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26 August 2016

Mr. Kim T. Caulk
NCDEQ Superfund Section
Inactive Hazardous Sites Branch
REC Program
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: Groundwater Remedial Action Progress Report
Norfolk Southern Railway Company
Shulimson Brothers Scrap Yard
Asheville, Buncombe County, North Carolina
Site I.D. No. NCN 000 407 206
NSRC Project No. SA96.036-001
Geosyntec Project No. KX5615

Dear Mr. Caulk:

On behalf of our client, Norfolk Southern Railway Company (NSRC), Geosyntec Consultants of NC, PC (Geosyntec) is pleased to submit the attached *Groundwater Remedial Action Progress Report* to the North Carolina Department of Environmental Quality (NCDEQ) for the Shulimson Brothers Scrap Yard (the "Site"). This letter also serves as the progress report for the third quarter of 2016. This report is submitted to comply with the requirements set forth in the May 2011 *Groundwater Remedial Action Plan* (prepared by Marshall Miller & Associates, Inc.) which recommended monitored natural attenuation (MNA) as an appropriate remedy for impacted groundwater.

The required Remediating Party and CSM Certifications are attached. Work is progressing to complete required elements of the REC program in a timely manner.

If you have any questions, feel free to contact the undersigned. Mr. Leonard can be contacted at 865-323-5683 and Mr. Hodge can be contacted at 919-424-1828.

Regards,

L. Leroy Leonard
Senior Scientist

Beau Hodge, P.G., RSM
Principal

Attachments: *Groundwater Remedial Action Progress Report*
Remediating Party Document Certification Statement
Registered Site Manager Document Certification Statement

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 1 OF 2
IHSB SITE NAME Shulimson Brothers Scrap Yard
DATE & NAME OF DOCUMENT August 2016 Groundwater Remedial Action Progress Report (July 2016 event)
TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REMEDIATING PARTY DOCUMENT CERTIFICATION STATEMENT (.0306(B)(2))

"I certify under penalty of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Norfolk Southern Railway Company
Name of Remediating Party

Signature of Remediating Party

9-8-2016
Date

NOTARIZATION

Georgia (Enter State)

Fayette **COUNTY**

I, Nathan Perkins, a Notary Public of said County and State, do hereby certify that C. Russ McDaniel did personally appear and sign before me this day, produced proper identification in the form of Drivers License, was duly sworn or affirmed, and declared that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this 8 day of September, 2016.

Notary Public (signature)

(OFFICIAL SEAL)

NATHAN PERKINS
MY COMMISSION EXPIRES
NOTARY
PUBLIC
FEBRUARY 11, 2020
FAYETTE COUNTY, GA

My commission expires: Feb 11, 2020.

Document Certification Form No. DC - I
(Revised 8/11)

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 2 OF 2
IHSB SITE NAME Shulimson Brothers Scrap Yard (NCN000407206)
DATE & NAME OF DOCUMENT 26 August 2016 Groundwater Remedial Action Progress Report
TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REGISTERED SITE MANAGER CERTIFICATION OF SIGNATURES

As the Registered Environmental Consultant for the Site for which this filing is made, I certify that the signatures included herewith are genuine and authentic original handwritten signatures and/or true, accurate, and complete copies of the genuine and authentic original handwritten signatures of the persons who purport to sign for this filing. I further certify that I have collected through reliable means the originals and/or copies of said signatures from the persons authorized to sign for this filing who, in fact, signed the originals thereof. Those persons and I understand and agree that any copies of signatures have the same legally binding effect as original handwritten signatures, and I certify that any person for whom I am submitting a copy of their signature has provided me with their express consent to submit said copy. Additionally, I certify that I am authorized to attest to the genuineness and authenticity of the signatures, both originals and any copies, being submitted herewith and that by signing below, I do in fact attest to the genuineness and authenticity of all the signatures, both originals and copies, being submitted for this filing.

Beau Hodge, P.G
Name of Registered Site Manager

Signature of Registered Site Manager

9/14/2016
Date

REGISTERED SITE MANAGER DOCUMENT CERTIFICATION STATEMENT (.0306(b)(1))

"I certify under penalty of law that I am personally familiar with the information contained in this submittal, including any and all supporting documents accompanying this certification, and that the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete and complies with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq, and the remedial action program Rules 15A NCAC 13C .0300. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Beau Hodge, P.G
Name of Registered Site Manager

Signature of Registered Site Manager

9/14/2016
Date

NOTARIZATION

North Carolina (Enter State)

Wake COUNTY

I, Holly Van Norman, a Notary Public of said County and State, do hereby certify that Beau Hodge did personally appear and sign before me this day, produced proper identification in the form of NCDL, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certifications is true and accurate, and he or she then signed these Certifications in my presence.

WITNESS my hand and official seal this 14 day of September, 2016.

Notary Public (signature)

HOLLY VAN NORMAN
(OFFICIAL SEAL)
Notary Public
Wake County
NORTH CAROLINA

My commission expires: 11/15/17.

Document Certification Form No. DC - II
(Revised 8/11)

Geosyntec consultants

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NORFOLK SOUTHERN

Groundwater Remedial Action Progress Report – July 2016 Sampling Event

Former Shulimson Brothers Scrap Yard
Asheville, Buncombe County, NC
Site ID No. NCN 000 407 206

Prepared for

North Carolina Department of Environmental Quality
1646 Mail Service Center
Raleigh, North Carolina 27699

Prepared for

Norfolk Southern Railway Company
1200 Peachtree St., NE – Box 13
Atlanta, Georgia 30309

Prepared by

Geosyntec Consultants of NC, PC
2501 Blue Ridge Rd., Suite 430
Raleigh, North Carolina 27607

Project Number KX5615

August 2016

Geosyntec consultants

I, Beau Hodge, a Licensed Geologist for Geosyntec Consultants of NC, PC certify that the information in this report if correct and accurate to the best of my knowledge.

NORTH CAROLINA LICENSED SEAL 12 GEOLOGIST BEAUMONT HODGE

9/14/2016

Geosyntec Consultants of NC, PC is licensed to practice engineering in North Carolina. The certification number (Firm's License Number) is C-3500.

Geosyntec Consultants of NC, PC is licensed to practice geology in North Carolina. The certification number (Firm's License Number) is C-295.

Geosyntec consultants

TABLE OF CONTENTS

1. INTRODUCTION 1
   1.1 Site History 1
   1.2 Site Location 3
   1.3 Site Geology and Hydrogeology 3

2. GROUNDWATER MONITORING 5
   2.1 Monitored Natural Attenuation (MNA) Assessment Program 5
   2.2 Groundwater Sampling 6

3. GROUNDWATER RESULTS 8
   3.1 Groundwater VOC and MNA Parameter Results 8
   3.2 Field Quality Control Sample Results 8
   3.3 Data Validation 9
   3.4 Groundwater Elevation and Flow Direction 9

4. INVESTIGATION DERIVED WASTE 11

5. CONCLUSIONS 12

6. REFERENCES 13

LIST OF TABLES

Table 1 **Historical VOC Analytical Results**
Table 2 **MNA Indicator Parameters**
Table 3 **Groundwater Elevation and Field Measurement Data**

LIST OF FIGURES

Figure 1 **Site Vicinity Map**
Figure 2 **Well Locations and VOC Results Map**
Figure 3 **Potentiometric Surface Map**

LIST OF APPENDICES

Appendix A **Well Purge Forms**
Appendix B **Laboratory Analytical Report**

1. INTRODUCTION

Geosyntec Consultants (Geosyntec) is pleased to submit this report to North Carolina Department of Environmental Quality (NCDEQ) and Norfolk Southern Railway Company (NSRC) for fulfillment of annual groundwater monitoring and reporting requirements associated with the Former Shulimson Brothers Scrap Yard (the "Site") located in Asheville, North Carolina (NCDEQ ID: NCN 000 407 206).

The Site is a six-acre parcel owned by NSRC, and has been owned by NSRC and its predecessors for more than 100 years. In May 2011, Marshall Miller & Associates, Inc. (MM&A) submitted a *Groundwater Remedial Action Plan* [RAP (MM&A, 2011) that recommended a monitored natural attenuation (MNA) remedy for chlorinated solvents. In accordance with the RAP, following the completion of the first full year of quarterly monitoring between 2011 and 2012, groundwater sampling has been performed on an annual basis.

NSRC is currently under an Administrative Agreement (AA) for Registered Environmental Consultant (REC)-Directed Remedial Action, with NCDEQ, Division of Waste Management (DWM) to conduct a voluntary assessment and cleanup of potentially hazardous substances at the Site. This report provides an assessment of remedial efforts developed to comply with the requirements set forth in 15A NCAC 13C .0300, associated REC Program guidance documents, and the groundwater RAP.

1.1 Site History

The Site is located adjacent to the NSRC Asheville Rail Yard. For approximately 40 years, Shulimson Brothers Company, Inc. (Shulimson) leased and operated a metal scrap yard and recycling facility on the property. When the scrap and recycling operations ended in 1997, Shulimson abandoned the Site littered with debris and other materials. The only structures on the Site were located on the southwest portion of the property, and included a long, rectangular metal warehouse building, adjacent concrete slab loading dock area, and a truck scale. MM&A reported in the *Phase I Remedial Investigation Report* (MM&A, 2002) that the warehouse building was completely destroyed by fire in 1998. According to the RAP, based on observed Site conditions,

multiple source areas for potential impact to soil and groundwater were observed (MM&A, 2011).

From 1997 through 2002, Tyree Environmental, Inc. (Tyree) removed and inventoried the Site contents and debris and installed a chain-link fence around the perimeter of the Site (MM&A, 2003). Waste handling and disposal processes during the Site clearing activities were conducted in strict compliance with applicable Resource Conservation and Recovery Act (RCRA) and NCDEQ waste handling and disposal regulations (MM&A, 2003).

In 1997, MM&A collected soil samples and surface water samples and the results were reported in the *Soil and Surface Water Sampling Assessment* (MM&A, 1997). The assessment indicated that soil was impacted with petroleum hydrocarbons, semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and metals. Later in 1997, MM&A drilled three shallow groundwater monitoring wells to determine if groundwater had been impacted and to identify the groundwater flow direction, as reported in *Second Phase Soil and Groundwater Assessment* (MM&A, 1997). According to the *Interim Remedial Investigation Report* (MM&A, 2003), MM&A drilled three additional shallow groundwater monitoring wells and one deep groundwater monitoring well in 2002 to determine vertical and horizontal delineation of the groundwater impacted by chlorinate solvents.

In the *Remedial Investigation Report* [RI (MM&A, 2009)], carbon tetrachloride (CCl_4) and tetrachloroethene (PCE) were reported to be the only volatile organic compound (VOC) constituents with concentrations above the Title 15A of the North Carolina Administrative Code, Subchapter 2L, Groundwater Quality Standards (2L) in shallow groundwater. One VOC constituent (1, 2-dichloropropane) was detected in the deeper monitoring well at a concentration slightly above the 2L standard (MM&A, 2009). MM&A was able to delineate the carbon tetrachloride and PCE plume which is reported to be confined to the western edge of the Site (MM&A, 2011).

Four quarterly groundwater monitoring events were conducted in November 2009, January 2010, April 2010, and July 2010, following the RI in April 2009. According to the RAP (MM&A, 2011), groundwater was sampled for the analysis of VOCs and natural attenuation indicator parameters (chloride, nitrate as nitrogen (N), sulfate, dissolved iron, methane, and hydrogen). The

same three VOCs reported in the RI in April 2009 were detected during the four quarterly sampling events.

The RAP was prepared to address the VOC detections in the groundwater and to determine a remedy. MM&A evaluated several different remedial actions and determined MNA would be the best remedial approach. During the sampling events between November 2009 and July 2010, decreasing VOC concentrations and the presence of degradation byproducts (chloroform, methane, and cis-1, 2-dichloroethene) of contaminants released at the Site were detected (MM&A, 2011). During field measurements, conditions of an anaerobic environment (absence of oxygen), which also aids in the MNA process, were observed. Since the implementation of the RAP in 2011, nine groundwater monitoring events have occurred including the first year of quarterly events between September 2011 and June 2012, December 2012, May 2013, December 2013, April 2015, and July 2016.

1.2 Site Location

The Site is located along Meadow Road in the southwest portion of Asheville, North Carolina. **Figure 1** depicts the Site situated east of the Swannanoa River, approximately 1,000 feet (ft) south of its confluence into the French Broad River. Site Geographic coordinates are 35° 33’ 48.0” N and 82° 33’ 51.6” W.

1.3 Site Geology and Hydrogeology

As depicted in **Figure 1**, the Site lies at an elevation of approximately 1,980 ft above mean sea level (AMSL) within the relatively flat river valley associated with the Swannanoa and French Broad Rivers.

Previous Site activities during the scrap yard operations disturbed the upper soil horizon at the Site. According to the *Phase I Remedial Investigation Report* (MM&A, 1997) “fill” zones were identified within the upper 5 ft of the soil profile and the fill was noted to contain particles of debris including glass, metal, etc. Below the fill, two naturally-occurring lithologic units were observed during the subsurface investigation. From approximately 5 ft below ground surface (BGS) to approximately 14 ft BGS, the native soil consisted of brown to light-brown clayey silt. Evidence of horizontal lamination, including

occasional thin mica-rich laminae, was noted (MM&A, 1997). The native unconsolidated soils which make up the shallow unconfined aquifer are believed to be of alluvial origin deposited in the floodplain of the Swannanoa and French Broad Rivers. While drilling MW-7A, bedrock was encountered at a depth of approximately 20 ft BGS and appeared to be slate or schist (MM&A, 2003).

The groundwater elevations in all of the wells have historically ranged between 1,968 and 1,976 ft AMSL including the bedrock monitoring well (MW-7A) and the groundwater flow direction has consistently been to the west.

2. GROUNDWATER MONITORING

2.1 Monitored Natural Attenuation (MNA) Assessment Program

Seven Type II monitoring wells (MW-1 through MW-6, and MW-8) and one Type III double-cased well (MW-7A) are located at the Site, as depicted on **Figure 2**. The Type II wells are screened in the shallow alluvial aquifer, whereas the Type III well is screened in the underlying bedrock aquifer. All monitoring wells were used to obtain groundwater elevation measurements, but only wells MW-2 and MW-4 through MW-8 were sampled for subsequent chemical analysis, as specified in the RAP. Previously recommended sampling scheme included these six wells based on:

- MW-2 and MW-6 consistently yielded the highest levels of dissolved-phase VOCs and were considered to be in the core of the plume;
- MW-5 and MW-8 bound the plume cross-gradient in both directions;
- MW-4 is located upgradient of the zone of impacted groundwater and serves to document background conditions upgradient of the plume; and
- MW-7A closely bounds the plume in a vertical direction and serves to monitor for vertical expansion of the plume, and continued degradation of 1,2-dichloropropane.

The scope of the groundwater monitoring and associated field and analytical procedures are identified in detail in Section 7.0 “Sampling and Analysis Plan” and Section 8.0 “Quality Assurance Project Plan” of the RAP (MM&A, 2011). Prior to 2014, groundwater monitoring was conducted by Cardno MM&A (formerly MM&A). In 2014, NSRC contracted Geosyntec to conduct the groundwater monitoring program. Based on historic groundwater sampling and analyses, a select VOC list was developed and includes the following constituents of concern (COCs [Geosyntec, 2015]):

- 1,2-dichloropropane (1,2-DCP);
- CCl_4;
- chloroform;
- chloromethane;
- cis-1,2-dichloroethene;
- dichloromethane;
- trichloroethene;
- PCE;
- trans-1,2-dichloroethene; and
- vinyl chloride.

2.2 Groundwater Sampling

Between 5 and 6 July 2016, a Geosyntec geologist mobilized to the Site to collect groundwater samples for analysis of the parameters listed above and MNA indicator parameters. The monitoring wells were sampled by low-flow sampling procedures with a Geopump2® peristaltic pump and dedicated non-teflon lined tubing. At monitoring wells with low yields, the method was modified to allow drawdown to exceed the maximum of 0.1 ft drawdown criterion as long as the water level stabilized during purging.

During well purging, groundwater quality parameters including specific conductivity, pH, temperature, dissolved oxygen (DO), turbidity, and oxidation reduction potential (ORP) were measured with a Horiba U-52 multi-meter.

Groundwater samples were collected once water quality parameters stabilized (when practical) as follows:

- ± 0.1 pH units
- ± 3% for specific conductivity
- ± 10 millivolts (mV) for oxidation reduction potential (ORP)
- ± 10% for turbidity
- ± 0.3 milligrams per liter (mg/L) for dissolved oxygen

Groundwater purge and sampling forms for the July 2016 event are included in **Appendix A**.

The groundwater samples were collected in 40-milliliter (mL) sample vials and 250 mL wide mouth plastic bottles. Using a Geopump2® peristaltic pump, samples were collected directly from the low-flow stream of water. Additional 250 mL wide mouth plastic bottles and 250 mL amber glass bottles were filled as part of a supplemental Remedial Investigation assessment for potential metals, PCBs, and SVOCs migration from soil to groundwater.

Samples taken during the July 2016 sampling event were analyzed within allowable holding times by Eurofins Lancaster Laboratories Environmental (Eurofins) in Lancaster, PA as follows:

- select VOCs by EPA Method 8260B;
- chloride by EPA Method 300;
- sulfate by EPA Method 300;
- nitrite by EPA Method 353.2;
- dissolved iron by EPA Method 6010C; and
- methane by RSK-175.

Matrix spike (MS) and matrix spike duplicate (MSD) samples were collected from MW-7A and labeled MW-7A-0716-MS and MW-7A-0716-MSD. One field duplicate was collected from MW-4 and labeled MW-4-0716-DUP. One field blank was collected near MW-7A and labeled FB-0716. One equipment blank was collected near MW-7A and labeled EB-0716. A trip blank was included in the cooler containing the samples for VOC analyses.

3. GROUNDWATER RESULTS

The following sections discuss the results of the field and laboratory analytical data obtained during the July 2016 sampling event. The laboratory analytical report is provided in **Appendix B**.

3.1 Groundwater VOC and MNA Parameter Results

A summary of the July 2016 groundwater sampling event VOC analytical results compared to the 2L standards (April 2013) are provided in **Table 1**. The location of the wells along with the VOC 2L standard exceedances are depicted in **Figure 2**.

There was one exceedance of 1,2-DCP reported in the groundwater sample collected from MW-7A. The concentration of 1,2-DCP was 1.5 parts per billion (ppb) which exceeded the 2L standard of 0.6 ppb. The only other exceedance reported was CCl_4, which was detected in MW-2 (15 ppb) and MW-6 (8.1 ppb). The 2L standard for CCl_4 is 0.3 ppb. PCE was detected at MW-2 (0.3 ppb) and MW-6 (0.7 ppb) at concentrations that did not exceed the standard of 0.7 ppb.

MNA indicator parameters results are provided in **Table 2**. The results for chloride, iron, methane, nitrogen, and sulfate are consistent with the historical results (from multiple sampling events) reported in the *Groundwater Remedial Action Progress Report- December 2013 Sampling Event* (Cardno MM&A, 2014).

3.2 Field Quality Control Sample Results

Field samples were collected to confirm that quality control measures were effective in preventing cross-contamination of the samples during collection and shipping. One field duplicate groundwater sample was collected during the sampling event. The field duplicate identified as MW-4-0716-DUP was collected concurrently with a sample at MW-4. The results were consistent with the results of the associated field sample identified as MW-4-0716.

