



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700
 D.A.R.T. Id: 14-0429
 Project: 14-0429, Cabot Carbon/Koppers - Reported by Jeffrey Hendel

October 2, 2014

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
 Project: 14-0429, Cabot Carbon/Koppers
 Superfund Remedial

FROM: Jeffrey Hendel
 ASB Inorganic Chemistry Section Chief

THRU: Danny France, Chief
 Analytical Support Branch

TO: Scott Miller

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Classical/Nutrient Analyses (CNA)		
Nitrate and/or Nitrite	EPA 353.2 (Water)	ISO



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Report Narrative for Work Order E143506, Project: 14-0429
Samples E143506-04, 05, 06, 07, and 08 missed analytical holding times due to courier error. Samples were collected on August 25 and 26, 2014 and received by the laboratory on August 28, 2014. Samples that missed holding time were qualified "J" H-1.

Results of any samples for nitrite analysis that contained permanganate should be considered suspect due to the oxidation of nitrite to nitrate.

Sample Disposal Policy

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov, and provide a reason for holding samples beyond 60 days

cc: Nardina Turner



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SAMPLES INCLUDED IN THIS REPORT

Project: 14-0429, Cabot Carbon/Koppers

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
HG26D	E143506-02	Groundwater	8/26/14 16:00	8/28/14 10:16
HG26S	E143506-03	Groundwater	8/26/14 14:30	8/28/14 10:16
HG28S	E143506-04	Groundwater	8/26/14 09:30	8/28/14 10:16
HG30S	E143506-05	Groundwater	8/26/14 11:30	8/28/14 10:16
HG31D	E143506-06	Groundwater	8/25/14 13:30	8/28/14 10:16
ITW01	E143506-07	Groundwater	8/26/14 11:30	8/28/14 10:16
ITW02	E143506-08	Groundwater	8/26/14 11:30	8/28/14 10:16
WMW17E	E143506-09	Groundwater	8/26/14 15:00	8/28/14 10:16
WMW18E	E143506-10	Groundwater	8/26/14 16:45	8/28/14 10:16



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DATA QUALIFIER DEFINITIONS

- U The analyte was not detected at or above the reporting limit.
- H-1 Recommended holding time exceeded
- J The identification of the analyte is acceptable; the reported value is an estimate.
- QM-1 Matrix Spike Recovery less than method control limits
- T-1 Sample received in cooler with temperature blank greater than 6 degrees C.

ACRONYMS AND ABBREVIATIONS

- CAS Chemical Abstracts Service
Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
- MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

- ISO The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1691.
- NR The EPA Region 4 Laboratory has not requested accreditation for this test.



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG26D

Lab ID: E143506-02

Station ID: HG26D

Matrix: Groundwater

Date Collected: 8/26/14 16:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U, T-1	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG26S

Lab ID: E143506-03

Station ID: HG26S

Matrix: Groundwater

Date Collected: 8/26/14 14:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U, T-1	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG28S

Lab ID: E143506-04

Station ID: HG28S

Matrix: Groundwater

Date Collected: 8/26/14 9:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.15	J, H-1, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2
E701177	Nitrate/Nitrite as N	0.15	T-1	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.11	U, J, H-1, T-1	mg/L	0.11	8/28/14 11:36	8/28/14 11:36	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG30S

Lab ID: E143506-05

Station ID: HG30S

Matrix: Groundwater

Date Collected: 8/26/14 11:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.19	J, H-1, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2
E701177	Nitrate/Nitrite as N	0.19	T-1	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.12	U, J, H-1, T-1	mg/L	0.12	8/28/14 11:36	8/28/14 11:36	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG31D

Lab ID: E143506-06

Station ID: HG31D

Matrix: Groundwater

Date Collected: 8/25/14 13:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.053	J, H-1, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2
E701177	Nitrate/Nitrite as N	0.053	T-1	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U, J, H-1, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: ITW01

Lab ID: E143506-07

Station ID: ITW01

Matrix: Groundwater

Date Collected: 8/26/14 11:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.051	J, H-1, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2
E701177	Nitrate/Nitrite as N	0.051	T-1	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U, J, H-1, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: ITW02

