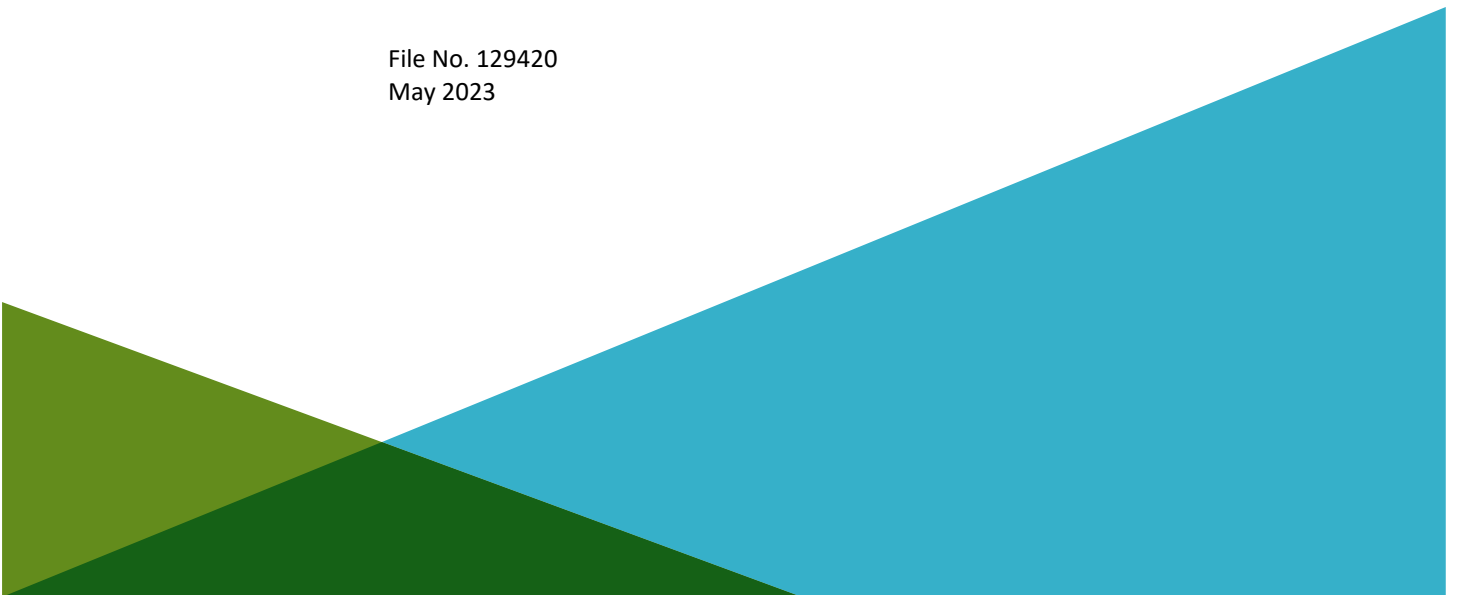


2020 ANNUAL GROUNDWATER MONITORING AND
CORRECTIVE ACTION REPORT ADDENDUM
SEDIMENTATION POND
A.B. BROWN GENERATING STATION
POSEY COUNTY, INDIANA

by
Haley & Aldrich, Inc.
Greenville, South Carolina

for
Southern Indiana Gas and Electric Company
Evansville, Indiana

File No. 129420
May 2023





HALEY & ALDRICH, INC.
400 Augusta Street
Suite 100
Greenville, SC 29601
864.214.8750

15 May 2023
File No. 129420

SUBJECT: 2020 Annual Groundwater Monitoring and Corrective Action Report Addendum
Southern Indiana Gas and Electric Company
Sedimentation Pond
A.B. Brown Generating Station; Posey County, Indiana

The Sedimentation Pond at A.B. Brown Generating Station is subject to the groundwater monitoring and corrective action requirements described under 40 CFR § 257.90 through § 257.98 (Rule). An *Annual Groundwater Monitoring and Corrective Action Report* (Annual Groundwater Report) documenting the activities in 2020 for the Sedimentation Pond was completed and placed in the facilities operating record on 30 January 2021, as required by the Rule. The Annual Groundwater Report contained the specific information listed in § 257.90(e).

This addendum has been prepared to supplement the operating record in recognition of comments issued by the United States Environmental Protection Agency (U.S. EPA) on 11 January 2022, to various utilities regarding their respective Part A extension applications, and U.S. EPA's "proposed finding that GWMCA reports are incomplete and lack clarity of visual representation of data" in the proposed conditional approval for the A.B. Brown Generating Station that was released on 5 October 2022. Those comments, proposed findings, and U.S. EPA clarifications were understood to be U.S. EPA's expectations regarding the contents of the facility's Annual Groundwater Report. In addition to the information listed in § 257.90(e), the U.S. EPA indicated in their comments that annual reports should contain:

- water level gauging data for each sampling event, including groundwater elevation data, a determination of groundwater flow direction(s) and rate(s), and updated potentiometric surface map(s);
- laboratory analytical reports to verify that groundwater sampling and analysis requirements outlined in § 257.93 are being met; and finally,
- statistical analyses, including detailed discussion of the statistical analyses (e.g., statistical method applied, confidence levels, and normality test results).