Field, equipment, and trip blanks were collected and analyzed. VOC concentrations above laboratory detection limits were not reported for the equipment blank, field blank, or trip blank samples. These results indicate that

decontamination methods were effective and VOCs were not introduced to any of the samples by environmental conditions or during transport of the samples to the laboratory.

3.3 Data Validation

To assess the usability of the analytical data of the groundwater samples, the data was reviewed by a Geosyntec Data Quality Specialist. Based on the Stage 2A data validation covering the quality control (QC) parameters listed below, the data are usable (as qualified) for meeting project objectives. The data should be used within the limitations of the qualifications.

The organic data were reviewed based on NSRC Environmental Contract Laboratory Program User Manual, December 17, 2013, USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, August 2014 (USEPA-540-R-014-002), as well as by the pertinent methods referenced by the data package and professional judgment.

The inorganic data were reviewed based on NSRC Environmental Contract Laboratory Program User Manual, December 17, 2013, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, August 2014 (USEPA-540-R-013-001), as well as by the pertinent methods referenced by the data package and professional judgment.

One field blank, FB-0716, was collected with the sample set. VOCs were not detected in the field blank above the MDLs, with the following exception. Methylene chloride was detected at an estimated concentration greater than the MDL and less than the reporting limit (RL) in the field blank. Therefore, the estimated methylene chloride concentration in the associated sample was U qualified as not detected at the RL.

3.4 Groundwater Elevation and Flow Direction

Groundwater level measurements and elevations are provided in **Table 3**. Groundwater elevations measured in July 2016 ranged from 1,968.25 (MW-6) to 1,971.14 (MW-3) ft AMSL (10.60 to 10.14 ft BGS). The July 2016 data indicate groundwater was flowing generally west, which is consistent with historical measurements. The horizontal hydraulic gradient measured in the

shallow aquifer during the July 2016 sampling event was 0.0049 feet per foot calculated by using the difference in groundwater elevations between MW-3 (1971.14 ft AMSL) and MW-6 (1968.25 ft AMSL), divided by the distance between the wells (588 feet). The groundwater flow is illustrated by the potentiometric surface map included as **Figure 3**. The water level recorded for MW-7A was not used to in the development of the potentiometric surface map. The vertical gradient measured during the July 2016 sampling event was 0 feet per foot calculated by using the difference in groundwater elevations between MW-7A (1968.25 ft AMSL) and MW-6 (1968.25 ft AMSL), divided by the vertical difference between the bottom of MW-7A (1935.94 ft AMSL) and the bottom of MW-6 (1963.05 ft AMSL). The horizontal and vertical hydraulic gradient during the July 2016 sampling event is generally consistent with measurements from the April 2015 sampling event.

4. INVESTIGATION DERIVED WASTE

Investigation derived waste (IDW) generated during the July 2016 sampling event consisted of groundwater purged during sampling and equipment decontamination. In accordance with the REC Program directive, all IDW was poured on the ground (after sampling was complete) adjacent to the well from which it originated as dissolved-phase concentrations would not impact the soil at levels exceeding soil remediation goals. Disposable sampling equipment and personal protective equipment (PPE) was disposed as solid waste.

5. CONCLUSIONS

Based on the results of the July 2016 event, VOC concentrations have generally remained steady. Current results indicate that only CCl_4 and 1,2-dichloropropane exceed the 2L groundwater standards. Decreasing CCl_4 concentrations were observed in MW-6 when compared to the last sampling event. There was only one detection of 1,2-DCP (in MW-7A) which slightly exceeded the groundwater standard. There were no detections of PCE daughter products; however, PCE was detected at MW-2 and MW-6 at concentrations that did not exceed the 2L standard.

In accordance with the RAP, Geosyntec will continue to collect groundwater samples to monitor the natural attenuation of the VOC COCs. The next groundwater sampling event is scheduled to occur in June 2017.

6. REFERENCES

Cardno Marshall Miller & Associates. 2014. *Groundwater Remedial Action Progress Report- December 2013 Sampling Event*. Raleigh, North Carolina. January 13, 2014.

Geosyntec Consultants, Inc. 2015. *Groundwater Remedial Action Progress Report – April 2015 Sampling Event*. Knoxville, Tennessee. June 2015

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Marshall Miller & Associates, Inc. 2003. *Interim Remedial Investigation Report*. Raleigh, North Carolina. April 10, 2003.

Marshall Miller & Associates, Inc. 2009. *Remedial Investigation Report*. Raleigh, North Carolina. July 7, 2009.

Marshall Miller & Associates, Inc. 2011. *Groundwater Remedial Action Plan*. Raleigh, North Carolina. May 20, 2011.

TABLES

Table 1

Historical Groundwater VOC Detections- July 2016

Former Shulimson Brothers Scrap Yard

Asheville, North Carolina

NSRC Project # SA96036001

Site ID # NCN 000407206

Analyte	Units	Well ID	MW-2													
		Sampled Date	4/2/2009	5/19/2009	11/3/2009	4/29/2010	7/22/2010	9/13/2011	11/30/2011	3/1/2012	6/6/2012	11/14/2012	5/15/2013	12/10/2013	4/7/2015	7/6/2016
		15A NCAC 02L .0202														
1,2-dichloropropane	µg/L	**0.6**	<0.36	-	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U
Carbon tetrachloride	µg/L	**0.3**	**5.5**	-	**9.4**	**4.8**	**15**	**47**	**18**	**5.5**	**8.7**	**6**	**17**	**9**	**12**	**15**
Chloroform	µg/L	**70**	0.66	-	0.82	<0.14	0.75	1.4	0.34	<0.14	<0.14	<0.14	<0.14	<0.8	0.2J	0.2J
Chloromethane	µg/L	**3**	<0.28	-	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<1	<0.2U	<0.2U
cis-1,2-dichloroethene	µg/L	**70**	<0.33	-	<0.15	<0.15	<0.15	0.45	<0.15	<0.15	<0.15	<0.15	<0.15	<0.8	<0.1U	<0.1U
Dichloromethane	µg/L	**5**	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<0.2U	<0.2U
Trichloroethene	µg/L	**3**	<0.4	-	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U
Tetrachloroethene	µg/L	**0.7**	0.52	-	**0.87**	0.35	**0.71**	**0.71**	0.47	0.3	0.29	<0.15	0.44	<0.8	0.3J	0.3J
trans-1,2-dichloroethene	µg/L		<0.3	-	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	-	-	-	<0.1U	<0.1U
Vinyl chloride	µg/L	**0.03**	<0.2	-	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<1	<0.1U	<0.1U

Analyte	Units	Well ID	MW-4												
		Sampled Date	4/2/2009	11/3/2009	4/28/2010	7/21/2010	9/13/2011	11/30/2011	3/1/2012	6/6/2012	11/14/2012	5/15/2013	12/10/2013	4/6/2015	7/6/2016
		15A NCAC 02L .0202													
1,2-dichloropropane	µg/L	**0.6**	<0.36	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U
Carbon tetrachloride	µg/L	**0.3**	<0.27	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.1U	<0.1U
Chloroform	µg/L	**70**	<0.29	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.8	<0.1U	<0.1U
Chloromethane	µg/L	**3**	<0.28	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<1	<0.2U	<0.2U
cis-1,2-dichloroethene	µg/L	**70**	<0.33	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.8	<0.1U	<0.1U
Dichloromethane	µg/L	**5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<0.2U	<0.2U
Trichloroethene	µg/L	**3**	<0.4	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U
Tetrachloroethene	µg/L	**0.7**	<0.28	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.8	0.3J	0.3J
trans-1,2-dichloroethene	µg/L		<0.3	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	-	-	-	<0.1U	<0.1U
Vinyl chloride	µg/L	**0.03**	<0.2	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<1	<0.1U	<0.1U

Analyte	Units	Well ID	MW-5														
		Sampled Date	4/2/2009	5/19/2009	11/4/2009	1/25/2010	4/29/2010	7/21/2010	9/13/2011	11/30/2011	3/1/2012	6/6/2012	11/14/2012	5/15/2013	12/10/2013	4/6/2015	7/6/2016
		15A NCAC 02L .0202															
1,2-dichloropropane	µg/L	**0.6**	<0.36	-	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U
Carbon tetrachloride	µg/L	**0.3**	<0.27	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.1U	<0.1U
Chloroform	µg/L	**70**	<0.29	-	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.8	<0.1U	<0.1U
Chloromethane	µg/L	**3**	<0.28	-	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<1	<0.2U	<0.2U
cis-1,2-dichloroethene	µg/L	**70**	<0.33	-	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.8	<0.1U	<0.1U
Dichloromethane	µg/L	**5**	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<0.2U	<0.2U
Trichloroethene	µg/L	**3**	<0.4	-	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U
Tetrachloroethene	µg/L	**0.7**	<0.28	-	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.8	<0.1U	<0.1U
trans-1,2-dichloroethene	µg/L		<0.3	-	<0.2	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	-	-	-	<0.1U	<0.1U
Vinyl chloride	µg/L	**0.03**	<0.2	-	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<1	<0.1U	<0.1U

Analyte	Units	Well ID	MW-6												
		Sampled Date	4/2/2009	11/4/2009	4/29/2010	7/22/2010	9/13/2011	11/30/2011	3/1/2012	6/6/2012	11/14/2012	5/15/2013	12/10/2013	4/7/2015	7/6/2016
		15A NCAC 02L .0202													
1,2-dichloropropane	µg/L	**0.6**	<0.36	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U
Carbon tetrachloride	µg/L	**0.3**	**40**	**0.59**	**21**	**15**	**3.5**	**31**	**12**	<0.5	**11**	<0.5	21	**13**	**8.1**
Chloroform	µg/L	**70**	3.5	0.16	0.87	0.84	1	1.8	1.7	<0.14	1.2	<0.14	1	1.3	0.8
Chloromethane	µg/L	**3**	<0.28	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<1	<0.2U	<0.2U
cis-1,2-dichloroethene	µg/L	**70**	0.53	<0.15	<0.15	<0.15	0.16	0.24	<0.15	<0.15	<0.15	<0.15	<0.8	<0.1U	0.2J
Dichloromethane	µg/L	**5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<0.2U	<0.2U
Trichloroethene	µg/L	**3**	<0.4	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U
Tetrachloroethene	µg/L	**0.7**	0.65	<0.15	0.41	0.4	0.58	0.61	0.55	<0.15	<0.15	<0.15	**0.8**	0.5J	0.7
trans-1,2-dichloroethene	µg/L		<0.3	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	-	-	-	<0.1U	<0.1U
Vinyl chloride	µg/L	**0.03**	<0.2	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<1	<0.1U	<0.1U

Notes:

Indicates values that exceed 15A NCAC 02L .0202

J - Estimated value

U - Non-detection

15A NCAC 02L .0202- North Carolina Department of Environment and Natural Resources, Title 15A Subchapter 2L Groundwater Quality Standard Effective April 1, 2013

µg/L- micrograms per liter

Table 1

Historical Groundwater VOC Detections- July 2016

Former Shulimson Brothers Scrap Yard

Asheville, North Carolina

NSRC Project # SA96036001

Site ID # NCN 000407206

Analyte	Units	Well ID	MW-7A													MW-8												
		Sampled Date	4/2/2009	11/4/2009	4/30/2010	7/22/2010	9/13/2011	11/30/2011	3/1/2012	6/6/2012	11/14/2012	5/15/2013	12/10/2013	4/7/2015	7/7/2016	4/2/2009	11/3/2009	4/29/2010	7/21/2010	9/13/2011	11/30/2011	3/1/2012	6/6/2012	11/14/2012	5/15/2013	12/10/2013	4/6/2015	7/6/2016
		15A NCAC 02L .0202																										
1,2-dichloropropane	µg/L	**0.6**	**1.9**	**1.6**	**1.2**	**1.4**	**1.4**	**1**	**1**	<0.13	**1.3**	**0.94**	**1**	**1.1**	**1.5**	<0.36	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U
Carbon tetrachloride	µg/L	**0.3**	<0.27	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.1U	<0.1U	**0.53**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**1**	<0.1U	<0.1U
Chloroform	µg/L	**70**	<0.29	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.8	<0.1U	<0.1U	<0.29	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.8	<0.1U	<0.1U
Chloromethane	µg/L	**3**	<0.28	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<1	<0.2U	<0.2U	<0.28	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<1	<0.2U	<0.2U
cis-1,2-dichloroethene	µg/L	**70**	<0.33	0.22	0.29	0.34	0.27	0.26	0.26	0.3	0.52	0.38	<0.8	0.2J	0.2J	0.68	<0.15	0.18	0.51	0.18	0.36	<0.15	<0.15	<0.15	<0.15	<0.8	<0.1U	<0.1U
Dichloromethane	µg/L	**5**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<0.2U	<0.2U	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<0.2U	<0.2U
Trichloroethene	µg/L	**3**	<0.4	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U	<0.4	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<1	<0.1U	<0.1U
Tetrachloroethene	µg/L	**0.7**	<0.28	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.8	<0.1U	<0.1U	0.41	<0.15	<0.15	0.34	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.8	<0.1U	<0.1U
trans-1,2-dichloroethene	µg/L		<0.3	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	-	-	-	<0.1U	<0.1U	<0.3	<0.2	<0.2	<0.2	<0.2	-	-	<0.2	-	-	-	<0.1U	<0.1U
Vinyl chloride	µg/L	**0.03**	<0.2	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<1	<0.1U	<0.1U	<0.2	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<1	<0.1U	<0.1U

Notes:

Indicates values that exceed 15A NCAC 02L .0202

J - Estimated value

U - Non-detection

15A NCAC 02L .0202- North Carolina Department of Environment and Natural Resources, Title 15A Subchapter 2L Groundwater Quality Standard Effective April 1, 2013

µg/L- micrograms per liter

Table 2
MNA Indicator Parameters Results- July 2016
Former Shulimson Brothers Scrap Yard
Asheville, North Carolina
NSRC Project # SA96036001
Site ID # NCN 000407206

Analyte	Units	Well ID	MW-2		MW-4		MW-5		MW-6		MW-7A		MW-8	
		Sample ID	MW-2-0415	MW-2-0716	MW-4-0415	MW-4-0716	MW-5-0415	MW-5-0716	MW-6-0415	MW-6-0716	MW-7A-0415	MW-7A-0716	MW-8-0415	MW-8-0716
		Date Sampled	4/7/2015	7/6/2016	4/6/2015	7/6/2016	4/6/2015	7/6/2016	4/7/2015	7/6/2016	4/7/2015	7/7/2016	4/6/2015	7/6/2016
Iron (Filtered)	mg/L		<0.0334U	<0.0747U	0.277J	<0.0747U	<0.0334U	<0.0747U	<0.0334U	<0.0747U	<0.0334U	<0.0747U	<0.0334U	<0.0747U
Total Nitrite/Nitrate Nitrogen	mg/L		0.5	0.49	<0.04U	<0.04U	0.28	0.43	0.51	0.64	<0.04U	<0.04U	0.35	0.41
Chloride	mg/L		7.2	5.1	2.9	1.7J	6.9	4.3	4.2	4	13.2	11.7	5.6	4.5
Sulphate	mg/L		41.6	46.1	56.8	52.4	49.9	59.6	57.2	48	13.5	27.5	74.7	73.7
Methane	µg/L		<3U	14	<3U	<3U	<3U	<3U	<3U	<3U	1800	3500	<3U	<3U

Notes:

J - Estimated value
U - Non-detection
µg/L- micrograms per liter
mg/L- milligrams per liter

Table 3

Groundwater Elevation and Field Measurement Data- July 2016

Former Shulimson Brothers Scrap Yard

Asheville, North Carolina

NSRC Project # SA96036001

Site ID # NCN 000407206

Well ID	Casing Elevation (ft)	Date	Depth to Water (ft)	GW Elevation (ft above mean sea level)	Temperature (°Celsius)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Oxidation Reduction Potential (mV)	Turbidity (NTU)
MW-1	1,978.99	04/02/09	9.37	1,969.62	--	--	--	--	--	--
		11/03/09	7.01	1,971.98	16.82	0.208	6.65	5.57	54.4	2.50
		01/25/10	3.27	1,975.72	9.94	0.130	4.91	5.92	106.7	1.41
		04/28/10	7.44	1,971.55	13.13	0.168	2.54	5.29	182.0	1.10
		07/20/10	9.69	1,969.30	18.48	0.349	2.80	5.65	194.6	2.65
		09/13/11	10.25	1,968.74	NS	NS	NS	NS	NS	NS
		11/30/11	9.83	1,969.16	NS	NS	NS	NS	NS	NS
		03/01/12	8.39	1,970.60	NS	NS	NS	NS	NS	NS
		06/06/12	8.32	1,970.67	NS	NS	NS	NS	NS	NS
		11/13/12	9.68	1,969.31	NS	NS	NS	NS	NS	NS
		05/14/13	4.53	1,974.46	NS	NS	NS	NS	NS	NS
		12/09/13	8.95	1,970.04	NS	NS	NS	NS	NS	NS
		04/07/15	9.30	1,969.69	NS	NS	NS	NS	NS	NS
		07/07/16	9.76	1,969.23	19.12	0.293	0.00	5.63	275	0.00
MW-2	1,979.19	04/02/09	10.00	1,969.19	--	--	--	--	--	--
		03/09/11	8.46	1,970.73	15.72	0.213	2.34	6.02	-15.5	0.79
		01/25/10	5.02	1,974.17	12.45	0.120	0.59	6.23	133.0	1.01
		04/28/10	8.56	1,970.63	13.42	0.262	0.43	5.92	99.5	0.60
		07/20/10	10.65	1,968.54	15.99	0.352	0.45	5.83	146.2	3.31
		09/13/11	11.11	1,968.08	16.49	0.222	3.30	5.73	-43.6	0.37
		11/30/11	10.40	1,968.79	14.23	0.200	0.37	6.01	107.2	2.62
		03/01/12	9.58	1,969.61	14.27	0.216	5.98	6.04	-64.7	1.44
		06/06/12	9.49	1,969.70	14.24	0.208	0.51	6.19	11.9	1.39
		11/13/12	10.70	1,968.49	15.18	0.215	1.21	6.25	53.5	0.27
		05/14/13	5.49	1,973.70	14.02	0.242	1.04*	6.06	76.4	0.00
		12/09/13	9.70	1,969.49	14.21	0.235	1.40*	6.14	31.6	0.40
		04/07/15	10.19	1,969.00	14.52	0.146	0.70	5.91	89.0	4.00
		07/06/16	10.75	1,968.44	15.89	0.281	0.00	5.74	287.0	0.00
MW-3	1,981.28	04/02/09	9.97	1,971.31	--	--	--	--	--	--
		11/03/09	7.09	1,974.19	16.63	0.289	1.47	6.08	-202.6	6.08
		01/25/10	2.35	1,978.93	12.34	0.384	0.72	6.35	80.8	2.44
		04/28/10	7.75	1,973.53	13.32	0.303	0.45	6.01	171.9	9.00
		07/20/10	10.02	1,971.26	18.12	0.263	0.39	5.34	146.0	5.52
		09/13/11	10.50	1,970.78	NS	NS	NS	NS	NS	NS
		11/30/11	9.78	1,971.50	NS	NS	NS	NS	NS	NS
		03/01/12	8.58	1,972.70	NS	NS	NS	NS	NS	NS
		06/06/12	8.28	1,973.00	NS	NS	NS	NS	NS	NS
		11/13/12	9.95	1,971.33	NS	NS	NS	NS	NS	NS
		05/14/13	4.53	1,976.75	NS	NS	NS	NS	NS	NS
		12/09/13	9.60	1,971.68	NS	NS	NS	NS	NS	NS
		04/07/15	9.85	1,971.43	NS	NS	NS	NS	NS	NS
		07/07/16	10.14	1,971.14	19.72	0.236	0.00	5.93	188	0.00
MW-4	1,979.31	04/02/09	9.98	1,969.33	--	--	--	--	--	--
		11/03/09	8.05	1,971.26	15.90	0.231	8.14	5.80	32.3	1.97
		01/25/10	4.71	1,974.60	11.43	0.138	3.09	6.02	123.2	2.88
		04/28/10	8.31	1,971.00	12.26	0.224	1.77	5.66	151.5	2.80
		07/20/10	10.45	1,968.86	16.31	0.298	1.50	5.52	216.2	2.15
		09/13/11	10.96	1,968.35	17.63	0.230	1.73	5.99	33.6	1.31
		11/30/11	10.42	1,968.89	13.31	0.208	0.98	5.90	185.8	6.12
		03/01/12	9.29	1,970.02	12.39	0.231	5.58	4.84	66.4	6.45
		06/06/12	9.20	1,970.11	14.84	0.229	1.68	5.87	-15.9	1.06
		11/13/12	10.50	1,968.81	14.92	0.216	4.40	6.26	-129.3	1.70
		05/14/13	4.95	1,974.36	13.51	0.246	2.58*	5.94	98.0	3.00
		12/09/13	9.65	1,969.66	13.25	0.230	0.50*	5.99	91.7	3.50
		04/06/15	10.06	1,969.25	14.05	0.178	0.72	5.52	60.0	5.10
		07/06/16	10.55	1,968.76	19.24	0.316	0.00	5.78	134.0	0.00