Lab ID: E143506-08

Station ID: ITW02

Matrix: Groundwater

Date Collected: 8/26/14 11:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U, J, H-1, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U, T-1	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U, J, H-1, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: WMW17E

Lab ID: E143506-09

Station ID: WMW17E

Matrix: Groundwater

Date Collected: 8/26/14 15:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U, T-1	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U, J, QM-1, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: WMW18E

Lab ID: E143506-10

Station ID: WMW18E

Matrix: Groundwater

Date Collected: 8/26/14 16:45

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U, T-1	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U, T-1	mg/L	0.050	8/28/14 11:36	8/28/14 11:36	EPA 353.2



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Classical/Nutrient Analyses (CNA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1408172 - C 353.2 NO3-NO2										
Blank (1408172-BLK1)					Prepared & Analyzed: 08/28/14					
EPA 353.2										
Nitrite as N	U	0.050	mg/L							U
LCS (1408172-BS1)					Prepared & Analyzed: 08/28/14					
EPA 353.2										
Nitrite as N	0.46360	0.050	mg/L	0.50000		92.7	90-110			
Matrix Spike (1408172-MS1)					Source: E143506-09		Prepared & Analyzed: 08/28/14			
EPA 353.2										
Nitrite as N	0.44410	0.050	mg/L	0.50000	0.0093000	87.0	90-110			QM-1
Matrix Spike Dup (1408172-MSD1)					Source: E143506-09		Prepared & Analyzed: 08/28/14			
EPA 353.2										
Nitrite as N	0.45430	0.050	mg/L	0.50000	0.0093000	89.0	90-110	2.27	10	QM-1
MRL Verification (1408172-PS1)					Prepared & Analyzed: 08/28/14					
EPA 353.2										
Nitrite as N	0.049900	0.050	mg/L	0.050000		99.8	70-130			MRL-2, U
Batch 1408174 - C 353.2 NO3-NO2										
Blank (1408174-BLK1)					Prepared & Analyzed: 08/28/14					
EPA 353.2										
Nitrate/Nitrite as N	U	0.050	mg/L							U
LCS (1408174-BS1)					Prepared & Analyzed: 08/28/14					
EPA 353.2										
Nitrate/Nitrite as N	0.51660	0.050	mg/L	0.50000		103	90-110			
Matrix Spike (1408174-MS1)					Source: E143506-09		Prepared & Analyzed: 08/28/14			
EPA 353.2										
Nitrate/Nitrite as N	0.51890	0.050	mg/L	0.50000	U	104	90-110			
Matrix Spike (1408174-MS2)					Source: E143507-07		Prepared & Analyzed: 08/28/14			
EPA 353.2										
Nitrate/Nitrite as N	0.57410	0.050	mg/L	0.50000	0.095500	95.7	90-110			



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Classical/Nutrient Analyses (CNA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1408174 - C 353.2 NO3-NO2

Matrix Spike Dup (1408174-MSD1) Source: E143506-09 Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrate/Nitrite as N	0.53220	0.050	mg/L	0.50000	U	106	90-110	2.53	10	
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Matrix Spike Dup (1408174-MSD2) Source: E143507-07 Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrate/Nitrite as N	0.59960	0.050	mg/L	0.50000	0.095500	101	90-110	4.35	10	
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MRL Verification (1408174-PS1) Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrate/Nitrite as N	0.042500	0.050	mg/L	0.050000		85.0	70-130			MRL-2, U
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Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
- MRL-2 MRL verification for Non-Potable Water matrix
- QM-1 Matrix Spike Recovery less than method control limits



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October 2, 2014

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
 Project: 14-0429, Cabot Carbon/Koppers
 Superfund Remedial

FROM: Jeffrey Hendel
 ASB Inorganic Chemistry Section Chief

THRU: Danny France, Chief
 Analytical Support Branch

TO: Scott Miller

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

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Report Narrative for Work Order E143507, Project: 14-0429
Results of any samples for nitrite analysis that contained permanganate should be considered suspect due to the oxidation of nitrite to nitrate.

