**8700**	50	
7440-61-1	Uranium	ND	1.0	

Quinlan Russell - Meriden, CT

Total Metals in Water by ICP-MS

Client Sample ID:	MW-4	Lab Sample ID:	AB74368
Date of Collection:	4/11/2018	Matrix:	Water
Date of Preparation:	5/09/2018	Amount Prepared:	25 mL
Date of Analysis:	5/10/2018	Percent Solids:	N/A
Volume Prepared:	25 mL	Extract Dilution:	1
Final Volume:	25 mL	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7429-90-5	Aluminum	**8.6**	5.0	B
7440-62-2	Vanadium	ND	0.50	
7440-47-3	Chromium	ND	0.50	
7439-96-5	Manganese	**16**	0.20	
7440-48-4	Cobalt	ND	0.20	
7440-02-0	Nickel	**1.5**	0.20	
7440-50-8	Copper	**38**	0.20	
7440-66-6	Zinc	**41**	5.0	
7440-38-2	Arsenic	ND	0.50	
7782-49-2	Selenium	ND	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	ND	0.20	
7439-98-7	Molybdenum	**0.52**	0.50	
7440-36-0	Antimony	**0.50**	0.50	
7440-39-3	Barium	**15**	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	**0.47**	0.20	
7439-95-4	Magnesium (mg/L)	**2.8**	0.10	
7440-70-2	Calcium (mg/L)	**17**	0.10	
7439-89-6	Iron	ND	50	
7440-61-1	Uranium	ND	1.0	

Quinlan Russell - Meriden, CT

Total Metals in Water by ICP-MS

Client Sample ID:	MW-4 DUP	Lab Sample ID:	AB74369
Date of Collection:	4/11/2018	Matrix:	Water
Date of Preparation:	5/09/2018	Amount Prepared:	25 mL
Date of Analysis:	5/10/2018	Percent Solids:	N/A
Volume Prepared:	25 mL	Extract Dilution:	1
Final Volume:	25 mL	pH:	<2

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7429-90-5	Aluminum	**10**	5.0	B
7440-62-2	Vanadium	ND	0.50	
7440-47-3	Chromium	ND	0.50	
7439-96-5	Manganese	**17**	0.20	
7440-48-4	Cobalt	ND	0.20	
7440-02-0	Nickel	**1.5**	0.20	
7440-50-8	Copper	**40**	0.20	
7440-66-6	Zinc	**41**	5.0	
7440-38-2	Arsenic	ND	0.50	
7782-49-2	Selenium	ND	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	ND	0.20	
7439-98-7	Molybdenum	**0.51**	0.50	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	**15**	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	**0.56**	0.20	
7439-95-4	Magnesium (mg/L)	**2.8**	0.10	
7440-70-2	Calcium (mg/L)	**17**	0.10	
7439-89-6	Iron	ND	50	
7440-61-1	Uranium	ND	1.0	

Quinlan Russell - Meriden, CT

Laboratory Reagent Blank Result (ug/L)

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Water
Date of Preparation:	5/09/2018	Amount Prepared:	25 mL
Date of Analysis:	5/10/2018	Percent Solids:	N/A
Volume Prepared:	25 mL	Extract Dilution:	1
Final Volume:	25 mL	pH:	N/A

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-41-7	Beryllium	ND	0.20	
7429-90-5	Aluminum	ND	5.0	
7440-62-2	Vanadium	ND	0.50	
7440-47-3	Chromium	ND	0.50	
7439-96-5	Manganese	ND	0.20	
7440-48-4	Cobalt	ND	0.20	
7440-02-0	Nickel	ND	0.20	
7440-50-8	Copper	ND	0.20	
7440-66-6	Zinc	ND	5.0	
7440-38-2	Arsenic	ND	0.50	
7782-49-2	Selenium	ND	1.0	
7440-22-4	Silver	ND	0.20	
7440-43-9	Cadmium	ND	0.20	
7439-98-7	Molybdenum	ND	0.50	
7440-36-0	Antimony	ND	0.50	
7440-39-3	Barium	ND	0.20	
7440-28-0	Thallium	ND	0.50	
7439-92-1	Lead	ND	0.20	
7439-95-4	Magnesium (mg/L)	ND	0.10	
7440-70-2	Calcium (mg/L)	ND	0.10	
7439-89-6	Iron	ND	50	
7440-61-1	Uranium	ND	1.0	