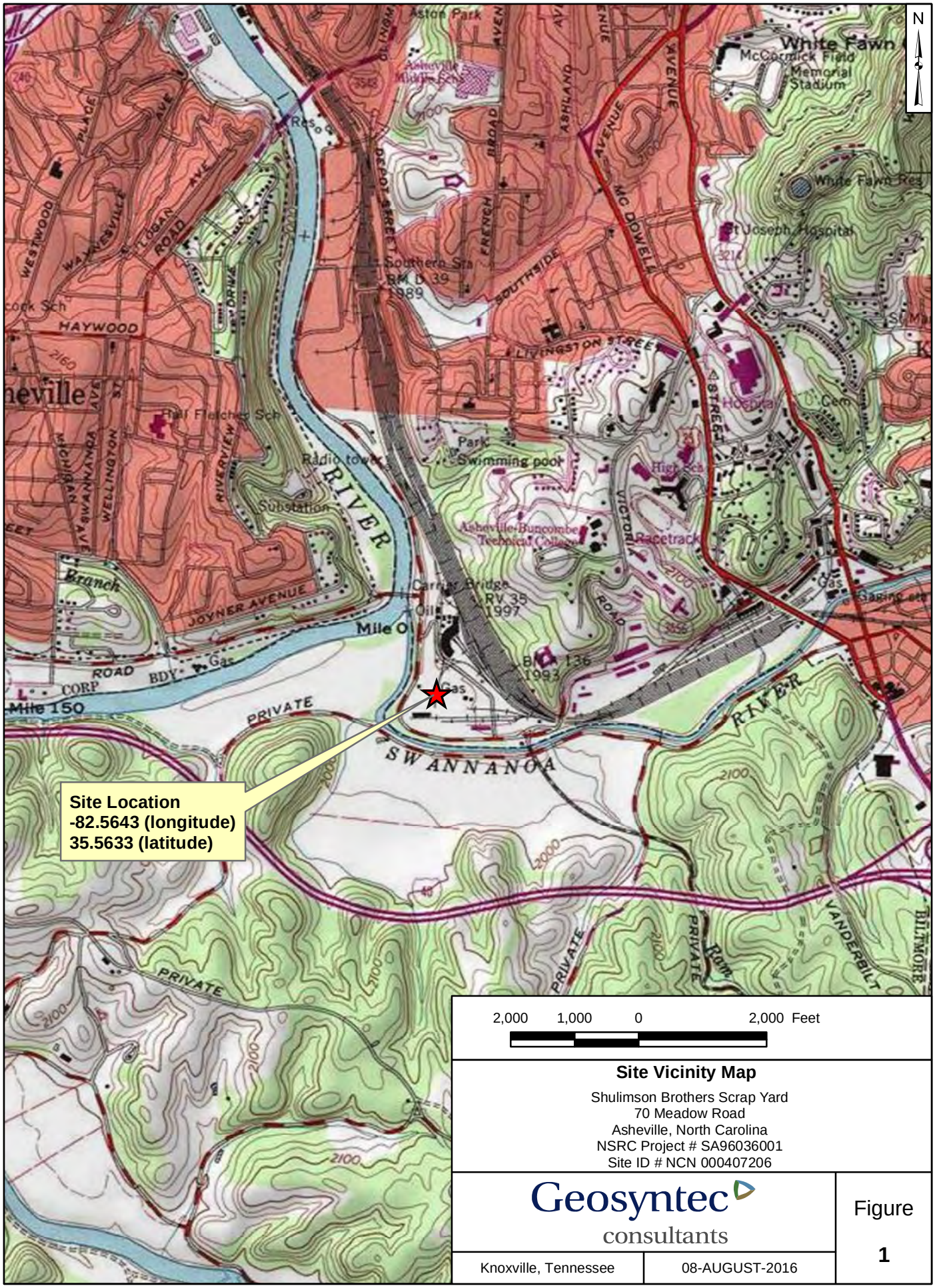
Table 3

Groundwater Elevation and Field Measurement Data- July 2016
Former Shulimson Brothers Scrap Yard
Asheville, North Carolina
NSRC Project # SA96036001
Site ID # NCN 000407206

Well ID	Casing Elevation (ft)	Date	Depth to Water (ft)	GW Elevation (ft above mean sea level)	Temperature (°Celsius)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	Oxidation Reduction Potential (mV)	Turbidity (NTU)
MW-5	1,978.54	04/02/09	9.28	1,969.26	--	--	--	--	--	--
		11/03/09	7.58	1,970.96	15.33	0.262	2.29	5.93	-105.8	4.74
		01/25/10	4.05	1,974.49	11.90	0.247	3.62	6.18	112.1	5.00
		04/28/10	7.97	1,970.57	11.77	0.219	1.07	5.89	133.8	0.30
		07/20/10	9.98	1,968.56	18.85	0.585	0.37	5.76	125.7	6.88
		09/13/11	10.48	1,968.06	16.91	0.209	1.45	5.67	-39.1	1.14
		11/30/11	9.64	1,968.90	13.23	0.201	4.40	6.09	82.2	8.05
		03/01/12	8.96	1,969.58	14.48	0.206	3.03	6.29	83.9	8.12
		06/06/12	8.96	1,969.58	14.75	0.215	1.75	6.18	23.0	2.29
		11/13/12	10.04	1,968.50	15.04	0.231	1.49	6.28	53.1	0.42
		05/14/13	5.36	1,973.18	13.21	0.250	3.89	5.15	145.4	5.71
		12/09/13	8.96	1,969.58	14.12	0.227	1.02*	6.21	45.5	2.02
		04/06/15	9.60	1,968.94	13.85	0.153	1.01	5.79	105.0	5.60
		07/06/16	10.14	1,968.40	18.90	0.284	0.00	5.78	234.0	0.00
MW-6	1,978.85	04/02/09	9.66	1,969.19	--	--	--	--	--	--
		11/03/09	8.20	1,970.65	16.23	0.230	3.35	5.94	-0.3	0.42
		01/25/10	4.55	1,974.30	12.30	0.218	3.60	6.08	136.3	0.21
		04/28/10	8.52	1,970.33	12.88	0.216	2.13	5.62	136.2	1.60
		07/20/10	10.55	1,968.30	17.95	0.488	0.52	5.73	167.0	1.17
		09/13/11	10.93	1,967.92	15.91	0.209	0.75	5.56	-24.8	0.38
		11/30/11	9.88	1,968.97	14.43	0.258	0.45	6.03	137.2	5.42
		03/01/12	9.58	1,969.27	14.89	0.218	7.50	6.11	603.7	2.90
		06/06/12	9.51	1,969.34	17.62	0.206	1.70	6.53	-42.1	0.69
		11/13/12	10.57	1,968.28	14.35	0.226	7.00	6.42	173.0	1.60
		05/14/13	5.85	1,973.00	14.36	0.193	5.23	5.34	134.5	3.39
		12/09/13	9.42	1,969.43	13.68	0.249	0.57*	6.10	58.8	1.06
		04/07/15	10.08	1,968.77	16.15	0.162	1.87	5.74	59.0	7.80
		07/06/16	10.68	1,968.17	16.54	0.316	0.00	5.75	259.0	0.00
MW-7A	1,978.34	04/02/09	9.15	1,969.19	--	--	--	--	--	--
		11/03/09	7.61	1,970.73	15.38	0.266	1.37	9.81	-274.5	2.05
		01/25/10	4.04	1,974.30	11.64	0.286	0.44	9.78	-253.6	1.46
		04/28/10	8.02	1,970.32	13.36	0.231	0.25	9.54	-300.1	2.90
		07/20/10	10.04	1,968.30	20.72	0.492	0.13	9.70	216.7	3.41
		09/13/11	10.44	1,967.90	14.87	0.180	0.99	9.79	-215.5	1.31
		11/30/11	9.21	1,969.13	14.49	0.192	2.30	8.74	13.4	8.36
		03/01/12	9.07	1,969.27	15.78	0.215	0.26	8.88	-94.7	8.78
		06/06/12	9.06	1,969.28	15.24	0.224	0.34	9.05	-158.1	1.60
		11/13/12	10.06	1,968.28	13.95	0.211	3.90	9.73	-162.1	4.60
		05/14/13	5.55	1,972.79	15.45	0.286	0.41	7.10	-158.3	3.58
		12/09/13	8.84	1,969.50	13.12	0.199	0.48*	9.37	-265.5	1.70
		04/07/15	9.55	1,968.79	16.20	0.132	0.81	9.42	-245.0	6.50
		07/07/16	10.09	1,968.25	21.86	0.216	0.00	9.07	-129.0	0.00
MW-8	1,979.39	04/02/09	10.23	1,969.16	--	--	--	--	--	--
		11/03/09	8.57	1,970.82	16.02	0.285	6.65	5.74	16.1	0.39
		01/25/10	5.21	1,974.18	10.89	0.118	3.58	5.76	160.1	0.15
		04/28/10	8.98	1,970.41	12.24	0.253	1.10	5.73	129.3	0.45
		07/20/10	10.96	1,968.43	15.81	0.793	0.36	5.69	65.9	0.69
		09/13/11	11.42	1,967.97	17.06	0.305	0.71	6.14	-46.0	2.77
		11/30/11	10.54	1,968.85	14.20	0.297	0.36	6.04	98.6	2.01
		03/01/12	10.03	1,969.36	13.64	0.242	3.42	4.99	14.2	1.28
		06/06/12	9.93	1,969.46	14.48	0.246	1.99	6.00	-7.4	1.23
		11/13/12	11.08	1,968.31	15.11	0.307	1.20	6.16	40.9	0.03
		05/14/13	5.98	1,973.41	13.94	0.116	5.66*	5.33	177.3	2.00
		12/09/13	9.96	1,969.43	13.54	0.317	1.39*	6.11	59.9	0.00
		04/07/15	10.55	1,968.84	13.08	0.189	1.27	5.66	137.0	2.40
		07/06/16	11.13	1,968.26	18.81	0.330	0.00	5.63	262.0	0.00

Casing elevations surveyed by a NC RLS (Blue Ridge Land Surveying, Inc.).
Elevations are measured from mean sea level.
*This measurements was converted from %DO using YSI's "The Dissolved Oxygen Handbook."
NS: Not sampled
--: Not recorded
mS/cm- millisiemen per meter
mV-millivolts
NTU- Nephelometric Turbidity Unit

FIGURES



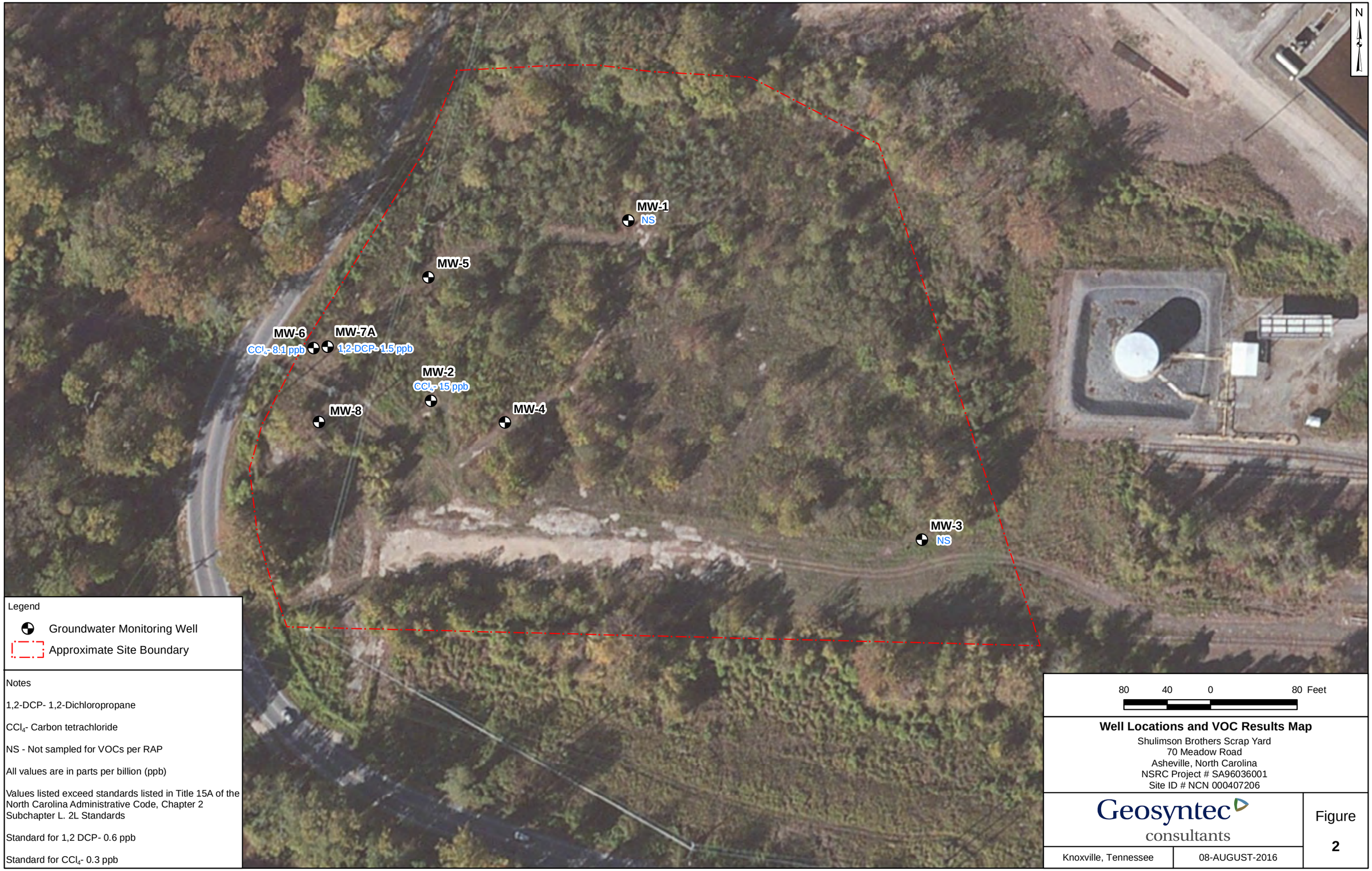
Site Vicinity Map

Shulimson Brothers Scrap Yard
70 Meadow Road
Asheville, North Carolina
NSRC Project # SA96036001
Site ID # NCN 000407206

Geosyntec consultants

Knoxville, Tennessee | 08-AUGUST-2016

Figure 1



Legend

Groundwater Monitoring Well

Approximate Site Boundary

Notes

1,2-DCP- 1,2-Dichloropropane

CCl_4- Carbon tetrachloride

NS - Not sampled for VOCs per RAP

All values are in parts per billion (ppb)

Values listed exceed standards listed in Title 15A of the North Carolina Administrative Code, Chapter 2 Subchapter L. 2L Standards

Standard for 1,2 DCP- 0.6 ppb

Standard for CCl_4- 0.3 ppb

Well Locations and VOC Results Map

Shulimson Brothers Scrap Yard
70 Meadow Road
Asheville, North Carolina
NSRC Project # SA96036001
Site ID # NCN 000407206

Geosyntec consultants

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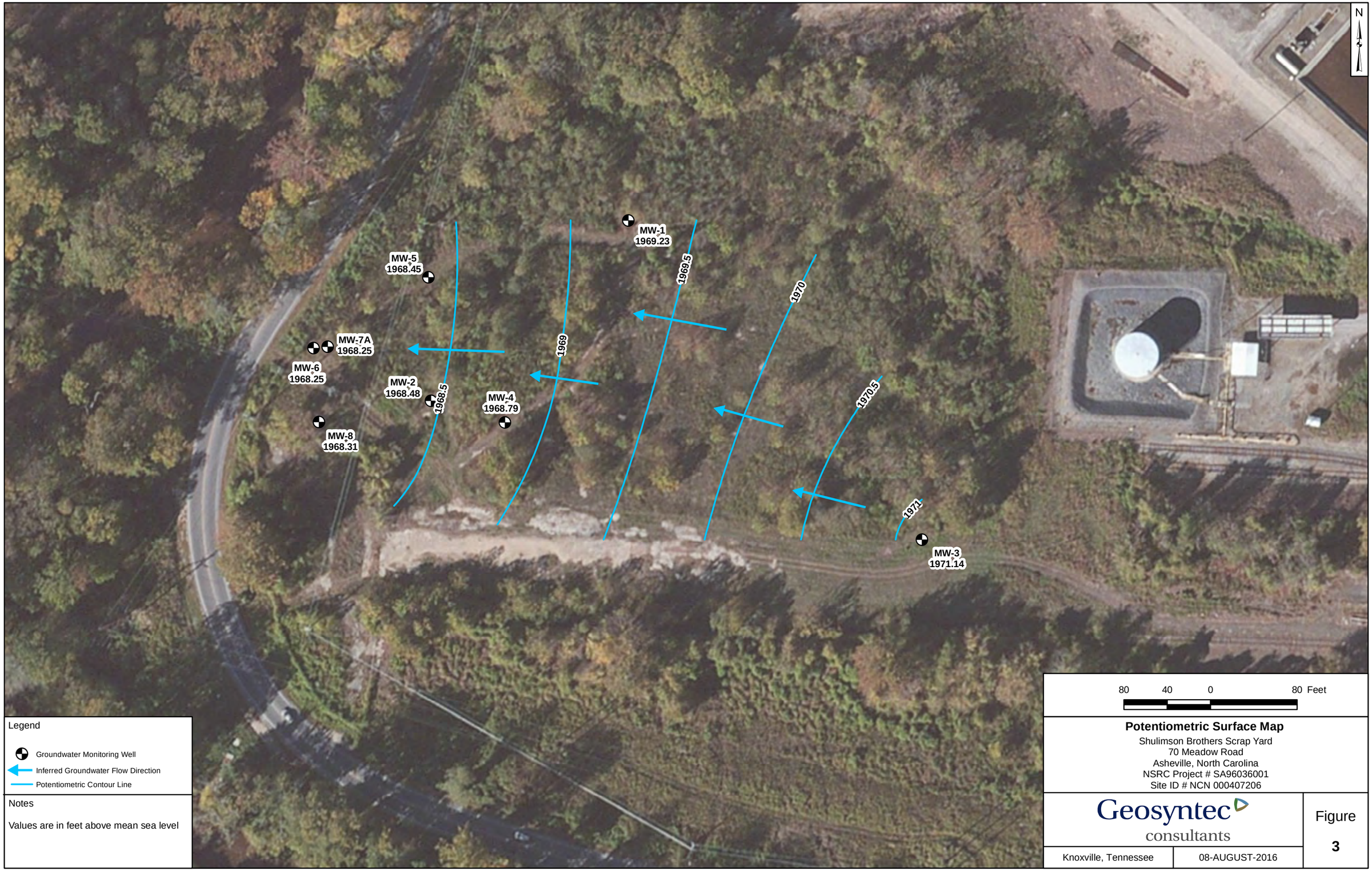
Figure 2