Sample Disposal Policy

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov, and provide a reason for holding samples beyond 60 days

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SAMPLES INCLUDED IN THIS REPORT

Project: 14-0429, Cabot Carbon/Koppers

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
ESE002	E143507-01	Groundwater	8/27/14 12:30	8/28/14 10:43
ESE004	E143507-02	Groundwater	8/27/14 10:00	8/28/14 10:43
ESE007	E143507-03	Groundwater	8/27/14 15:00	8/28/14 10:43
HG20D	E143507-04	Groundwater	8/27/14 16:30	8/28/14 10:43
HG20S	E143507-05	Groundwater	8/27/14 15:30	8/28/14 10:43
HG29D	E143507-06	Groundwater	8/27/14 10:00	8/28/14 10:43
HG929D	E143507-07	Groundwater	8/27/14 10:10	8/28/14 10:43
HD29S	E143507-08	Groundwater	8/27/14 12:00	8/28/14 10:43



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DATA QUALIFIER DEFINITIONS

- U The analyte was not detected at or above the reporting limit.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- QM-1 Matrix Spike Recovery less than method control limits

ACRONYMS AND ABBREVIATIONS

- CAS Chemical Abstracts Service
Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
- MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

- ISO The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1691.
- NR The EPA Region 4 Laboratory has not requested accreditation for this test.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700
 D.A.R.T. Id: 14-0429
 Project: 14-0429, Cabot Carbon/Koppers - Reported by Jeffrey Hendel

Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: ESE002

Lab ID: E143507-01

Station ID: ESE002

Matrix: Groundwater

Date Collected: 8/27/14 12:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2



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 Project: 14-0429, Cabot Carbon/Koppers - Reported by Jeffrey Hendel

Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: ESE004

Lab ID: E143507-02

Station ID: ESE004

Matrix: Groundwater

Date Collected: 8/27/14 10:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: ESE007

Lab ID: E143507-03

Station ID: ESE007

Matrix: Groundwater

Date Collected: 8/27/14 15:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG20D

Lab ID: E143507-04

Station ID: HG20D

Matrix: Groundwater

Date Collected: 8/27/14 16:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2



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 Project: 14-0429, Cabot Carbon/Koppers - Reported by Jeffrey Hendel

Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG20S

Lab ID: E143507-05

Station ID: HG20S

Matrix: Groundwater

Date Collected: 8/27/14 15:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U	mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.050	U	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2



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 Project: 14-0429, Cabot Carbon/Koppers - Reported by Jeffrey Hendel

Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG29D

Lab ID: E143507-06

Station ID: HG29D

Matrix: Groundwater

Date Collected: 8/27/14 10:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.085		mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2
E701177	Nitrate/Nitrite as N	0.085		mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.12	U	mg/L	0.12	8/28/14 21:31	8/28/14 21:31	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG929D

Lab ID: E143507-07

Station ID: HG29D

Matrix: Groundwater

Date Collected: 8/27/14 10:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.096		mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2
E701177	Nitrate/Nitrite as N	0.096		mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.13	U	mg/L	0.13	8/28/14 21:31	8/28/14 21:31	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HD29S

Lab ID: E143507-08

Station ID: HG29S

Matrix: Groundwater

Date Collected: 8/27/14 12:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.21	J, K	mg/L	0.050	8/28/14 21:31	8/28/14 21:31	EPA 353.2
E701177	Nitrate/Nitrite as N	0.21		mg/L	0.050	8/28/14 15:08	8/28/14 15:08	EPA 353.2
14797-65-0	Nitrite as N	0.18	U, J, QM-1	mg/L	0.18	8/28/14 21:31	8/28/14 21:31	EPA 353.2



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Classical/Nutrient Analyses (CNA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1408174 - C 353.2 NO3-NO2

Blank (1408174-BLK1)

Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrate/Nitrite as N U 0.050 mg/L U

LCS (1408174-BS1)

Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrate/Nitrite as N 0.51660 0.050 mg/L 0.50000 103 90-110

Matrix Spike (1408174-MS1)

Source: E143506-09

Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrate/Nitrite as N 0.51890 0.050 mg/L 0.50000 U 104 90-110

Matrix Spike (1408174-MS2)

Source: E143507-07

Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrate/Nitrite as N 0.57410 0.050 mg/L 0.50000 0.095500 95.7 90-110