Quinlan Russell - Meriden, CT

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB74367

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
Aluminum	40.0	36.0	76.0	100	70 - 130
Antimony	40.0	ND	42.0	104	70 - 130
Arsenic	40.0	2.1	40.0	94	70 - 130
Barium	40.0	220	255	R	70 - 130
Beryllium	40.0	ND	41.0	103	70 - 130
Cadmium	40.0	ND	38.0	95	70 - 130
Chromium	40.0	ND	35.0	89	70 - 130
Cobalt	40.0	0.76	36.0	89	70 - 130
Copper	40.0	5.2	40.0	88	70 - 130
Iron	440	8700	8960	R	70 - 130
Lead	40.0	0.44	42.0	105	70 - 130
Manganese	40.0	940	957	R	70 - 130
Molybdenum	40.0	0.52	42.0	104	70 - 130
Nickel	40.0	6.4	41.0	87	70 - 130
Selenium	40.0	ND	38.0	95	70 - 130
Silver	40.0	ND	41.0	102	70 - 130
Thallium	40.0	ND	41.0	102	70 - 130
Uranium	40.0	ND	43.0	107	70 - 130
Vanadium	40.0	ND	36.0	91	70 - 130
Zinc	40.0	40.0	80.0	101	70 - 130

Quinlan Russell - Meriden, CT

Laboratory Duplicate Results

Sample ID: AB74365

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
Aluminum	73.0	97.0	28	20
Antimony	ND	ND	NC	20
Arsenic	ND	ND	NC	20
Barium	21.0	21.0	0	20
Beryllium	ND	ND	NC	20
Cadmium	ND	ND	NC	20
Calcium (mg/L)	48.0	47.0	2.1	20
Chromium	3.5	3.4	2.0	20
Cobalt	ND	ND	NC	20
Copper	18.0	18.0	0	20
Iron	99.0	107	7.8	20
Lead	0.86	0.865	0.58	20
Magnesium (mg/L)	4.9	4.8	2.1	20
Manganese	2.8	2.8	0.0	20
Molybdenum	0.55	0.548	0.36	20
Nickel	1.8	1.7	5.7	20
Selenium	5.9	5.9	0	20
Silver	ND	ND	NC	20
Thallium	ND	ND	NC	20
Uranium	ND	ND	NC	20
Vanadium	0.60	0.642	6.8	20
Zinc	14.0	14.0	0	20

Quinlan Russell - Meriden, CT

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aluminum	40	42.0	105	85 - 115
Antimony	40	42.0	105	85 - 115
Arsenic	40	40.0	101	85 - 115
Barium	40	42.0	105	85 - 115
Beryllium	40	42.0	105	85 - 115
Cadmium	40	40.0	100	85 - 115
Calcium (mg/L)	8	8.3	104	85 - 115
Chromium	40	41.0	103	85 - 115
Cobalt	40	42.0	105	85 - 115
Copper	40	43.0	108	85 - 115
Iron	440	463	105	85 - 115
Lead	40	42.0	105	85 - 115
Magnesium (mg/L)	4	4.2	105	85 - 115
Manganese	40	41.0	103	85 - 115
Molybdenum	40	42.0	104	85 - 115
Nickel	40	42.0	106	85 - 115
Selenium	40	41.0	103	85 - 115
Silver	40	42.0	105	85 - 115
Thallium	40	41.0	103	85 - 115
Uranium	40	41.0	103	85 - 115
Vanadium	40	41.0	103	85 - 115
Zinc	40	41.0	103	85 - 115

Comments:

Samples in Batch: AB74365, AB74366, AB74367, AB74368, AB74369

ENVIRONMENTAL PROTECTION AGENCY

REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
18-0400-12	Quinlan Russell

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Total Metals (ANC)	VOCs (HCL)					REMARKS
	4/12/18	1040		✓	MW-1	5	1	4					
	4/11/18	1420		✓	MW-2	5	1	4					
	4/11/18	1335		✓	MW-3	5	1	4					
	4/11/18	1405		✓	MW-4	5	1	4					
	4/11/18	1405		✓	MW-4 Dup	5	1	4					
				✓	VOA TRIP Blanks	2	/	2					

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	4/12/18 1400				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		ESAT	4/12/18 14:06		

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

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18040012 $MTMSW

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