N
MW-1
1969.23
MW-5
1968.45
MW-7A
1968.25
MW-6
1968.25
MW-2
1968.48
MW-4
1968.79
MW-8
1968.31
MW-3
1971.14
1968.5
1969
1969.5
1970
1970.5
1971
80 40 0 80 Feet
Legend
Groundwater Monitoring Well
Inferred Groundwater Flow Direction
Potentiometric Contour Line
Notes
Values are in feet above mean sea level
Potentiometric Surface Map
Shulimson Brothers Scrap Yard
70 Meadow Road
Asheville, North Carolina
NSRC Project # SA96036001
Site ID # NCN 000407206
Geosyntec consultants
Knoxville, Tennessee
08-AUGUST-2016
Figure
3

APPENDIX A

Well Purge Forms

Geosyntec Consultants

Groundwater Sampling Measurements for Low-Flow or Well Volume Purging

Site: NS Shulimson Project No.: KX5615

Monitoring Well:	MW-2	Sampling Date:	7-6-16
Sample ID:	MW-2- 0716	Personnel:	T. McWabb
Well Type:	2-inch PVC	Well Condition:	Good
Depth to Water (ft):	10.75	Depth to Bottom (ft):	14.8
Height of Water (ft):	4.05	Well Diameter (in):	2

multiply Height by 0.092 for 1.5" well, 0.163 for 2" well

1 well volume (gal): 0.66 3 well volume (gal): 1.98

Time	Well Gauging	Start Purge	Readings	Start Samp.	End Samp.	Depth to Water (ft)	Temp. (°C)	Cond. (mS/cm)	D. O. (mg/L)	pH (su)	Redox Potential (± mv) ORP	time per vol (mL/min)	Volume purged (gallons)	Turb (ntu)	Appearance of Water (color, odor, turbidity)
Equilibrium Parameter								± 3%	±0.30	± 0.10	± 10			± 10%	
2023	X					10.75									
2029		X	X			10.81	23.24	0.288	5.57	6.59	225	200	—	8.0	clear
2034			X			10.82	17.10	0.275	0.00 ~~5.71~~	5.71	294	200	—	0.0	clear
2039			X			10.82	16.45	0.277	0.00	5.72	291	200	—	0.0	clear
2044			X			10.82	16.01	0.279	0.00	5.72	290	200	—	0.0	clear
2047			X			10.82	15.87	0.281	0.00	5.73	288	200	—	0.0	clear
2050			X	X		10.82	15.89	0.281	0.00	5.74	287	200	—	0.0	clear

Sample ID:	MW-2-0716	Water Quality Meter:	Horiba U52
Time:	2050	Calibrated on/by:	7-6-16 / [illegible]
Type:		Purge Method:	Peri
Filtered?:	Y (diss. iron only)	Sample Method:	Peri
Analyses:	VOCs (8260B), Cl^- (300); SO_4^{2-} (300); CH_4 (RSK-175) NO_x (353.2); Diss. Iron (6010C)	Total Volume Purged (gal)	3

Weather: Cloudy ~80°F

Notes: (field filtering, well condition, nearby activities or changes in land use, odors, problems, deviations from plan, etc.)

Geosyntec Consultants

Groundwater Sampling Measurements for Low-Flow or Well Volume Purging

Site: NS Shulimson Project No.: KX5615

Monitoring Well:	MW-4	Sampling Date:	7-6-16
Sample ID:	MW-4-0716/MW-4-0716-DUP	Personnel:	T. McWabb
Well Type:	2-inch PVC	Well Condition:	Good - Needs new cap
Depth to Water (ft):	10.55	Depth to Bottom (ft):	15.65
Height of Water (ft):	5.1	Well Diameter (in):	2

multiply Height by 0.092 for 1.5" well, 0.163 for 2" well — 1 well volume (gal): 0.83 — 3 well volume (gal): 2.49

Time	Well Gauging	Start Purge	Readings	Start Samp.	End Samp.	Depth to Water (ft)	Temp. (°C)	Cond. (mS/cm)	D. O. (mg/L)	pH (su)	Redox Potential (± mv) ORP	time per vol (mL/min)	Volume purged (gallons)	Turb (ntu)	Appearance of Water (color, odor, turbidity)
Equilibrium Parameter								± 3%	±0.30	± 0.10	± 10			± 10%	
1245	X					10.55									
1316		X	X			10.59	30.55	0.203	4.77	5.19	283	180	—	6.9	clear
1321			X			10.59	24.60	0.360	0.00	5.73	234	180	—	0.0	clear
1326			X			10.59	20.39	0.332	0.00	5.74	170	180	—	0.0	clear
1331			X			10.59	19.68	0.323	0.00	5.74	151	180	—	0.0	clear
1336			X			10.59	19.38	0.318	0.00	5.75	142	180	—	0.0	clear
1341			X			10.59	19.26	0.317	0.00	5.79	135	180	—	0.0	clear
1346			X	X		10.59	19.24	0.316	0.00	5.78	134	180	—	0.0	clear
13															

Sample ID:	MW-4-0716/MW-4-0716-DUP	Water Quality Meter:	Horiba U52
Time:	1346	Calibrated on/by:	7-6-16/TSM
Type:	VOAs	Purge Method:	Peristaltic
Filtered?:	Y (diss. iron only)	Sample Method:	Peristaltic
Analyses:	VOCs (8260B), Cl^- (300); SO_4^{2-} (300); CH_4 (RSK-175) NO_x (353.2); Diss. Iron (6010C)	Total Volume Purged (gal)	13

Weather: Sunny ~90°F

Notes: (field filtering, well condition, nearby activities or changes in land use, odors, problems, deviations from plan, etc.)

10 drops added to MW-4-0716 + /DUP

Geosyntec Consultants

Groundwater Sampling Measurements for Low-Flow or Well Volume Purging

Site: NS Shulimson Project No.: KX5615

Monitoring Well:	MW-5	Sampling Date:	7-6-16
Sample ID:	MW-5- 0716	Personnel:	T. McNeill
Well Type:	2-inch PVC	Well Condition:	Good
Depth to Water (ft):	10.14	Depth to Bottom (ft):	13.22
Height of Water (ft):	3.08	Well Diameter (in):	2

multiply Height by 0.092 for 1.5" well, 0.163 for 2" well

1 well volume (gal): 0.50 3 well volume (gal): 1.5

Time	Well Gauging	Start Purge	Readings	Start Samp.	End Samp.	Depth to Water (ft)	Temp. (°C)	Cond. (mS/cm)	D. O. (mg/L)	pH (su)	Redox Potential (± mv) ORP	time per vol (mL/min)	Volume purged (gallons)	Turb (ntu)	Appearance of Water (color, odor, turbidity)
Equilibrium Parameter								± 3%	±0.30	± 0.10	± 10			± 10%	
1520	X					10.14									
1527		X	X			10.16	33.17	0.138	3.65	6.92	154	240	—	0.0	clear
1532			X			10.16	21.41	0.286	0.00	5.87	255	240	—	0.0	clear
1537			X			10.16	19.51	0.283	0.00	5.81	234	240	—	0.0	clear
1542			X			10.16	18.92	0.284	0.00	5.79	234	240	—	0.0	clear
1545			X	X		10.16	18.90	0.284	0.00	5.78	234	240	—	0.0	clear

Sample ID:	MW-5- 0716	Water Quality Meter:	Horiba U52
Time:	1545	Calibrated on/by:	7-6-16 / TSM
Type:	VOAs	Purge Method:	Peri.
Filtered?:	Y (diss. iron only)	Sample Method:	Peri.
Analyses:	VOCs (8260B), Cl^- (300); SO_4^{2-} (300); CH_4 (RSK-175) NO_x (353.2); Diss. Iron (6010C)	Total Volume Purged (gal)	1.5

Weather: Sunny ~85°F

Notes: (field filtering, well condition, nearby activities or changes in land use, odors, problems, deviations from plan, etc.)

Geosyntec Consultants

Groundwater Sampling Measurements for Low-Flow or Well Volume Purging

Site: NS Shulimson Project No.: KX5615

Monitoring Well:	MW-6	Sampling Date:	7-6-16
Sample ID:	MW-6- 0716	Personnel:	T. McNabb
Well Type:	2-inch PVC	Well Condition:	Good
Depth to Water (ft):	10.68	Depth to Bottom (ft):	15.8
Height of Water (ft):	5.12	Well Diameter (in):	2

multiply Height by 0.092 for 1.5" well, 0.163 for 2" well 1 well volume (gal): 0.83 3 well volume (gal): 2.5

Time	Well Gauging	Start Purge	Readings	Start Samp.	End Samp.	Depth to Water (ft)	Temp. (°C)	Cond. (mS/cm)	D. O. (mg/L)	pH (su)	Redox Potential (± mv) ORP	time per vol (mL/min)	Volume purged (gallons)	Turb (ntu)	Appearance of Water (color, odor, turbidity)
Equilibrium Parameter								± 3%	±0.30	± 0.10	± 10			± 10%	
1826	X					10.68									
1838		X	X			10.69	26.79	0.265	1.81	6.48	228	160	—	0.0	clear
1845			X			10.70	17.95	0.307	0.00	5.76	261	160	—	0.0	clear
1850			X			10.70	17.16	0.320	0.00	5.75	260	160	—	0.0	clear
1855			X			10.70	16.65	0.319	0.00	5.75	260	160	—	0.0	clear
1858			X	X		10.70	16.54	0.316	0.00	5.75	259	160	—	0.0	clear

Sample ID:	MW-6-0716	Water Quality Meter:	Horiba U52
Time:	1858	Calibrated on/by:	7-6-16/ TSM
Type:	VOAs	Purge Method:	Low-flow
Filtered?:	Y (diss. iron only)	Sample Method:	Peristaltic
Analyses:	VOCs (8260B), Cl^- (300); SO_4^{2-} (300); CH_4 (RSK-175) NO_x (353.2); Diss. Iron (6010C)	Total Volume Purged (gal)	

Weather: Cloudy ~85°F

Notes: (field filtering, well condition, nearby activities or changes in land use, odors, problems, deviations from plan, etc.)

Geosyntec Consultants

Groundwater Sampling Measurements for Low-Flow or Well Volume Purging

Site: NS Shulimson Project No.: KX5615

Monitoring Well:	MW-7A	Sampling Date:	7-7-16
Sample ID:	MW-7A- 0716/MS / MSD	Personnel:	T. McNabb
Well Type:	2-inch PVC	Well Condition:	Good
Depth to Water (ft):	10.09	Depth to Bottom (ft):	42.4
Height of Water (ft):	32.31	Well Diameter (in):	2

multiply Height by 0.092 for 1.5" well, 0.163 for 2" well 1 well volume (gal): 5.27 3 well volume (gal): 15.8

Time	Well Gauging	Start Purge	Readings	Start Samp.	End Samp.	Depth to Water (ft)	Temp. (°C)	Cond. (mS/cm)	D. O. (mg/L)	pH (su)	Redox Potential (± mv) ORP	time per vol (mL/min)	Volume purged (gallons)	Turb (ntu)	Appearance of Water (color, odor, turbidity)
Equilibrium Parameter								± 3%	±0.30	± 0.10	± 10			± 10%	
0909	X					10.09									
0919		X	X			10.44	25.87	0.160	2.79	6.39	171	160	—	11.5	cloudy
0924			X			11.19	21.64	0.214	0.00	8.20	-75	120	—	0.0	clear
0929			X			11.50	20.84	0.216	0.00	8.60	-100	120	—	0.0	clear
0934			X			11.79	20.89	0.216	0.00	8.79	-110	120	—	0.0	clear
0939			X			11.98	21.25	0.214	0.00	8.94	-117	120	—	0.0	clear
0944			X			12.08	21.41	0.215	0.00	8.97	-120	120	—	0.0	clear
0949			X			12.19	21.64	0.214	0.00	9.00	-121	120	—	0.0	clear
0954			X			12.28	21.73	0.216	0.00	9.03	-125	120	—	0.0	clear
0957			X	X		12.39	21.86	0.216	0.00	9.07	-129	120	—	0.0	clear

Sample ID:	MW-7A-0716 / MW-7A-0716-MS / MW-7A-0716-MSD	Water Quality Meter:	Horiba U52
Time:	0957	Calibrated on/by:	7-7-16 / TSM
Type:	VOAs	Purge Method:	Peri
Filtered?:	Y (diss. iron only)	Sample Method:	Peri
Analyses:	VOCs (8260B), Cl^- (300); SO_4^{2-} (300); CH_4 (RSK-175) NO_x (353.2); Diss. Iron (6010C)	Total Volume Purged (gal)	~25

Weather: Sunny ~80°F

Notes: (field filtering, well condition, nearby activities or changes in land use, odors, problems, deviations from plan, etc.)

~~EB and~~ FB collected @1040

@0924 - Speed control reduced

Collected EB @1125

Geosyntec Consultants

Groundwater Sampling Measurements for Low-Flow or Well Volume Purging

Site: NS Shulimson Project No.: KX5615

Monitoring Well:	MW-8	Sampling Date:	7-6-16
Sample ID:	MW-8- 0716	Personnel:	T. Meweldt
Well Type:	2-inch PVC	Well Condition:	Good
Depth to Water (ft):	11.13	Depth to Bottom (ft):	14.15
Height of Water (ft):	3.02	Well Diameter (in):	2

multiply Height by 0.092 for 1.5" well, 0.163 for 2" well — 1 well volume (gal): 0.49 — 3 well volume (gal): 1.48

Time	Well Gauging	Start Purge	Readings	Start Samp.	End Samp.	Depth to Water (ft)	Temp. (°C)	Cond. (mS/cm)	D. O. (mg/L)	pH (su)	Redox Potential (± mv) ORP	time per vol (mL/min)	Volume purged (gallons)	Turb (ntu)	Appearance of Water (color, odor, turbidity)
Equilibrium Parameter								± 3%	±0.30	± 0.10	± 10			± 10%	
1647	X					11.13									
1700		X	X			11.15	27.81	0.189	4.45	6.85	188	220	—	0.0	clear
1706			X			11.15	21.35	0.316	0.00	~~7.0~~ 5.70	256	220	—	0.0	clear
1712			X			11.15	20.34	0.317	0.00	5.65	261	220	—	0.0	clear
1717			X			11.15	20.08	0.318	0.00	5.64	261	220	—	0.0	clear
1720			X			11.15	19.73	0.324	0.00	5.64	262	220	—	0.0	clear
1723			X			11.15	19.10	0.328	0.00	5.63	262	220	—	0.0	clear
1726			X	X		11.15	18.81	0.330	0.00	5.63	262	220	—	0.0	

Sample ID:	MW-8-0716	Water Quality Meter:	Horiba U52
Time:	1726	Calibrated on/by:	7-6-16/ TSM
Type:	VOAs	Purge Method:	Peri
Filtered?:	Y (diss. iron only)	Sample Method:	Peri
Analyses:	VOCs (8260B), Cl^- (300); SO_4^{2-} (300); CH_4 (RSK-175) NO_x (353.2); Diss. Iron (6010C)	Total Volume Purged (gal)	

Weather: Overcast ~80°F

Notes: (field filtering, well condition, nearby activities or changes in land use, odors, problems, deviations from plan, etc.)

APPENDIX B

Laboratory Analytical Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

Report Date: July 19, 2016

Project: Former Shulimson Brother's Scrap Yard/Asheville, NC

Submittal Date: 07/08/2016
Group Number: 1680576
PO Number: SA96.036-001
Release Number: 1440001625
State of Sample Origin: NC

Client Sample Description	Lancaster Labs (LL) #
MW-1-0716 Grab Groundwater	8465698
MW-2-0716 Grab Groundwater	8465699
MW-2-0716 Filtered Grab Groundwater	8465700
MW-3-0716 Grab Groundwater	8465701
MW-4-0716 Grab Groundwater	8465702
MW-4-0716 Filtered Grab Groundwater	8465703
MW-5-0716 Grab Groundwater	8465704
MW-5-0716 Filtered Grab Groundwater	8465705
MW-6-0716 Grab Groundwater	8465706
MW-6-0716 Filtered Grab Groundwater	8465707
MW-7A-0716 Grab Groundwater	8465708
MW-7A-0716-MS Grab Groundwater	8465709
MW-7A-0716-MSD Grab Groundwater	8465710
MW-7A-0716-DUP Grab Groundwater	8465711
MW-7A-0716 Filtered Grab Groundwater	8465712
MW-8-0716 Grab Groundwater	8465713
MW-8-0716 Filtered Grab Groundwater	8465714
FB-0716 Grab Water	8465715
EB-0716 Grab Water	8465716
MW-4-0716-DUP Grab Groundwater	8465717
TB16175 Water	8465718

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	Geosyntec Consultants	Attn: Tyler McNabb
Electronic Copy To	Geosyntec Consultants	Attn: Leroy Leonard

Respectfully Submitted,

Katherine A. Klinefelter

Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC
LL Group #: 1680576

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260B 25mL purge, GC/MS Volatiles

Sample #s: 8465715, 8465716, 8465717

Reporting limits were raised due to interference from the sample matrix.

SW-846 8270C, GC/MS Semivolatiles

Sample #s: 8465698, 8465699, 8465701, 8465702, 8465706, 8465713, 8465715, 8465716, 8465717

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.

Sample #s: 8465704

The recovery for the sample surrogate(s) and a target analyte(s) in the Laboratory Control Spike(s) are outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.

Batch #: 16191WAD026 (Sample number(s): 8465698-8465699, 8465701-8465702, 8465704, 8465706, 8465713, 8465715-8465717 UNSPK: 8465708)

The recovery(ies) for the following analyte(s) in the LCS were below the acceptance window: Dimethylphthalate, Butylbenzylphthalate

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Di-n-octylphthalate

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Dimethylphthalate

The recovery(ies) for one or more surrogates were outside of the QC window for sample(s) 8465704

SW-846 8270C SIM, GC/MS Semivolatiles

Sample #s: 8465704

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.

Batch #: 16191WAE026 (Sample number(s): 8465698-8465699, 8465701-8465702, 8465704, 8465706, 8465708-8465710, 8465713, 8465715-8465717 UNSPK: 8465708)

The recovery(ies) for one or more surrogates were outside of the QC window for sample(s) 8465704

SW-846 8082, Pesticides/PCBs

Sample #s: 8465713

Reporting limits were raised due to interference from the sample matrix.