Matrix Spike Dup (1408174-MSD1)

Source: E143506-09

Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrate/Nitrite as N 0.53220 0.050 mg/L 0.50000 U 106 90-110 2.53 10

Matrix Spike Dup (1408174-MSD2)

Source: E143507-07

Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrate/Nitrite as N 0.59960 0.050 mg/L 0.50000 0.095500 101 90-110 4.35 10

MRL Verification (1408174-PS1)

Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrate/Nitrite as N 0.042500 0.050 mg/L 0.050000 85.0 70-130 MRL-2, U

Batch 1408175 - C 353.2 NO3-NO2

Blank (1408175-BLK1)

Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrite as N U 0.050 mg/L U

LCS (1408175-BS1)

Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrite as N 0.48570 0.050 mg/L 0.50000 97.1 90-110



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Classical/Nutrient Analyses (CNA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1408175 - C 353.2 NO3-NO2

Matrix Spike (1408175-MS1) Source: E143507-08 Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrite as N	0.17320	0.050	mg/L	0.50000	0.17450	-0.260	90-110			QM-1
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Matrix Spike Dup (1408175-MSD1) Source: E143507-08 Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrite as N	0.17070	0.050	mg/L	0.50000	0.17450	-0.760	90-110	1.45	10	QM-1
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MRL Verification (1408175-PS1) Prepared & Analyzed: 08/28/14

EPA 353.2

Nitrite as N	0.045300	0.050	mg/L	0.050000		90.6	70-130			MRL-2, U
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Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
- MRL-2 MRL verification for Non-Potable Water matrix
- QM-1 Matrix Spike Recovery less than method control limits



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 Project: 14-0429, Cabot Carbon/Koppers - Reported by Jeffrey Hendel

October 2, 2014

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
 Project: 14-0429, Cabot Carbon/Koppers
 Superfund Remedial

FROM: Jeffrey Hendel
 ASB Inorganic Chemistry Section Chief

THRU: Danny France, Chief
 Analytical Support Branch

TO: Scott Miller

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Classical/Nutrient Analyses (CNA)		
Nitrate and/or Nitrite	EPA 353.2 (Water)	ISO



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Report Narrative for Work Order E143510, Project: 14-0429
Results of any samples for nitrite analysis that contained permanganate should be considered suspect due to the oxidation of nitrite to nitrate.

Sample Disposal Policy

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov, and provide a reason for holding samples beyond 60 days

cc: Nardina Turner



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Project: 14-0429, Cabot Carbon/Koppers - Reported by Jeffrey Hendel

SAMPLES INCLUDED IN THIS REPORT

Project: 14-0429, Cabot Carbon/Koppers

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
HG28D	E143510-09	Groundwater	8/28/14 12:00	8/29/14 10:08
HG30D	E143510-13	Groundwater	8/28/14 10:00	8/29/14 10:08
ITW13	E143510-14	Groundwater	8/28/14 10:00	8/29/14 10:08
ITW14	E143510-15	Groundwater	8/28/14 11:30	8/29/14 10:08



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DATA QUALIFIER DEFINITIONS

- U The analyte was not detected at or above the reporting limit.
J The identification of the analyte is acceptable; the reported value is an estimate.
P-4 Sample received at pH > 2.
QM-1 Matrix Spike Recovery less than method control limits

ACRONYMS AND ABBREVIATIONS

- CAS Chemical Abstracts Service
Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
- MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

- ISO The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1691.
- NR The EPA Region 4 Laboratory has not requested accreditation for this test.



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG28D

Lab ID: E143510-09

Station ID: HG28D

Matrix: Groundwater

Date Collected: 8/28/14 12:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U	mg/L	0.050	8/29/14 20:05	8/29/14 20:05	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U	mg/L	0.050	8/30/14 15:17	8/30/14 15:17	EPA 353.2
14797-65-0	Nitrite as N	0.050	U	mg/L	0.050	8/29/14 19:59	8/29/14 20:05	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: HG30D