Batch #: 161910017A (Sample number(s): 8465698-8465699, 8465701-8465702, 8465704, 8465706, 8465708-8465710, 8465713, 8465715-8465717 UNSPK: 8465708)

The recovery(ies) for one or more surrogates were outside of the QC window for sample(s) 8465713

RSKSOP-175 modified, GC Miscellaneous

Batch #: 161930001A (Sample number(s): 8465699, 8465702, 8465704, 8465706, 8465708, 8465713 UNSPK: P467199)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Methane

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Methane

EPA 218.6, Wet Chemistry

Batch #: 16193987141A (Sample number(s): 8465698-8465699, 8465701-8465702, 8465704, 8465708-8465711, 8465715-8465717 UNSPK: 8465708 BKG: 8465708)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Hexavalent Chromium

Sample Description: MW-1-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465698
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 08:13 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM1

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5	1
04678	Carbazole	86-74-8	N.D.	0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.	2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5	1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5	1
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.					
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.051	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.051	1
08357	Anthracene	120-12-7	N.D.	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.051	1
08357	Chrysene	218-01-9	N.D.	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.051	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.051	1
08357	Fluorene	86-73-7	N.D.	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	0.011 J	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	0.013 J	0.010	0.051	1
08357	Naphthalene	91-20-3	0.072	0.030	0.061	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.061	1
08357	Pyrene	129-00-0	N.D.	0.010	0.051	1
Pesticides/PCBs	**SW-846 8082**		**ug/l**	**ug/l**	**ug/l**	
10227	PCB-1016	12674-11-2	N.D.	0.081	0.41	1
10227	PCB-1221	11104-28-2	N.D.	0.081	0.41	1
10227	PCB-1232	11141-16-5	N.D.	0.16	0.41	1
10227	PCB-1242	53469-21-9	N.D.	0.081	0.41	1
10227	PCB-1248	12672-29-6	N.D.	0.081	0.41	1
10227	PCB-1254	11097-69-1	N.D.	0.081	0.41	1
10227	PCB-1260	11096-82-5	N.D.	0.12	0.41	1
10227	Total PCBs	1336-36-3	N.D.	0.081	0.41	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-1-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465698
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 08:13 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM1

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020**		mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0592	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.00072 J	0.00059	0.0020	1
06033	Copper	7440-50-8	N.D.	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0071	0.00088	0.0020	1
06039	Nickel	7440-02-0	N.D.	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	N.D.	0.0035	0.0150	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		ug/l	ug/l	ug/l	
12868	Hexavalent Chromium	18540-29-9	0.25	0.015	0.050	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
04678	TCL SW846 8270C Water	SW-846 8270C	1	16191WAD026	07/12/2016 00:40	Anthony P Bauer	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016 11:25	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	1	16191WAD026	07/11/2016 09:00	Tyler M Harmes	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016 09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016 14:13	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016 17:00	Ryan A Schafran	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016 02:53	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-1-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465698
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 08:13 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM1

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016 09:26	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016 02:53	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016 02:53	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016 08:20	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016 06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016 08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016 18:06	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-2-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465699
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 20:50 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM2

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	15		0.1	0.5	1
02898	Chloroform	67-66-3	0.2	J	0.1	0.5	1
02898	Chloromethane	74-87-3	N.D.		0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.		0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.		0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	N.D.		0.1	0.5	1
02898	Methylene Chloride	75-09-2	N.D.		0.2	0.5	1
02898	Tetrachloroethene	127-18-4	0.3	J	0.1	0.5	1
02898	Trichloroethene	79-01-6	N.D.		0.1	0.5	1
02898	Vinyl Chloride	75-01-4	N.D.		0.1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.		2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.		2	5	1
04678	Carbazole	86-74-8	N.D.		0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.		0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.		0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.		2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		2	5	1
04678	4-Methylphenol	106-44-5	N.D.		0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.		2	5	1
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.		0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.		0.010	0.050	1
08357	Anthracene	120-12-7	N.D.		0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.		0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.		0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.		0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.		0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.		0.010	0.050	1
08357	Chrysene	218-01-9	N.D.		0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.		0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.		0.010	0.050	1
08357	Fluorene	86-73-7	N.D.		0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.		0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.		0.010	0.050	1
08357	Naphthalene	91-20-3	N.D.		0.030	0.060	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-2-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465699
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 20:50 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM2

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		**ug/l**	**ug/l**	**ug/l**	
10227	PCB-1016	12674-11-2	N.D.	0.082	0.41	1
10227	PCB-1221	11104-28-2	N.D.	0.082	0.41	1
10227	PCB-1232	11141-16-5	N.D.	0.16	0.41	1
10227	PCB-1242	53469-21-9	N.D.	0.082	0.41	1
10227	PCB-1248	12672-29-6	N.D.	0.082	0.41	1
10227	PCB-1254	11097-69-1	N.D.	0.082	0.41	1
10227	PCB-1260	11096-82-5	N.D.	0.12	0.41	1
10227	Total PCBs	1336-36-3	N.D.	0.082	0.41	1
GC Miscellaneous	**RSKSOP-175 modified**		**ug/l**	**ug/l**	**ug/l**	
07105	Methane	74-82-8	14	3.0	5.0	1
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0609	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.00065 J	0.00059	0.0020	1
06033	Copper	7440-50-8	N.D.	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0028	0.00088	0.0020	1
06039	Nickel	7440-02-0	N.D.	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	N.D.	0.0035	0.0150	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		**ug/l**	**ug/l**	**ug/l**	
12868	Hexavalent Chromium	18540-29-9	0.23	0.015	0.050	1
	EPA 300.0		**mg/l**	**mg/l**	**mg/l**	
00224	Chloride	16887-00-6	5.1	1.0	2.0	5
00228	Sulfate	14808-79-8	46.1	1.5	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	**mg/l**	
07882	Total Nitrite/Nitrate Nitrogen	n.a.	0.49	0.040	0.10	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-2-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465699
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 20:50 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM2

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016	13:28	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016	13:28	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16191WAD026	07/12/2016	01:10	Anthony P Bauer	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016	11:52	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	1	16191WAD026	07/11/2016	09:00	Tyler M Harmes	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016	09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016	14:25	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016	17:00	Ryan A Schafran	1
07105	Methane	RSKSOP-175 modified	1	161930001A	07/11/2016	14:05	Johanna C Kennedy	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016	02:56	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016	09:28	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016	02:56	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016	02:56	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016	08:26	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016	06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016	08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016	18:23	Clinton M Wilson	1
00224	Chloride	EPA 300.0	1	16191667901B	07/09/2016	23:57	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	16191667901B	07/09/2016	23:57	Drew M Gerhart	5
07882	Total Nitrite/Nitrate Nitrogen	EPA 353.2	1	16199118101A	07/17/2016	20:09	Joseph E McKenzie	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-2-0716 Filtered Grab Groundwater**
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465700
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 20:50 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01754	Iron	7439-89-6	N.D.	0.0747	0.400	1

Sample Comments

State of North Carolina Lab Certification No. 521
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010C	1	161940635003	07/13/2016 22:40	Elaine F Stoltzfus	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	161940635003	07/13/2016 07:30	Lisa J Cooke	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-3-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465701
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 12:11 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM3

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.		2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.		2	5	1
04678	Carbazole	86-74-8	N.D.		0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.		0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.		0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.		2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		2	5	1
04678	4-Methylphenol	106-44-5	N.D.		0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.		2	5	1
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.		0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.		0.010	0.050	1
08357	Anthracene	120-12-7	N.D.		0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.		0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.		0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.		0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.		0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.		0.010	0.050	1
08357	Chrysene	218-01-9	N.D.		0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.		0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.		0.010	0.050	1
08357	Fluorene	86-73-7	N.D.		0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.		0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.		0.010	0.050	1
08357	Naphthalene	91-20-3	N.D.		0.030	0.060	1
08357	Phenanthrene	85-01-8	N.D.		0.030	0.060	1
08357	Pyrene	129-00-0	N.D.		0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		**ug/l**		**ug/l**	**ug/l**	
10227	PCB-1016	12674-11-2	N.D.		0.082	0.41	1
10227	PCB-1221	11104-28-2	N.D.		0.082	0.41	1
10227	PCB-1232	11141-16-5	N.D.		0.16	0.41	1
10227	PCB-1242	53469-21-9	N.D.		0.082	0.41	1
10227	PCB-1248	12672-29-6	0.24	J	0.082	0.41	1
10227	PCB-1254	11097-69-1	N.D.		0.082	0.41	1
10227	PCB-1260	11096-82-5	N.D.		0.12	0.41	1
10227	Total PCBs	1336-36-3	0.24	J	0.082	0.41	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-3-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465701
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 12:11 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM3

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.00080 J	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0631	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	0.00062	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.00060 J	0.00059	0.0020	1
06033	Copper	7440-50-8	0.0024	0.00052	0.0020	1
06035	Lead	7439-92-1	0.00046 J	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.278	0.00088	0.0020	1
06039	Nickel	7440-02-0	0.0030	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	0.0972	0.0035	0.0150	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		**ug/l**	**ug/l**	**ug/l**	
12868	Hexavalent Chromium	18540-29-9	0.021 J	0.015	0.050	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
04678	TCL SW846 8270C Water	SW-846 8270C	1	16191WAD026	07/12/2016 01:39	Anthony P Bauer	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016 12:19	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	1	16191WAD026	07/11/2016 09:00	Tyler M Harmes	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016 09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016 14:36	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016 17:00	Ryan A Schafran	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016 02:59	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-3-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465701
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 12:11 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM3

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016 09:30	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016 02:59	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016 02:59	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016 08:28	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016 06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016 08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016 18:41	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-4-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465702
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 13:46 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM4

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5	1
02898	Chloroform	67-66-3	N.D.	0.1	0.5	1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5	1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5	1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5	1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5	1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5	1
04678	Carbazole	86-74-8	N.D.	0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.	2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5	1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5	1
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.					
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050	1
08357	Anthracene	120-12-7	N.D.	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050	1
08357	Chrysene	218-01-9	N.D.	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050	1
08357	Naphthalene	91-20-3	N.D.	0.030	0.060	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-4-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465702
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 13:46 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

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CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		**ug/l**	**ug/l**	**ug/l**	
10227	PCB-1016	12674-11-2	N.D.	0.081	0.40	1
10227	PCB-1221	11104-28-2	N.D.	0.081	0.40	1
10227	PCB-1232	11141-16-5	N.D.	0.16	0.40	1
10227	PCB-1242	53469-21-9	N.D.	0.081	0.40	1
10227	PCB-1248	12672-29-6	N.D.	0.081	0.40	1
10227	PCB-1254	11097-69-1	N.D.	0.081	0.40	1
10227	PCB-1260	11096-82-5	N.D.	0.12	0.40	1
10227	Total PCBs	1336-36-3	N.D.	0.081	0.40	1
GC Miscellaneous	**RSKSOP-175 modified**		**ug/l**	**ug/l**	**ug/l**	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0690	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.00085 J	0.00059	0.0020	1
06033	Copper	7440-50-8	N.D.	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0319	0.00088	0.0020	1
06039	Nickel	7440-02-0	N.D.	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	N.D.	0.0035	0.0150	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		**ug/l**	**ug/l**	**ug/l**	
12868	Hexavalent Chromium	18540-29-9	0.61	0.015	0.050	1
	EPA 300.0		**mg/l**	**mg/l**	**mg/l**	
00224	Chloride	16887-00-6	1.7 J	1.0	2.0	5
00228	Sulfate	14808-79-8	52.4	1.5	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	**mg/l**	
07882	Total Nitrite/Nitrate Nitrogen	n.a.	N.D.	0.040	0.10	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-4-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465702
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 13:46 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM4

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016	13:50	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016	13:50	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16191WAD026	07/12/2016	02:08	Anthony P Bauer	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016	12:45	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	1	16191WAD026	07/11/2016	09:00	Tyler M Harmes	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016	09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016	14:48	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016	17:00	Ryan A Schafran	1
07105	Methane	RSKSOP-175 modified	1	161930001A	07/11/2016	14:24	Johanna C Kennedy	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016	03:02	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016	09:32	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016	03:02	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016	03:02	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016	08:30	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016	06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016	08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016	18:58	Clinton M Wilson	1
00224	Chloride	EPA 300.0	1	16191667901B	07/10/2016	00:15	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	16191667901B	07/10/2016	00:15	Drew M Gerhart	5
07882	Total Nitrite/Nitrate Nitrogen	EPA 353.2	1	16199118101A	07/17/2016	20:10	Joseph E McKenzie	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-4-0716 Filtered Grab Groundwater**
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465703
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 13:46 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01754	Iron	7439-89-6	N.D.	0.0747	0.400	1

Sample Comments

State of North Carolina Lab Certification No. 521
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010C	1	161940635003	07/13/2016 22:00	Elaine F Stoltzfus	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	161940635003	07/13/2016 07:30	Lisa J Cooke	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-5-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465704
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 15:45 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM5

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5	1
02898	Chloroform	67-66-3	N.D.	0.1	0.5	1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5	1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5	1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5	1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5	1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5	1
04678	Carbazole	86-74-8	N.D.	0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.	2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5	1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5	1
	The recovery for the sample surrogate(s) and a target analyte(s) in the Laboratory Control Spike(s) are outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.					
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050	1
08357	Anthracene	120-12-7	0.011 J	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050	1
08357	Chrysene	218-01-9	N.D.	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-5-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465704
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 15:45 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM5

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Naphthalene	91-20-3	N.D.	0.030	0.060	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken:
The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.

Pesticides/PCBs	**SW-846 8082**		**ug/l**	**ug/l**	**ug/l**	
10227	PCB-1016	12674-11-2	N.D.	0.083	0.41	1
10227	PCB-1221	11104-28-2	N.D.	0.083	0.41	1
10227	PCB-1232	11141-16-5	N.D.	0.17	0.41	1
10227	PCB-1242	53469-21-9	N.D.	0.083	0.41	1
10227	PCB-1248	12672-29-6	N.D.	0.083	0.41	1
10227	PCB-1254	11097-69-1	N.D.	0.083	0.41	1
10227	PCB-1260	11096-82-5	N.D.	0.12	0.41	1
10227	Total PCBs	1336-36-3	N.D.	0.083	0.41	1
GC Miscellaneous	**RSKSOP-175 modified**		**ug/l**	**ug/l**	**ug/l**	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0632	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.00070 J	0.00059	0.0020	1
06033	Copper	7440-50-8	N.D.	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0028	0.00088	0.0020	1
06039	Nickel	7440-02-0	N.D.	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	N.D.	0.0035	0.0150	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		**ug/l**	**ug/l**	**ug/l**	
12868	Hexavalent Chromium	18540-29-9	0.24	0.015	0.050	1
	EPA 300.0		**mg/l**	**mg/l**	**mg/l**	
00224	Chloride	16887-00-6	4.3	1.0	2.0	5
00228	Sulfate	14808-79-8	59.6	1.5	5.0	5

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-5-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465704
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 15:45 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM5

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 353.2**		**mg/l**	**mg/l**	**mg/l**	
07882	Total Nitrite/Nitrate Nitrogen	n.a.	0.43	0.040	0.10	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016 14:11	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016 14:11	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16191WAD026	07/12/2016 02:37	Anthony P Bauer	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016 22:44	Edward Monborne	1
00813	BNA Water Extraction	SW-846 3510C	1	16191WAD026	07/11/2016 09:00	Tyler M Harmes	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016 09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016 15:00	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016 17:00	Ryan A Schafran	1
07105	Methane	RSKSOP-175 modified	1	161930001A	07/11/2016 14:43	Johanna C Kennedy	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016 03:05	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016 09:33	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016 03:05	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016 03:05	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016 08:32	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016 06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016 08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016 19:16	Clinton M Wilson	1
00224	Chloride	EPA 300.0	1	16191667901B	07/10/2016 00:32	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	16191667901B	07/10/2016 00:32	Drew M Gerhart	5
07882	Total Nitrite/Nitrate Nitrogen	EPA 353.2	1	16199118101A	07/17/2016 20:11	Joseph E McKenzie	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-5-0716 Filtered Grab Groundwater**
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465705
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 15:45 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01754	Iron	7439-89-6	N.D.	0.0747	0.400	1

Sample Comments

State of North Carolina Lab Certification No. 521
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010C	1	161940635003	07/13/2016 22:43	Elaine F Stoltzfus	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	161940635003	07/13/2016 07:30	Lisa J Cooke	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-6-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465706
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 18:58 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM6

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	8.1		0.1	0.5	1
02898	Chloroform	67-66-3	0.8		0.1	0.5	1
02898	Chloromethane	74-87-3	N.D.		0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	0.2	J	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.		0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	N.D.		0.1	0.5	1
02898	Methylene Chloride	75-09-2	N.D.		0.2	0.5	1
02898	Tetrachloroethene	127-18-4	0.7		0.1	0.5	1
02898	Trichloroethene	79-01-6	N.D.		0.1	0.5	1
02898	Vinyl Chloride	75-01-4	N.D.		0.1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.		2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.		2	5	1
04678	Carbazole	86-74-8	N.D.		0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.		0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.		0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.		2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		2	5	1
04678	4-Methylphenol	106-44-5	N.D.		0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.		2	5	1
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.		0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.		0.010	0.050	1
08357	Anthracene	120-12-7	0.014	J	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	0.012	J	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.		0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.		0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.		0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.		0.010	0.050	1
08357	Chrysene	218-01-9	N.D.		0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.		0.010	0.050	1
08357	Fluoranthene	206-44-0	0.012	J	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.		0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.		0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.		0.010	0.050	1
08357	Naphthalene	91-20-3	N.D.		0.030	0.060	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-6-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465706
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 18:58 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM6

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	0.011 J	0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		ug/l	ug/l	ug/l	
10227	PCB-1016	12674-11-2	N.D.	0.082	0.41	1
10227	PCB-1221	11104-28-2	N.D.	0.082	0.41	1
10227	PCB-1232	11141-16-5	N.D.	0.16	0.41	1
10227	PCB-1242	53469-21-9	N.D.	0.082	0.41	1
10227	PCB-1248	12672-29-6	N.D.	0.082	0.41	1
10227	PCB-1254	11097-69-1	N.D.	0.082	0.41	1
10227	PCB-1260	11096-82-5	N.D.	0.12	0.41	1
10227	Total PCBs	1336-36-3	N.D.	0.082	0.41	1
GC Miscellaneous	**RSKSOP-175 modified**		ug/l	ug/l	ug/l	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
Metals	**SW-846 6020**		mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0639	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	N.D.	0.00059	0.0020	1
06033	Copper	7440-50-8	N.D.	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0072	0.00088	0.0020	1
06039	Nickel	7440-02-0	N.D.	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	N.D.	0.0035	0.0150	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		ug/l	ug/l	ug/l	
12868	Hexavalent Chromium	18540-29-9	0.24	0.015	0.050	1
	EPA 300.0		mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	4.0	1.0	2.0	5
00228	Sulfate	14808-79-8	48.0	1.5	5.0	5
	EPA 353.2		mg/l	mg/l	mg/l	
07882	Total Nitrite/Nitrate Nitrogen	n.a.	0.64	0.040	0.10	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-6-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465706
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 18:58 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM6

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016	14:32	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016	14:32	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16191WAD026	07/12/2016	03:06	Anthony P Bauer	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016	13:39	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	1	16191WAD026	07/11/2016	09:00	Tyler M Harmes	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016	09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016	15:12	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016	17:00	Ryan A Schafran	1
07105	Methane	RSKSOP-175 modified	1	161930001A	07/11/2016	15:02	Johanna C Kennedy	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016	03:08	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016	09:35	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016	03:08	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016	03:08	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016	08:34	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016	06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016	08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141B	07/11/2016	19:33	Clinton M Wilson	1
00224	Chloride	EPA 300.0	1	16191667901B	07/10/2016	00:50	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	16191667901B	07/10/2016	00:50	Drew M Gerhart	5
07882	Total Nitrite/Nitrate Nitrogen	EPA 353.2	1	16199118101A	07/17/2016	20:13	Joseph E McKenzie	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-6-0716 Filtered Grab Groundwater**
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465707
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 18:58 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01754	Iron	7439-89-6	N.D.	0.0747	0.400	1

Sample Comments

State of North Carolina Lab Certification No. 521
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010C	1	161940635003	07/13/2016 22:46	Elaine F Stoltzfus	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	161940635003	07/13/2016 07:30	Lisa J Cooke	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-7A-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465708
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	N.D.		0.1	0.5	1
02898	Chloroform	67-66-3	N.D.		0.1	0.5	1
02898	Chloromethane	74-87-3	N.D.		0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	0.2	J	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.		0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	1.5		0.1	0.5	1
02898	Methylene Chloride	75-09-2	N.D.		0.2	0.5	1
02898	Tetrachloroethene	127-18-4	N.D.		0.1	0.5	1
02898	Trichloroethene	79-01-6	N.D.		0.1	0.5	1
02898	Vinyl Chloride	75-01-4	N.D.		0.1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.		2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.		2	5	1
04678	Carbazole	86-74-8	N.D.		0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.		0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.		0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.		2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		2	5	1
04678	4-Methylphenol	106-44-5	2		0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.		2	5	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.		0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.		0.010	0.050	1
08357	Anthracene	120-12-7	N.D.		0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.		0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.		0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.		0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.		0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.		0.010	0.050	1
08357	Chrysene	218-01-9	N.D.		0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.		0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.		0.010	0.050	1
08357	Fluorene	86-73-7	N.D.		0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	0.011	J	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	0.015	J	0.010	0.050	1
08357	Naphthalene	91-20-3	0.041	J	0.030	0.060	1
08357	Phenanthrene	85-01-8	N.D.		0.030	0.060	1
08357	Pyrene	129-00-0	N.D.		0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		**ug/l**		**ug/l**	**ug/l**	
10227	PCB-1016	12674-11-2	N.D.		0.083	0.42	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-7A-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465708
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082**		ug/l	ug/l	ug/l	
10227	PCB-1221	11104-28-2	N.D.	0.083	0.42	1
10227	PCB-1232	11141-16-5	N.D.	0.17	0.42	1
10227	PCB-1242	53469-21-9	N.D.	0.083	0.42	1
10227	PCB-1248	12672-29-6	N.D.	0.083	0.42	1
10227	PCB-1254	11097-69-1	N.D.	0.083	0.42	1
10227	PCB-1260	11096-82-5	N.D.	0.13	0.42	1
10227	Total PCBs	1336-36-3	N.D.	0.083	0.42	1
GC Miscellaneous	**RSKSOP-175 modified**		ug/l	ug/l	ug/l	
07105	Methane	74-82-8	3,500	60	100	20
Metals	**SW-846 6020**		mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0070	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.00082 J	0.00059	0.0020	1
06033	Copper	7440-50-8	N.D.	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0017 J	0.00088	0.0020	1
06039	Nickel	7440-02-0	0.0010 J	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	0.0064 J	0.0035	0.0150	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		ug/l	ug/l	ug/l	
12868	Hexavalent Chromium	18540-29-9	0.099	0.015	0.050	1
	EPA 300.0		mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	11.7	1.0	2.0	5
00228	Sulfate	14808-79-8	27.5	1.5	5.0	5
	EPA 353.2		mg/l	mg/l	mg/l	
07882	Total Nitrite/Nitrate Nitrogen	n.a.	N.D.	0.040	0.10	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-7A-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465708
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016	11:42	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016	11:42	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16195WAB026	07/14/2016	12:02	Brandon H Smith	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016	14:06	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	2	16195WAB026	07/13/2016	23:45	Nicholas W Shroyer	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016	09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016	15:23	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016	17:00	Ryan A Schafran	1
07105	Methane	RSKSOP-175 modified	1	161930001A	07/12/2016	10:37	Johanna C Kennedy	20
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016	02:22	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016	09:08	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016	02:22	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016	02:22	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016	07:51	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016	06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016	08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016	21:18	Clinton M Wilson	1
00224	Chloride	EPA 300.0	1	16191667901B	07/10/2016	01:08	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	16191667901B	07/10/2016	01:08	Drew M Gerhart	5
07882	Total Nitrite/Nitrate Nitrogen	EPA 353.2	1	16199118101A	07/17/2016	20:05	Joseph E McKenzie	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-7A-0716-MS Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465709
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	4.2	0.1	0.5	1
02898	Chloroform	67-66-3	4.3	0.1	0.5	1
02898	Chloromethane	74-87-3	3.9	0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	4.6	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	4.3	0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	6.2	0.1	0.5	1
02898	Methylene Chloride	75-09-2	4.1	0.2	0.5	1
02898	Tetrachloroethene	127-18-4	4.2	0.1	0.5	1
02898	Trichloroethene	79-01-6	4.6	0.1	0.5	1
02898	Vinyl Chloride	75-01-4	4.6	0.1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	54	2	5	1
04678	Di-n-butylphthalate	84-74-2	51	2	5	1
04678	Carbazole	86-74-8	58	0.5	1	1
04678	Dibenzofuran	132-64-9	52	0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	53	0.5	1	1
04678	Dimethylphthalate	131-11-3	45	2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	54	2	5	1
04678	4-Methylphenol	106-44-5	34	0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	47	2	5	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	0.96	0.010	0.050	1
08357	Acenaphthylene	208-96-8	0.88	0.010	0.050	1
08357	Anthracene	120-12-7	0.88	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	0.94	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	0.88	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	0.88	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	0.66	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	0.90	0.010	0.050	1
08357	Chrysene	218-01-9	0.88	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	0.77	0.010	0.050	1
08357	Fluoranthene	206-44-0	0.87	0.010	0.050	1
08357	Fluorene	86-73-7	0.91	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.71	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	0.97	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	0.93	0.010	0.050	1
08357	Naphthalene	91-20-3	0.92	0.030	0.060	1
08357	Phenanthrene	85-01-8	0.87	0.030	0.060	1
08357	Pyrene	129-00-0	0.88	0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		**ug/l**	**ug/l**	**ug/l**	
10227	PCB-1016	12674-11-2	4.2	0.084	0.42	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-7A-0716-MS Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465709
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082**		ug/l	ug/l	ug/l	
10227	PCB-1221	11104-28-2	N.D.	0.084	0.42	1
10227	PCB-1232	11141-16-5	N.D.	0.17	0.42	1
10227	PCB-1242	53469-21-9	N.D.	0.084	0.42	1
10227	PCB-1248	12672-29-6	N.D.	0.084	0.42	1
10227	PCB-1254	11097-69-1	N.D.	0.084	0.42	1
10227	PCB-1260	11096-82-5	3.1	0.13	0.42	1
10227	Total PCBs	1336-36-3	7.2	0.084	0.42	1
Metals	**SW-846 6020**		mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	0.0061	0.00048	0.0010	1
06025	Arsenic	7440-38-2	0.0114	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0623	0.00096	0.0020	1
06027	Beryllium	7440-41-7	0.0040	0.00011	0.00050	1
06028	Cadmium	7440-43-9	0.0052	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.0519	0.00059	0.0020	1
06033	Copper	7440-50-8	0.0520	0.00052	0.0020	1
06035	Lead	7439-92-1	0.0156	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0545	0.00088	0.0020	1
06039	Nickel	7440-02-0	0.0543	0.00085	0.0020	1
06041	Selenium	7782-49-2	0.0087	0.00044	0.0020	1
06042	Silver	7440-22-4	0.0516	0.00012	0.00050	1
06045	Thallium	7440-28-0	0.0020	0.00016	0.00050	1
06049	Zinc	7440-66-6	0.528	0.0035	0.0150	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.0010	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		ug/l	ug/l	ug/l	
12868	Hexavalent Chromium	18540-29-9	0.49	0.015	0.050	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016 12:03	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016 12:03	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16195WAB026	07/14/2016 12:32	Brandon H Smith	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016 14:33	Holly B Ziegler	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-7A-0716-MS Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465709
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00813	BNA Water Extraction	SW-846 3510C	2	16195WAB026	07/13/2016 23:45	Nicholas W Shroyer	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016 09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016 15:59	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016 17:00	Ryan A Schafran	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016 02:31	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016 09:13	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016 02:31	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016 02:31	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016 07:55	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016 06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016 08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016 21:35	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-7A-0716-MSD Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465710
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	
02898	Carbon Tetrachloride	56-23-5	4.6	0.1	0.5	1
02898	Chloroform	67-66-3	4.6	0.1	0.5	1
02898	Chloromethane	74-87-3	4.3	0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	5.2	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	5.0	0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	6.6	0.1	0.5	1
02898	Methylene Chloride	75-09-2	4.5	0.2	0.5	1
02898	Tetrachloroethene	127-18-4	4.6	0.1	0.5	1
02898	Trichloroethene	79-01-6	5.0	0.1	0.5	1
02898	Vinyl Chloride	75-01-4	5.1	0.1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C**		ug/l	ug/l	ug/l	
04678	Butylbenzylphthalate	85-68-7	57	2	5	1
04678	Di-n-butylphthalate	84-74-2	54	2	5	1
04678	Carbazole	86-74-8	60	0.5	1	1
04678	Dibenzofuran	132-64-9	52	0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	52	0.5	1	1
04678	Dimethylphthalate	131-11-3	47	2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	56	2	5	1
04678	4-Methylphenol	106-44-5	32	0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	50	2	5	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	0.90	0.010	0.050	1
08357	Acenaphthylene	208-96-8	0.82	0.010	0.050	1
08357	Anthracene	120-12-7	0.75	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	0.90	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	0.82	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	0.82	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	0.71	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	0.79	0.010	0.050	1
08357	Chrysene	218-01-9	0.82	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	0.81	0.010	0.050	1
08357	Fluoranthene	206-44-0	0.74	0.010	0.050	1
08357	Fluorene	86-73-7	0.86	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.76	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	0.91	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	0.86	0.010	0.050	1
08357	Naphthalene	91-20-3	0.85	0.030	0.060	1
08357	Phenanthrene	85-01-8	0.80	0.030	0.060	1
08357	Pyrene	129-00-0	0.79	0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		ug/l	ug/l	ug/l	
10227	PCB-1016	12674-11-2	4.2	0.083	0.41	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-7A-0716-MSD Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465710
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Pesticides/PCBs	**SW-846 8082**		**ug/l**	**ug/l**	**ug/l**	
10227	PCB-1221	11104-28-2	N.D.	0.083	0.41	1
10227	PCB-1232	11141-16-5	N.D.	0.17	0.41	1
10227	PCB-1242	53469-21-9	N.D.	0.083	0.41	1
10227	PCB-1248	12672-29-6	N.D.	0.083	0.41	1
10227	PCB-1254	11097-69-1	N.D.	0.083	0.41	1
10227	PCB-1260	11096-82-5	3.8	0.12	0.41	1
10227	Total PCBs	1336-36-3	8.0	0.083	0.41	1
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	0.0066	0.00048	0.0010	1
06025	Arsenic	7440-38-2	0.0112	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0600	0.00096	0.0020	1
06027	Beryllium	7440-41-7	0.0042	0.00011	0.00050	1
06028	Cadmium	7440-43-9	0.0051	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.0516	0.00059	0.0020	1
06033	Copper	7440-50-8	0.0525	0.00052	0.0020	1
06035	Lead	7439-92-1	0.0157	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0568	0.00088	0.0020	1
06039	Nickel	7440-02-0	0.0534	0.00085	0.0020	1
06041	Selenium	7782-49-2	0.0095	0.00044	0.0020	1
06042	Silver	7440-22-4	0.0514	0.00012	0.00050	1
06045	Thallium	7440-28-0	0.0022	0.00016	0.00050	1
06049	Zinc	7440-66-6	0.521	0.0035	0.0150	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.0011	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		**ug/l**	**ug/l**	**ug/l**	
12868	Hexavalent Chromium	18540-29-9	0.48	0.015	0.050	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016 12:24	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016 12:24	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16195WAB026	07/14/2016 13:01	Brandon H Smith	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016 15:00	Holly B Ziegler	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-7A-0716-MSD Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465710
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00813	BNA Water Extraction	SW-846 3510C	2	16195WAB026	07/13/2016 23:45	Nicholas W Shroyer	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016 09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016 16:10	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016 17:00	Ryan A Schafran	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016 02:34	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016 09:15	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016 02:34	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016 02:34	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016 08:02	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016 06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016 08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016 21:52	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-7A-0716-DUP Grab Groundwater**
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465711
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0077	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.00095 J	0.00059	0.0020	1
06033	Copper	7440-50-8	N.D.	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0017 J	0.00088	0.0020	1
06039	Nickel	7440-02-0	0.0010 J	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	0.0060 J	0.0035	0.0150	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		**ug/l**	**ug/l**	**ug/l**	
12868	Hexavalent Chromium	18540-29-9	0.081	0.015	0.050	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016 02:28	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016 09:12	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016 02:28	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016 02:28	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016 07:53	Damary Valentin	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-7A-0716-DUP Grab Groundwater**
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465711
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS7A

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016 06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016 08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016 22:10	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-7A-0716 Filtered Grab Groundwater**
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465712
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 09:57 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01754	Iron	7439-89-6	N.D.	0.0747	0.400	1

Sample Comments

State of North Carolina Lab Certification No. 521
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010C	1	161940635003	07/13/2016 22:49	Elaine F Stoltzfus	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	161940635003	07/13/2016 07:30	Lisa J Cooke	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-8-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465713
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 17:26 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM8

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5	1
02898	Chloroform	67-66-3	N.D.	0.1	0.5	1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5	1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5	1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5	1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5	1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5	1
04678	Carbazole	86-74-8	N.D.	0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.	2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5	1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5	1
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.					
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050	1
08357	Anthracene	120-12-7	N.D.	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050	1
08357	Chrysene	218-01-9	N.D.	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050	1
08357	Naphthalene	91-20-3	N.D.	0.030	0.060	1

*=This limit was used in the evaluation of the final result

Sample Description: **MW-8-0716 Grab Groundwater**
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465713
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 17:26 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM8

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		**ug/l**	**ug/l**	**ug/l**	
10227	PCB-1016	12674-11-2	N.D.	8.1	41	100
10227	PCB-1221	11104-28-2	N.D.	8.1	41	100
10227	PCB-1232	11141-16-5	N.D.	16	41	100
10227	PCB-1242	53469-21-9	N.D.	8.1	41	100
10227	PCB-1248	12672-29-6	N.D.	8.1	41	100
10227	PCB-1254	11097-69-1	N.D.	8.1	41	100
10227	PCB-1260	11096-82-5	N.D.	12	41	100
10227	Total PCBs	1336-36-3	N.D.	8.1	41	100
Reporting limits were raised due to interference from the sample matrix.						
GC Miscellaneous	**RSKSOP-175 modified**		**ug/l**	**ug/l**	**ug/l**	
07105	Methane	74-82-8	N.D.	3.0	5.0	1
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0565	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.0013 J	0.00059	0.0020	1
06033	Copper	7440-50-8	N.D.	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0021	0.00088	0.0020	1
06039	Nickel	7440-02-0	N.D.	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	N.D.	0.0035	0.0150	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		**ug/l**	**ug/l**	**ug/l**	
12868	Hexavalent Chromium	18540-29-9	0.84	0.015	0.050	1
	EPA 300.0		**mg/l**	**mg/l**	**mg/l**	
00224	Chloride	16887-00-6	4.5	1.0	2.0	5
00228	Sulfate	14808-79-8	73.7	1.5	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	**mg/l**	
07882	Total Nitrite/Nitrate Nitrogen	n.a.	0.41	0.040	0.10	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-8-0716 Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465713
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 17:26 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSM8

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016	12:45	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016	12:45	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16191WAD026	07/12/2016	05:02	Anthony P Bauer	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016	15:26	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	1	16191WAD026	07/11/2016	09:00	Tyler M Harmes	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016	09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/14/2016	20:44	Kirby B Turner	100
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016	17:00	Ryan A Schafran	1
07105	Methane	RSKSOP-175 modified	1	161930001A	07/11/2016	15:40	Johanna C Kennedy	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016	03:11	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016	09:37	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016	03:11	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016	03:11	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016	08:36	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016	06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016	08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141B	07/11/2016	19:51	Clinton M Wilson	1
00224	Chloride	EPA 300.0	1	16191667901B	07/10/2016	02:01	Drew M Gerhart	5
00228	Sulfate	EPA 300.0	1	16191667901B	07/10/2016	02:01	Drew M Gerhart	5
07882	Total Nitrite/Nitrate Nitrogen	EPA 353.2	1	16199118101A	07/17/2016	20:14	Joseph E McKenzie	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: **MW-8-0716 Filtered Grab Groundwater**
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465714
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 17:26 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals Dissolved	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
01754	Iron	7439-89-6	N.D.	0.0747	0.400	1

Sample Comments

State of North Carolina Lab Certification No. 521
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010C	1	161940635003	07/13/2016 22:52	Elaine F Stoltzfus	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	161940635003	07/13/2016 07:30	Lisa J Cooke	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: FB-0716 Grab Water
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465715
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 10:40 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSFB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5	1
02898	Chloroform	67-66-3	N.D.	0.1	0.5	1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5	1
02898	Methylene Chloride	75-09-2	0.3 J	0.2	0.5	1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5	1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5	1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5	1
	Reporting limits were raised due to interference from the sample matrix.					
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5	1
04678	Carbazole	86-74-8	N.D.	0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.	2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5	1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5	1
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.					
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050	1
08357	Anthracene	120-12-7	N.D.	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050	1
08357	Chrysene	218-01-9	N.D.	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: FB-0716 Grab Water
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465715
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 10:40 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSFB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Naphthalene	91-20-3	N.D.	0.030	0.060	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		ug/l	ug/l	ug/l	
10227	PCB-1016	12674-11-2	N.D.	0.082	0.41	1
10227	PCB-1221	11104-28-2	N.D.	0.082	0.41	1
10227	PCB-1232	11141-16-5	N.D.	0.16	0.41	1
10227	PCB-1242	53469-21-9	N.D.	0.082	0.41	1
10227	PCB-1248	12672-29-6	N.D.	0.082	0.41	1
10227	PCB-1254	11097-69-1	N.D.	0.082	0.41	1
10227	PCB-1260	11096-82-5	N.D.	0.12	0.41	1
10227	Total PCBs	1336-36-3	N.D.	0.082	0.41	1
Metals	**SW-846 6020**		mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	N.D.	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	N.D.	0.00059	0.0020	1
06033	Copper	7440-50-8	0.0041	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	N.D.	0.00088	0.0020	1
06039	Nickel	7440-02-0	N.D.	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	N.D.	0.0035	0.0150	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		ug/l	ug/l	ug/l	
12868	Hexavalent Chromium	18540-29-9	N.D.	0.015	0.050	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: FB-0716 Grab Water
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465715
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 10:40 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSFB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016	10:38	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016	10:38	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16191WAD026	07/12/2016	16:50	Brandon H Smith	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016	15:53	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	1	16191WAD026	07/11/2016	09:00	Tyler M Harmes	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016	09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016	16:34	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016	17:00	Ryan A Schafran	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016	03:14	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016	09:39	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016	03:14	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016	03:14	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016	08:38	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016	06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016	08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016	20:08	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