Lab ID: E143510-13

Station ID: HG30D

Matrix: Groundwater

Date Collected: 8/28/14 10:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U, P-4	mg/L	0.050	8/29/14 20:05	8/29/14 20:05	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U, P-4	mg/L	0.050	8/30/14 15:17	8/30/14 15:17	EPA 353.2
14797-65-0	Nitrite as N	0.050	U	mg/L	0.050	8/29/14 19:59	8/29/14 20:05	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: ITW13

Lab ID: E143510-14

Station ID: ITW13

Matrix: Groundwater

Date Collected: 8/28/14 10:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U, P-4	mg/L	0.050	8/29/14 20:05	8/29/14 20:05	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U, P-4	mg/L	0.050	8/30/14 15:17	8/30/14 15:17	EPA 353.2
14797-65-0	Nitrite as N	0.050	U	mg/L	0.050	8/29/14 19:59	8/29/14 20:05	EPA 353.2



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Classical/Nutrient Analyses

Project: 14-0429, Cabot Carbon/Koppers

Sample ID: ITW14

Lab ID: E143510-15

Station ID: ITW14

Matrix: Groundwater

Date Collected: 8/28/14 11:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
14797-55-8	Nitrate as N	0.050	U	mg/L	0.050	8/29/14 20:05	8/29/14 20:05	EPA 353.2
E701177	Nitrate/Nitrite as N	0.050	U	mg/L	0.050	8/30/14 15:17	8/30/14 15:17	EPA 353.2
14797-65-0	Nitrite as N	0.050	U, J, QM-1	mg/L	0.050	8/29/14 19:59	8/29/14 20:05	EPA 353.2



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Classical/Nutrient Analyses (CNA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1408186 - C 353.2 NO3-NO2										
Blank (1408186-BLK1)					Prepared & Analyzed: 08/29/14					
EPA 353.2										
Nitrite as N	U	0.050	mg/L							U
LCS (1408186-BS1)					Prepared & Analyzed: 08/29/14					
EPA 353.2										
Nitrite as N	0.47810	0.050	mg/L	0.50000		95.6	90-110			
Matrix Spike (1408186-MS1)					Source: E143510-15		Prepared & Analyzed: 08/29/14			
EPA 353.2										
Nitrite as N	0.17930	0.050	mg/L	0.50000	0.011400	33.6	90-110			QM-1
Matrix Spike Dup (1408186-MSD1)					Source: E143510-15		Prepared & Analyzed: 08/29/14			
EPA 353.2										
Nitrite as N	0.18290	0.050	mg/L	0.50000	0.011400	34.3	90-110	1.99	10	QM-1
MRL Verification (1408186-PS1)					Prepared & Analyzed: 08/29/14					
EPA 353.2										
Nitrite as N	0.046500	0.050	mg/L	0.050000		93.0	70-130			MRL-2, U
Batch 1408187 - C 353.2 NO3-NO2										
Blank (1408187-BLK1)					Prepared & Analyzed: 08/30/14					
EPA 353.2										
Nitrate/Nitrite as N	U	0.050	mg/L							U
LCS (1408187-BS1)					Prepared & Analyzed: 08/30/14					
EPA 353.2										
Nitrate/Nitrite as N	0.52200	0.050	mg/L	0.50000		104	90-110			
Matrix Spike (1408187-MS1)					Source: E143510-15		Prepared & Analyzed: 08/30/14			
EPA 353.2										
Nitrate/Nitrite as N	0.51980	0.050	mg/L	0.50000	U	104	90-110			
Matrix Spike Dup (1408187-MSD1)					Source: E143510-15		Prepared & Analyzed: 08/30/14			
EPA 353.2										
Nitrate/Nitrite as N	0.52790	0.050	mg/L	0.50000	U	106	90-110	1.55	10	



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 D.A.R.T. Id: 14-0429
 Project: 14-0429, Cabot Carbon/Koppers - Reported by Jeffrey Hendel

Classical/Nutrient Analyses (CNA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1408187 - C 353.2 NO3-NO2

MRL Verification (1408187-PS1)

Prepared & Analyzed: 08/30/14

EPA 353.2

Nitrate/Nitrite as N	0.048100	0.050	mg/L	0.050000		96.2	70-130			MRL-2, U
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Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
- MRL-2 MRL verification for Non-Potable Water matrix
- QM-1 Matrix Spike Recovery less than method control limits