Sample Description: EB-0716 Grab Water
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465716
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 11:25 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSEB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5	1
02898	Chloroform	67-66-3	N.D.	0.1	0.5	1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5	1
02898	Methylene Chloride	75-09-2	0.3 J	0.2	0.5	1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5	1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5	1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5	1
	Reporting limits were raised due to interference from the sample matrix.					
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5	1
04678	Carbazole	86-74-8	N.D.	0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.	2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5	1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5	1
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.					
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050	1
08357	Anthracene	120-12-7	N.D.	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050	1
08357	Chrysene	218-01-9	N.D.	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: EB-0716 Grab Water
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465716
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 11:25 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSEB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Naphthalene	91-20-3	N.D.	0.030	0.060	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		ug/l	ug/l	ug/l	
10227	PCB-1016	12674-11-2	N.D.	0.083	0.41	1
10227	PCB-1221	11104-28-2	N.D.	0.083	0.41	1
10227	PCB-1232	11141-16-5	N.D.	0.17	0.41	1
10227	PCB-1242	53469-21-9	N.D.	0.083	0.41	1
10227	PCB-1248	12672-29-6	N.D.	0.083	0.41	1
10227	PCB-1254	11097-69-1	N.D.	0.083	0.41	1
10227	PCB-1260	11096-82-5	N.D.	0.12	0.41	1
10227	Total PCBs	1336-36-3	N.D.	0.083	0.41	1
Metals	**SW-846 6020**		mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	N.D.	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	N.D.	0.00059	0.0020	1
06033	Copper	7440-50-8	0.0015 J	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	N.D.	0.00088	0.0020	1
06039	Nickel	7440-02-0	N.D.	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	N.D.	0.0035	0.0150	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		ug/l	ug/l	ug/l	
12868	Hexavalent Chromium	18540-29-9	0.042 J	0.015	0.050	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: EB-0716 Grab Water
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465716
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/07/2016 11:25 by TM

Submitted: 07/08/2016 10:00
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Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSEB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016	10:59	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016	10:59	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16191WAD026	07/12/2016	17:20	Brandon H Smith	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016	16:20	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	1	16191WAD026	07/11/2016	09:00	Tyler M Harmes	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016	09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016	16:45	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016	17:00	Ryan A Schafran	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016	03:17	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016	09:41	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016	03:17	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016	03:17	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016	08:40	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016	06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016	08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016	20:25	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-4-0716-DUP Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465717
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 13:46 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS4D

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5	1
02898	Chloroform	67-66-3	N.D.	0.1	0.5	1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5	1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5	1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5	1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5	1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5	1
	Reporting limits were raised due to interference from the sample matrix.					
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5	1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5	1
04678	Carbazole	86-74-8	N.D.	0.5	1	1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1	1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1	1
04678	Dimethylphthalate	131-11-3	N.D.	2	5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5	1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5	1
	The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was re-extracted outside the method required holding time and the QC is compliant. All results are reported from the first trial. Similar results were obtained in both trials.					
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050	1
08357	Anthracene	120-12-7	N.D.	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050	1
08357	Chrysene	218-01-9	N.D.	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-4-0716-DUP Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465717
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 13:46 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS4D

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Naphthalene	91-20-3	N.D.	0.030	0.060	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1
Pesticides/PCBs	**SW-846 8082**		ug/l	ug/l	ug/l	
10227	PCB-1016	12674-11-2	N.D.	0.081	0.41	1
10227	PCB-1221	11104-28-2	N.D.	0.081	0.41	1
10227	PCB-1232	11141-16-5	N.D.	0.16	0.41	1
10227	PCB-1242	53469-21-9	N.D.	0.081	0.41	1
10227	PCB-1248	12672-29-6	N.D.	0.081	0.41	1
10227	PCB-1254	11097-69-1	N.D.	0.081	0.41	1
10227	PCB-1260	11096-82-5	N.D.	0.12	0.41	1
10227	Total PCBs	1336-36-3	N.D.	0.081	0.41	1
Metals	**SW-846 6020**		mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	N.D.	0.00048	0.0010	1
06025	Arsenic	7440-38-2	N.D.	0.00068	0.0020	1
06026	Barium	7440-39-3	0.0707	0.00096	0.0020	1
06027	Beryllium	7440-41-7	N.D.	0.00011	0.00050	1
06028	Cadmium	7440-43-9	N.D.	0.00019	0.00050	1
06031	Chromium	7440-47-3	0.0010 J	0.00059	0.0020	1
06033	Copper	7440-50-8	N.D.	0.00052	0.0020	1
06035	Lead	7439-92-1	N.D.	0.000090	0.0010	1
06037	Manganese	7439-96-5	0.0317	0.00088	0.0020	1
06039	Nickel	7440-02-0	N.D.	0.00085	0.0020	1
06041	Selenium	7782-49-2	N.D.	0.00044	0.0020	1
06042	Silver	7440-22-4	N.D.	0.00012	0.00050	1
06045	Thallium	7440-28-0	N.D.	0.00016	0.00050	1
06049	Zinc	7440-66-6	N.D.	0.0035	0.0150	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	N.D.	0.000050	0.00020	1
Wet Chemistry	**EPA 218.6**		ug/l	ug/l	ug/l	
12868	Hexavalent Chromium	18540-29-9	0.56	0.015	0.050	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: MW-4-0716-DUP Grab Groundwater
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465717
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 07/06/2016 13:46 by TM

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBS4D

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016	13:07	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016	13:07	Kerri E Legerlotz	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	16191WAD026	07/12/2016	17:49	Brandon H Smith	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	16191WAE026	07/13/2016	16:47	Holly B Ziegler	1
00813	BNA Water Extraction	SW-846 3510C	1	16191WAD026	07/11/2016	09:00	Tyler M Harmes	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	16191WAE026	07/11/2016	09:00	Tyler M Harmes	1
10227	PCBs in Water	SW-846 8082	1	161910017A	07/13/2016	16:57	Kirby B Turner	1
11117	PCB Waters Extraction	SW-846 3510C	1	161910017A	07/11/2016	17:00	Ryan A Schafran	1
06024	Antimony	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
06025	Arsenic	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
06026	Barium	SW-846 6020	1	161936050001D	07/13/2016	03:20	Tara L Snyder	1
06027	Beryllium	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
06028	Cadmium	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
06031	Chromium	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
06033	Copper	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
06035	Lead	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
06037	Manganese	SW-846 6020	1	161936050001A	07/13/2016	09:43	Choon Y Tian	1
06039	Nickel	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
06041	Selenium	SW-846 6020	1	161936050001B	07/13/2016	03:20	Tara L Snyder	1
06042	Silver	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
06045	Thallium	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
06049	Zinc	SW-846 6020	1	161936050001A	07/13/2016	03:20	Tara L Snyder	1
00259	Mercury	SW-846 7470A	1	161935713002	07/13/2016	08:43	Damary Valentin	1
06050	ICPMS-Water, 3020A - U3	SW-846 3020A	1	161936050001	07/12/2016	06:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	161935713002	07/12/2016	08:20	James L Mertz	1
12868	Hexavalent Chromium	EPA 218.6	1	16193987141A	07/11/2016	22:27	Clinton M Wilson	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: TB16175 Water
Former Shulimson Brother's Scrap Yard
Asheville, NC

LL Sample # WW 8465718
LL Group # 1680576
Account # 10302

Project Name: Former Shulimson Brother's Scrap Yard/Asheville, NC

Collected: 06/29/2016

Submitted: 07/08/2016 10:00
Reported: 07/19/2016 14:13

Norfolk Southern Railway Co.
1200 Peachtree Street, NE
Box 13
Atlanta GA 30309

SBSTB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5	1
02898	Chloroform	67-66-3	N.D.	0.1	0.5	1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5	1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5	1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5	1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5	1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5	1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5	1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5	1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5	1

Sample Comments

State of North Carolina Lab Certification No. 521

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	PPL/TCL VOCs (25 ml purge)	SW-846 8260B 25mL purge	1	I161911AA	07/09/2016 11:20	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I161911AA	07/09/2016 11:20	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Norfolk Southern Railway Co. Group Number: 1680576
Reported: 07/19/2016 14:13

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Batch number: I161911AA	Sample number(s): 8465699,8465702,8465704,8465706,8465708-8465710,8465713,8465715-8465718		
Carbon Tetrachloride	N.D.	0.1	0.5
Chloroform	N.D.	0.1	0.5
Chloromethane	N.D.	0.2	0.5
cis-1,2-Dichloroethene	N.D.	0.1	0.5
trans-1,2-Dichloroethene	N.D.	0.1	0.5
1,2-Dichloropropane	N.D.	0.1	0.5
Methylene Chloride	N.D.	0.2	0.5
Tetrachloroethene	N.D.	0.1	0.5
Trichloroethene	N.D.	0.1	0.5
Vinyl Chloride	N.D.	0.1	0.5
Batch number: 16191WAD026	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465713,8465715-8465717		
Butylbenzylphthalate	N.D.	2	5
Di-n-butylphthalate	N.D.	2	5
Carbazole	N.D.	0.5	1
Dibenzofuran	N.D.	0.5	1
1,2-Dichlorobenzene	N.D.	0.5	1
Dimethylphthalate	N.D.	2	5
bis(2-Ethylhexyl)phthalate	N.D.	2	5
4-Methylphenol	N.D.	0.5	1
Di-n-octylphthalate	N.D.	2	5
Batch number: 16191WAE026	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465710,8465713,8465715-8465717		
Acenaphthene	N.D.	0.010	0.050
Acenaphthylene	N.D.	0.010	0.050
Anthracene	N.D.	0.010	0.050
Benzo(a)anthracene	N.D.	0.010	0.050
Benzo(a)pyrene	N.D.	0.010	0.050
Benzo(b)fluoranthene	N.D.	0.010	0.050
Benzo(g,h,i)perylene	N.D.	0.010	0.050
Benzo(k)fluoranthene	N.D.	0.010	0.050
Chrysene	N.D.	0.010	0.050
Dibenz(a,h)anthracene	N.D.	0.010	0.050
Fluoranthene	N.D.	0.010	0.050
Fluorene	N.D.	0.010	0.050
Indeno(1,2,3-cd)pyrene	N.D.	0.010	0.050
1-Methylnaphthalene	N.D.	0.010	0.050
2-Methylnaphthalene	N.D.	0.010	0.050
Naphthalene	N.D.	0.030	0.060
Phenanthrene	N.D.	0.030	0.060

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Norfolk Southern Railway Co.
Reported: 07/19/2016 14:13

Group Number: 1680576

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ug/l	ug/l	ug/l
Pyrene	N.D.	0.010	0.050
Batch number: 16195WAB026	Sample number(s): 8465708-8465710		
Butylbenzylphthalate	N.D.	2	5
Di-n-butylphthalate	N.D.	2	5
Carbazole	N.D.	0.5	1
Dibenzofuran	N.D.	0.5	1
1,2-Dichlorobenzene	N.D.	0.5	1
Dimethylphthalate	N.D.	2	5
bis(2-Ethylhexyl)phthalate	N.D.	2	5
4-Methylphenol	N.D.	0.5	1
Di-n-octylphthalate	N.D.	2	5
Batch number: 161910017A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465710,8465713,8465715-8465717		
PCB-1016	N.D.	0.080	0.40
PCB-1221	N.D.	0.080	0.40
PCB-1232	N.D.	0.16	0.40
PCB-1242	N.D.	0.080	0.40
PCB-1248	N.D.	0.080	0.40
PCB-1254	N.D.	0.080	0.40
PCB-1260	N.D.	0.12	0.40
Total PCBs	N.D.	0.080	0.40
Batch number: 161930001A	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713		
Methane	N.D.	3.0	5.0
	mg/l	mg/l	mg/l
Batch number: 161935713002	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717		
Mercury	N.D.	0.000050	0.00020
Batch number: 161936050001A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717		
Antimony	N.D.	0.00048	0.0010
Arsenic	N.D.	0.00068	0.0020
Beryllium	N.D.	0.00011	0.00050
Cadmium	N.D.	0.00019	0.00050
Chromium	N.D.	0.00059	0.0020
Copper	N.D.	0.00052	0.0020
Lead	N.D.	0.000090	0.0010
Manganese	N.D.	0.00088	0.0020
Nickel	N.D.	0.00085	0.0020
Silver	N.D.	0.00012	0.00050
Thallium	N.D.	0.00016	0.00050
Zinc	N.D.	0.0035	0.0150
Batch number: 161936050001B	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717		
Selenium	N.D.	0.00044	0.0020

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Norfolk Southern Railway Co. Group Number: 1680576
Reported: 07/19/2016 14:13

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Batch number: 161936050001D	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717		
Barium	N.D.	0.00096	0.0020
Batch number: 161940635003	Sample number(s): 8465700,8465703,8465705,8465707,8465712,8465714		
Iron	N.D.	0.0747	0.400
Batch number: 16191667901B	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713		
Chloride	N.D.	0.20	0.40
Sulfate	N.D.	0.30	1.0
Batch number: 16199118101A	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713		
Total Nitrite/Nitrate Nitrogen	N.D.	0.040	0.10
	ug/l	ug/l	ug/l
Batch number: 16193987141A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465708-8465711,8465715-8465717		
Hexavalent Chromium	N.D.	0.015	0.050
Batch number: 16193987141B	Sample number(s): 8465706,8465713		
Hexavalent Chromium	N.D.	0.015	0.050

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: I161911AA	Sample number(s): 8465699,8465702,8465704,8465706,8465708-8465710,8465713,8465715-8465718								
Carbon Tetrachloride	5.00	4.55			91		65-134		
Chloroform	5.00	4.68			94		80-120		
Chloromethane	5.00	4.40			88		63-121		
cis-1,2-Dichloroethene	5.00	4.95			99		80-120		
trans-1,2-Dichloroethene	5.00	5.15			103		80-120		
1,2-Dichloropropane	5.00	4.85			97		80-120		
Methylene Chloride	5.00	4.74			95		80-120		
Tetrachloroethene	5.00	4.65			93		80-120		
Trichloroethene	5.00	4.90			98		80-120		
Vinyl Chloride	5.00	4.67			93		62-128		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16191WAD026	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465713,8465715-8465717								
Butylbenzylphthalate	50	25.51			51*		56-124		
Di-n-butylphthalate	50	37.74			75		61-125		
Carbazole	50	53.08			106		64-126		
Dibenzofuran	50	48.22			96		67-120		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.
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Quality Control Summary

Client Name: Norfolk Southern Railway Co.
Reported: 07/19/2016 14:13

Group Number: 1680576

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,2-Dichlorobenzene	50	48.65			97		53-119		
Dimethylphthalate	50	9.69			19*		26-133		
bis(2-Ethylhexyl)phthalate	50	51.79			104		66-130		
4-Methylphenol	50	39.64			79		44-114		
Di-n-octylphthalate	50	43.82			88		73-131		
Batch number: 16191WAE026	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465710,8465713,8465715-8465717								
Acenaphthene	1.00	0.964			96		67-126		
Acenaphthylene	1.00	0.882			88		66-113		
Anthracene	1.00	0.878			88		69-120		
Benzo(a)anthracene	1.00	0.929			93		71-118		
Benzo(a)pyrene	1.00	0.879			88		70-120		
Benzo(b)fluoranthene	1.00	0.891			89		76-132		
Benzo(g,h,i)perylene	1.00	0.845			84		58-129		
Benzo(k)fluoranthene	1.00	0.844			84		69-126		
Chrysene	1.00	0.869			87		66-119		
Dibenz(a,h)anthracene	1.00	0.909			91		47-136		
Fluoranthene	1.00	0.856			86		70-119		
Fluorene	1.00	0.915			92		69-116		
Indeno(1,2,3-cd)pyrene	1.00	0.867			87		52-134		
1-Methylnaphthalene	1.00	0.954			95		68-112		
2-Methylnaphthalene	1.00	0.901			90		59-124		
Naphthalene	1.00	0.874			87		61-112		
Phenanthrene	1.00	0.845			84		69-113		
Pyrene	1.00	0.890			89		64-115		
Batch number: 16195WAB026	Sample number(s): 8465708-8465710								
Butylbenzylphthalate	50	56.17			112		56-124		
Di-n-butylphthalate	50	52.51			105		61-125		
Carbazole	50	60.42			121		64-126		
Dibenzofuran	50	52.05			104		67-120		
1,2-Dichlorobenzene	50	52.03			104		53-119		
Dimethylphthalate	50	48.84			98		26-133		
bis(2-Ethylhexyl)phthalate	50	53.22			106		66-130		
4-Methylphenol	50	38.09			76		44-114		
Di-n-octylphthalate	50	46.93			94		73-131		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 161910017A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465710,8465713,8465715-8465717								
PCB-1016	5.05	3.92			78		60-117		
PCB-1260	5.04	4.46			88		57-134		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 161930001A	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713								
Methane	59.8	64.02			107		85-115		

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Quality Control Summary

Client Name: Norfolk Southern Railway Co. Group Number: 1680576
Reported: 07/19/2016 14:13

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 161935713002	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717								
Mercury	0.00100	0.00104			104		80-120		
Batch number: 161936050001A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717								
Antimony	0.00600	0.00587			98		80-120		
Arsenic	0.0100	0.0104			104		80-120		
Beryllium	0.00400	0.00415			104		80-120		
Cadmium	0.00500	0.00507			101		80-120		
Chromium	0.0500	0.0509			102		80-120		
Copper	0.0500	0.0505			101		80-120		
Lead	0.0150	0.0158			105		80-120		
Manganese	0.0500	0.0528			106		80-120		
Nickel	0.0500	0.0501			100		80-120		
Silver	0.0500	0.0488			98		80-120		
Thallium	0.00200	0.00216			108		80-120		
Zinc	0.500	0.496			99		80-120		
Batch number: 161936050001B	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717								
Selenium	0.0100	0.0104			104		80-120		
Batch number: 161936050001D	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717								
Barium	0.0500	0.0466			93		80-120		
Batch number: 161940635003	Sample number(s): 8465700,8465703,8465705,8465707,8465712,8465714								
Iron	1.00	0.954			95		80-120		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16191667901B	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713								
Chloride	3.00	2.90	3.00	2.90	97	97	90-110	0	20
Sulfate	7.50	7.45	7.50	7.39	99	99	90-110	1	20
Batch number: 16199118101A	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713								
Total Nitrite/Nitrate Nitrogen	2.50	2.46			99		90-110		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16193987141A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465708-8465711,8465715-8465717								
Hexavalent Chromium	0.500	0.511	0.500	0.501	102	100	90-110	2	20
Batch number: 16193987141B	Sample number(s): 8465706,8465713								
Hexavalent Chromium	0.500	0.511	0.500	0.501	102	100	90-110	2	20

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Quality Control Summary

Client Name: Norfolk Southern Railway Co.
Reported: 07/19/2016 14:13

Group Number: 1680576

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: I161911AA	Sample number(s): 8465699,8465702,8465704,8465706,8465708-8465710,8465713,8465715-8465718 UNSPK: 8465708									
Carbon Tetrachloride	N.D.	5.00	4.17	5.00	4.62	83	92	65-134	10	30
Chloroform	N.D.	5.00	4.34	5.00	4.64	87	93	80-120	7	30
Chloromethane	N.D.	5.00	3.88	5.00	4.31	78	86	63-121	10	30
cis-1,2-Dichloroethene	0.236	5.00	4.65	5.00	5.17	88	99	80-120	11	30
trans-1,2-Dichloroethene	N.D.	5.00	4.31	5.00	5.00	86	100	80-120	15	30
1,2-Dichloropropane	1.53	5.00	6.16	5.00	6.62	93	102	80-120	7	30
Methylene Chloride	N.D.	5.00	4.10	5.00	4.54	82	91	80-120	10	30
Tetrachloroethene	N.D.	5.00	4.20	5.00	4.60	84	92	80-120	9	30
Trichloroethene	N.D.	5.00	4.58	5.00	5.01	92	100	80-120	9	30
Vinyl Chloride	N.D.	5.00	4.57	5.00	5.09	91	102	62-128	11	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 16191WAD026	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465713,8465715-8465717 UNSPK: P465708									
Butylbenzylphthalate	N.D.	50.2	28.31	50	34.55	56	69	56-124	20	30
Di-n-butylphthalate	N.D.	50.2	40.78	50	40.83	81	82	61-125	0	30
Carbazole	N.D.	50.2	55.49	50	50.49	111	101	64-126	9	30
Dibenzofuran	N.D.	50.2	49.21	50	45.73	98	91	67-120	7	30
1,2-Dichlorobenzene	N.D.	50.2	51.11	50	46.66	102	93	53-119	9	30
Dimethylphthalate	N.D.	50.2	13.44	50	20.51	27	41	26-133	42*	30
bis(2-Ethylhexyl)phthalate	N.D.	50.2	44.75	50	42.3	89	85	66-130	6	30
4-Methylphenol	2.31	50.2	43.21	50	39.43	81	74	44-114	9	30
Di-n-octylphthalate	N.D.	50.2	37.68	50	34.81	75	70*	73-131	8	30
Batch number: 16191WAE026	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465710,8465713,8465715-8465717 UNSPK: 8465708									
Acenaphthene	N.D.	1.00	0.963	1.00	0.898	96	90	67-126	7	30
Acenaphthylene	N.D.	1.00	0.879	1.00	0.820	88	82	66-113	7	30
Anthracene	N.D.	1.00	0.879	1.00	0.749	88	75	69-120	16	30
Benzo(a)anthracene	N.D.	1.00	0.938	1.00	0.901	93	90	71-118	4	30
Benzo(a)pyrene	N.D.	1.00	0.881	1.00	0.823	88	82	70-120	7	30
Benzo(b)fluoranthene	N.D.	1.00	0.876	1.00	0.819	87	82	76-132	7	30
Benzo(g,h,i)perylene	N.D.	1.00	0.656	1.00	0.707	65	71	58-129	7	30
Benzo(k)fluoranthene	N.D.	1.00	0.900	1.00	0.792	90	79	69-126	13	30
Chrysene	N.D.	1.00	0.880	1.00	0.820	88	82	66-119	7	30
Dibenz(a,h)anthracene	N.D.	1.00	0.765	1.00	0.811	76	81	47-136	6	30
Fluoranthene	N.D.	1.00	0.872	1.00	0.742	87	74	70-119	16	30
Fluorene	N.D.	1.00	0.911	1.00	0.857	91	86	69-116	6	30
Indeno(1,2,3-cd)pyrene	N.D.	1.00	0.714	1.00	0.757	71	76	52-134	6	30
1-Methylnaphthalene	0.0111	1.00	0.971	1.00	0.909	96	90	68-112	7	30
2-Methylnaphthalene	0.0154	1.00	0.928	1.00	0.861	91	85	59-124	7	30
Naphthalene	0.0411	1.00	0.915	1.00	0.852	87	81	61-112	7	30

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Quality Control Summary

Client Name: Norfolk Southern Railway Co. Group Number: 1680576
Reported: 07/19/2016 14:13

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Phenanthrene	N.D.	1.00	0.874	1.00	0.804	87	80	69-113	8	30
Pyrene	N.D.	1.00	0.878	1.00	0.790	87	79	64-115	11	30
Batch number: 16195WAB026	Sample number(s): 8465708-8465710 UNSPK: 8465708									
Butylbenzylphthalate	N.D.	50.4	53.89	50.61	57.33	107	113	56-124	6	30
Di-n-butylphthalate	N.D.	50.4	50.62	50.61	53.73	100	106	61-125	6	30
Carbazole	N.D.	50.4	57.59	50.61	60.24	114	119	64-126	4	30
Dibenzofuran	N.D.	50.4	51.53	50.61	52.33	102	103	67-120	2	30
1,2-Dichlorobenzene	N.D.	50.4	52.62	50.61	52.06	104	103	53-119	1	30
Dimethylphthalate	N.D.	50.4	45.04	50.61	46.7	89	92	26-133	4	30
bis(2-Ethylhexyl)phthalate	N.D.	50.4	53.53	50.61	55.89	106	110	66-130	4	30
4-Methylphenol	2.00	50.4	34.23	50.61	32.18	64	60	44-114	6	30
Di-n-octylphthalate	N.D.	50.4	46.73	50.61	49.8	93	98	73-131	6	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 161910017A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465710,8465713,8465715-8465717 UNSPK: 8465708									
PCB-1016	N.D.	5.33	4.16	5.24	4.17	78	80	60-117	0	30
PCB-1260	N.D.	5.32	3.07	5.23	3.83	58	73	57-134	22	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 161930001A	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713 UNSPK: P467199									
Methane	123.26	59.8	165.56	59.8	121.56	71*	-2*	73-125	31*	30
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 161935713002	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717 UNSPK: 8465708									
Mercury	N.D.	0.00100	0.00104	0.00100	0.00105	104	105	80-120	1	20
Batch number: 161936050001A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717 UNSPK: 8465708									
Antimony	N.D.	0.00600	0.00609	0.00600	0.00663	102	111	75-125	8	20
Arsenic	N.D.	0.0100	0.0114	0.0100	0.0112	114	112	75-125	2	20
Beryllium	N.D.	0.00400	0.00404	0.00400	0.00421	101	105	75-125	4	20
Cadmium	N.D.	0.00500	0.00519	0.00500	0.00511	104	102	75-125	1	20
Chromium	0.000818	0.0500	0.0519	0.0500	0.0516	102	102	75-125	0	20
Copper	N.D.	0.0500	0.0520	0.0500	0.0525	104	105	75-125	1	20
Lead	N.D.	0.0150	0.0156	0.0150	0.0157	104	105	75-125	1	20
Manganese	0.00166	0.0500	0.0545	0.0500	0.0568	106	110	75-125	4	20
Nickel	0.00101	0.0500	0.0543	0.0500	0.0534	107	105	75-125	2	20
Silver	N.D.	0.0500	0.0516	0.0500	0.0514	103	103	75-125	0	20
Thallium	N.D.	0.00200	0.00199	0.00200	0.00215	99	108	75-125	8	20
Zinc	0.00644	0.500	0.528	0.500	0.521	104	103	75-125	1	20

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Quality Control Summary

Client Name: Norfolk Southern Railway Co. Group Number: 1680576
Reported: 07/19/2016 14:13

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 161936050001B	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717 UNSPK: 8465708									
Selenium	N.D.	0.0100	0.00868	0.0100	0.00947	87	95	75-125	9	20
Batch number: 161936050001D	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717 UNSPK: 8465708									
Barium	0.00705	0.0500	0.0623	0.0500	0.0600	110	106	75-125	4	20
Batch number: 161940635003	Sample number(s): 8465700,8465703,8465705,8465707,8465712,8465714 UNSPK: 8465703									
Iron	N.D.	1.00	1.01	1.00	0.977	101	98	75-125	4	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16191667901B	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713 UNSPK: 8465708									
Chloride	11.66	20	31.17			98		90-110		
Sulfate	27.53	50	76.74			98		90-110		
Batch number: 16199118101A	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713 UNSPK: 8465708									
Total Nitrite/Nitrate Nitrogen	N.D.	1.00	0.986			99		90-110		
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 16193987141A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465708-8465711,8465715-8465717 UNSPK: 8465708									
Hexavalent Chromium	0.0990	0.500	0.487	0.500	0.480	78*	76*	90-110	1	2
Batch number: 16193987141B	Sample number(s): 8465706,8465713 UNSPK: 8465713									
Hexavalent Chromium	0.840	1.00	1.92			108		90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 161935713002	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717 BKG: 8465708			
Mercury	N.D.	N.D.	0 (1)	20
Batch number: 161936050001A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717 BKG: 8465708			
Antimony	N.D.	N.D.	0 (1)	20

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Quality Control Summary

Client Name: Norfolk Southern Railway Co. Group Number: 1680576
Reported: 07/19/2016 14:13

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Arsenic	N.D.	N.D.	0 (1)	20
Beryllium	N.D.	N.D.	0 (1)	20
Cadmium	N.D.	N.D.	0 (1)	20
Chromium	0.000818	0.000948	15 (1)	20
Copper	N.D.	N.D.	0 (1)	20
Lead	N.D.	N.D.	0 (1)	20
Manganese	0.00166	0.00168	1 (1)	20
Nickel	0.00101	0.00101	1 (1)	20
Silver	N.D.	N.D.	0 (1)	20
Thallium	N.D.	N.D.	0 (1)	20
Zinc	0.00644	0.00600	7 (1)	20
Batch number: 161936050001B	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717 BKG: 8465708			
Selenium	N.D.	N.D.	0 (1)	20
Batch number: 161936050001D	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465706,8465708-8465711,8465713,8465715-8465717 BKG: 8465708			
Barium	0.00705	0.00770	9 (1)	20
Batch number: 161940635003	Sample number(s): 8465700,8465703,8465705,8465707,8465712,8465714 BKG: 8465703			
Iron	N.D.	N.D.	0 (1)	20
	mg/l	mg/l		
Batch number: 16191667901B	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713 BKG: 8465708			
Chloride	11.66	11.85	2	15
Sulfate	27.53	27.88	1	15
Batch number: 16199118101A	Sample number(s): 8465699,8465702,8465704,8465706,8465708,8465713 BKG: 8465708			
Total Nitrite/Nitrate Nitrogen	N.D.	N.D.	0 (1)	2
	ug/l	ug/l		
Batch number: 16193987141A	Sample number(s): 8465698-8465699,8465701-8465702,8465704,8465708-8465711,8465715-8465717 BKG: 8465708			
Hexavalent Chromium	0.0990	0.0810	20 (1)	20
Batch number: 16193987141B	Sample number(s): 8465706,8465713 BKG: 8465713			
Hexavalent Chromium	0.840	0.840	0	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Norfolk Southern Railway Co.
Reported: 07/19/2016 14:13

Group Number: 1680576

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PPL/TCL VOCs (25 ml purge)
Batch number: I161911AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8465699	99	104	95	97
8465702	100	103	94	95
8465704	100	105	94	96
8465706	100	106	95	97
8465708	100	105	94	98
8465709	99	102	95	99
8465710	98	103	95	98
8465713	99	104	94	97
8465715	99	107	94	97
8465716	98	103	94	96
8465717	99	103	95	96
8465718	99	105	94	95
Blank	96	100	95	95
LCS	97	99	96	97
MS	99	102	95	99
MSD	98	103	95	98
Limits:	77-114	74-113	77-110	78-110

Analysis Name: TCL SW846 8270C Water
Batch number: 16191WAD026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8465698	63	40	85	89	85	75
8465699	60	39	81	86	81	78
8465701	56	36	74	82	77	69
8465702	56	36	74	81	77	67
8465704	54	5*	77	80	77	67
8465706	59	37	79	84	81	70
8465713	56	35	74	80	74	72
8465715	50	34	71	83	78	84
8465716	44	32	53	75	71	78
8465717	57	37	74	84	78	75
Blank	61	38	89	92	86	88
LCS	70	47	92	94	89	84
MS	69	48	92	95	89	85
MSD	64	43	85	87	82	78
Limits:	10-103	10-85	22-150	46-128	61-112	41-125

Analysis Name: PAHs in waters by SIM
Batch number: 16191WAE026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
8465698	76	62	74
8465699	80	70	78
8465701	81	67	76
8465702	80	68	76
8465704	39*	3*	44

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Norfolk Southern Railway Co.
Reported: 07/19/2016 14:13

Group Number: 1680576

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
8465706	77	62	74
8465708	82	81	79
8465709	90	90	88
8465710	84	84	82
8465713	81	69	77
8465715	78	81	76
8465716	89	90	86
8465717	76	63	73
Blank	77	78	74
LCS	88	90	86
MS	90	90	88
MSD	84	84	82
Limits:	50-133	41-137	43-126

Analysis Name: TCL SW846 8270C Water
Batch number: 16195WAB026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8465708	43	27	69	97	89	84
8465709	49	35	71	98	90	69
8465710	47	33	70	100	92	70
Blank	47	33	79	101	92	50
LCS	53	44	81	98	92	41
MS	49	35	71	98	90	69
MSD	47	33	70	100	92	70
Limits:	10-103	10-85	22-150	46-128	61-112	41-125

Analysis Name: PCBs in Water
Batch number: 161910017A

	Tetrachloro-m-xylene	Decachlorobiphenyl
8465698	87	79
8465699	89	76
8465701	86	73
8465702	85	67
8465704	80	44
8465706	88	75
8465708	90	66
8465709	87	49
8465710	90	62
8465713	109	185*
8465715	91	64
8465716	97	35
8465717	95	91
Blank	86	41
LCS	83	49
MS	87	49
MSD	90	62

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Norfolk Southern Railway Co.
Reported: 07/19/2016 14:13

Group Number: 1680576

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Limits: 33-137 10-148

Analysis Name: Methane
Batch number: 161930001A

	Propene
8465699	83
8465702	83
8465704	83
8465706	83
8465708	93
8465713	79
Blank	94
LCS	100
MS	76
MSD	81
Limits:	44-123

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

eurofins

Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 10302 Group # 1680576 Sample # 8465698-718

COC # 504591

Client Information

Client: Norfolk Southern

Acct. #:

Project Name/#: NS Shulinson

PWSID #:

Project Manager: Scott Pittenger - NS

P.O. #:

Sampler: T. McNabb

Quote #:

State where samples were collected: North Carolina

For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Water: Potable ☐ Ground ☑ NPDES ☐ Surface ☐ Other: ____

Analysis Requested / Preservation Codes

For Lab Use Only

FSC:

SCR#:

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	VOCs 8260B	Chloride 300; Sulfate 300	Methane RSK-175	Total Nitrite/Nitrate 353.2	Iron 6010C, Dissolved	Metals 7470A/6020	PAHs 8270C SIM; PCBs 8082	SVOCs 8270C	Hexavalent Chromium 218.6			Remarks
MW-1-0716	7-7-16	0813	X	1	15	3	2	2	1	1	1	4	1	—			6 rec'd per Geosyntec/T. McNabb. KAK 1885, 7/8/16
MW-2-0716	7-6-16	2050		1										—			
MW-3-0716	7-7-16	1211		1										—			6 rec'd per Geosyntec/T. McNabb. KAK 1885, 7/8/16
MW-4-0716	7-6-16	1346		1										—			
MW-5-0716	7-6-16	1545		—										—			
MW-6-0716	7-6-16	1858		—										—			
MW-7A-0716	7-7-16	0957		—										—			
MW-8-0716	7-6-16	1726		—										—			
MW-7A-0716-MS	7-7-16	0957		—	9	3	—	—	—	—	1	4	1	—			
MW-7A-0716-MSD	7-7-16	0957		—	9	3	—	—	—	—	1	4	1	—			

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Samples for iron 6010C, dissolved analysis were filtered in the field

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 7-22-16

E-mail address: LLeonard@geosyntec.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
T. McNabb	7-7-16	1800			
			Timothy Cubberley	7-8-16	1000

EDD Required? Yes No

If yes, format: ESdat-Ze

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx X Other ____

Temperature upon receipt 0.8-1.2 °C

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0216

Environmental Analysis Request/Chain of Custody

eurofins

Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 10302 Group # 1680576 Sample # 84665698-718

COC # 504590

Client Information

Client: Norfolk Southern

Acct. #:

Project Name/#: NS Shulinson

PWSID #:

Project Manager: Scott Pittenger - NS

P.O. #:

Sampler: T. McWabb

Quote #:

State where samples were collected: North Carolina

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Water: Potable ☐ Ground ☑ NPDES ☐ Surface ☐ Other: DI water

Analysis Requested / Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	VOCs 8260B	Chloride 300; Sulfate 300	Methane RSK-175	Total Nitrite/Nitrate 353.2	Iron 6010C, Dissolved	Metals 7470A/6020	PAH, 8270C SIM; PCBs 8082 SVOCs 8270C	Hexavalent Chromium 218.6		
FB-0716	7-7-16	1040	X	—	9	3	—	—	—	—	1	4	1	—	
EB-0716	7-7-16	1125	X	—	↓	↓	—	—	—	—	↓	↓	↓	—	
MW-4-0716-DUP	7-6-16	1346	X	—	↓	↓	—	—	—	—	↓	↓	↓	—	
TB16175	6-29-16		X	—	2	2	—	—	—	—	—	—	—	—	

Last Item - TSM - 7-7-16

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Samples for iron 6010C, dissolved analysis were filtered in the field

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 7-22-16

E-mail address: LLeonard@geosyntec.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	7-7-16	1800			
			Timothy Cubberley		
			[signature]	7-8-16	1000

EDD Required? Yes No

If yes, format: Esdat-20

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 0.8-1.2 °C

1680576

Katherine Klinefelter

From: Tyler McNabb <TMcNabb@Geosyntec.com>
Sent: Friday, July 08, 2016 1:57 PM
To: Katherine Klinefelter
Subject: RE: Also left you a VM. Please call asap regarding Shulimson samples received today.

Kathy,

The number of containers and analyses for MW-1 and MW-3 were incorrectly marked on the chain of custody. For MW-1 and MW-3 there were 4 containers for PCBs 8082, PAHs 8270C SIM, and SVOCs 8270C, 1 container for metals 7470A/6020, and 1 container for hexavalent chromium 218.6. Please give me a call to verify this. Sorry for the confusion.

Thanks,

Tyler McNabb
Senior Staff Geologist
Geosyntec Consultants
180A Market Place Blvd.
Knoxville, TN 37922
Phone: 865.330.0037
Direct: 865.291.4702
Cell: 573.979.3899

From: Katherine Klinefelter [mailto:KatherineKlinefelter@eurofinsus.com]
Sent: Friday, July 8, 2016 1:34 PM
To: Tyler McNabb <TMcNabb@Geosyntec.com>
Subject: Also left you a VM. Please call asap regarding Shulimson samples received today.
Importance: High

Thanks,
Kathy
717-556-7256

Notify us here to report this email as spam.

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 153127

Group Number(s): 1680576

Client: Norfolk Southern

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	07/08/2016 10:00
Number of Packages:	3	Number of Projects:	1
State/Province of Origin:	NC		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	Yes		

Unpacked by Timothy Cubberley (6520) at 10:59 on 07/08/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.8	DT	Wet	Y	Bagged	N
2	DT131	1.2	DT	Wet	Y	Bagged	N
3	DT131	0.9	DT	Wet	Y	Bagged	N

Container Quantity Discrepancy Details

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
MW-1-0716	6	15	Per call to Tyler McNabb, only 6 bottles submitted for these 2 locations. Amended COC. KAK 1885 7/8/16
MW-3-0716	6	15	

General Comments: MW-6-0716 had an empty Chloride 300/Sulfate 300 vial with no damage done to it.

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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