While this information is not specifically referred to in the in 257.90(e) of the Rule for inclusion in the annual reports, it has been routinely collected and maintained in Southern Indiana Gas and Electric Company's files, and is being provided in the attachments to this addendum as follows:

Attachment 1 – Groundwater Gauging Data

- Summary of groundwater gauging data

Attachment 2 – Updated Potentiometric Surface Map Containing Most Recent Groundwater Elevation Data

- Water table configuration map – May 2020
- Water table configuration map – November 2020

Water table maps include groundwater flow direction arrows and groundwater velocity calculations.

Attachment 3 – Laboratory Analytical Reports

- Laboratory data packages

Includes supporting information, such as, case narrative, sample and method summary, analytical results, quality control, and chain-of-custody documentation.

Attachment 4 – Statistical Analyses

- Statistical Evaluation of the October 2019 *Semi-annual Groundwater Assessment*
- Statistical Evaluation of the May 2020 *Semi-annual Groundwater Assessment*

Includes a discussion of the statistical analysis utilized along with a table summarizing the statistical outputs (e.g., frequency of detection, maximum detection, variance, standard deviation, coefficient of variance, outlier tests, trends, upper and lower confidence limits, and comparison against Groundwater Protection Standards), and supporting backup.

ATTACHMENT 1
Groundwater Gauging Data

VECTREN - AB BROWN STATION
 CCR Groundwater Sampling Event
 Gauging Dates: May 21 and May 29, 2020
 ATC Project No. 170LF00900

WELL ID	DATE	TIME	DTW FROM TOC
Ash Pond Wells			
CCR-AP-1R	5/21/2020	14:40	14.39
CCR-AP-2R	5/21/2020	17:10	38.30
CCR-AP-2I	5/21/2020	17:05	24.89
CCR-AP-3R	5/21/2020	13:15	39.56
CCR-AP-3I	5/21/2020	13:20	22.40
CCR-AP-4R	5/21/2020	15:00	32.52
CCR-AP-5	5/21/2020	13:30	36.73
CCR-AP-6	5/21/2020	17:20	14.42
CCR-AP-7R	5/21/2020	17:35	33.94
CCR-AP-8	5/21/2020	11:35	4.34
CCR-AP-9	5/21/2020	11:50	7.77
CCR-AP-10	5/21/2020	16:05	34.91
Landfill Wells			
CCR-LF-1	5/21/2020	12:10	7.16
CCR-LF-2	5/21/2020	12:25	26.40
CCR-LF-3	5/21/2020	12:30	28.88
CCR-LF-4	5/21/2020	10:40	46.75
CCR-LF-5	5/21/2020	13:55	20.11
CCR-LF-6	5/21/2020	12:40	8.47
Sedimentation Pond Wells			
CCR-SP-1	5/21/2020	12:50	10.60
CCR-SP-2	5/21/2020	12:55	12.70
CCR-SP-3	5/21/2020	13:00	6.83
Background Wells			
CCR-BK-1R	5/21/2020	11:00	60.45
CCR-BK-2	5/21/2020	11:20	14.29
New Property Line Well			
CCR-AP-11	5/29/2020	9:30	10.60

DTW= Depth to Water

TOC= Top of Casing

VECTREN - AB BROWN STATION

CCR Groundwater Sampling Event

Gauging Date: November 2, 2020

ATC Project No. 170LF00900

WELL ID	DATE	TIME	DTW FROM TOC
French Drain Area Locations			
HA-PP-1	11/2/2020	13:35	2.65
HA-PP-2	11/2/2020	13:40	3.19
FD PZ-1	11/2/2020	17:00	7.97
FD PZ-2	11/2/2020	17:15	4.00
CCR-SG-3	11/2/2020	13:30	1.00
MH-1	11/2/2020	17:20	9.24
MH-2	11/2/2020	17:25	11.12
Ash Pond Wells			
CCR-AP-1R	11/2/2020	16:35	14.68
CCR-AP-2R	11/2/2020	10:30	39.80
CCR-AP-2I	11/2/2020	10:35	26.38
CCR-AP-3R	11/2/2020	10:10	38.20
CCR-AP-3I	11/2/2020	10:15	22.97
CCR-AP-4R	11/2/2020	15:35	33.21
CCR-AP-5	11/2/2020	Destroyed	
CCR-AP-6	11/2/2020	14:40	18.40
CCR-AP-7R	11/2/2020	15:10	35.38
CCR-AP-8	11/2/2020	14:25	4.89
CCR-AP-9	11/2/2020	14:00	7.94
CCR-AP-10	11/2/2020	16:00	35.80
Landfill Wells			
CCR-LF-1	11/2/2020	11:05	8.79
CCR-LF-2	11/2/2020	10:50	27.33
CCR-LF-3	11/2/2020	10:40	29.72
CCR-LF-4	11/2/2020	15:30	47.89
CCR-LF-5	11/2/2020	12:00	21.80
CCR-LF-6	11/2/2020	12:10	8.49
Sedimentation Pond Wells			
CCR-SP-1	11/2/2020	11:30	12.28
CCR-SP-2	11/2/2020	11:33	14.66
CCR-SP-3	11/2/2020	11:35	7.77
Background Wells			
CCR-BK-1R	11/2/2020	12:58	Dry
CCR-BK-2	11/2/2020	12:40	21.88
New Property Line Well			
CCR-AP-11	11/2/2020	14:10	12.07

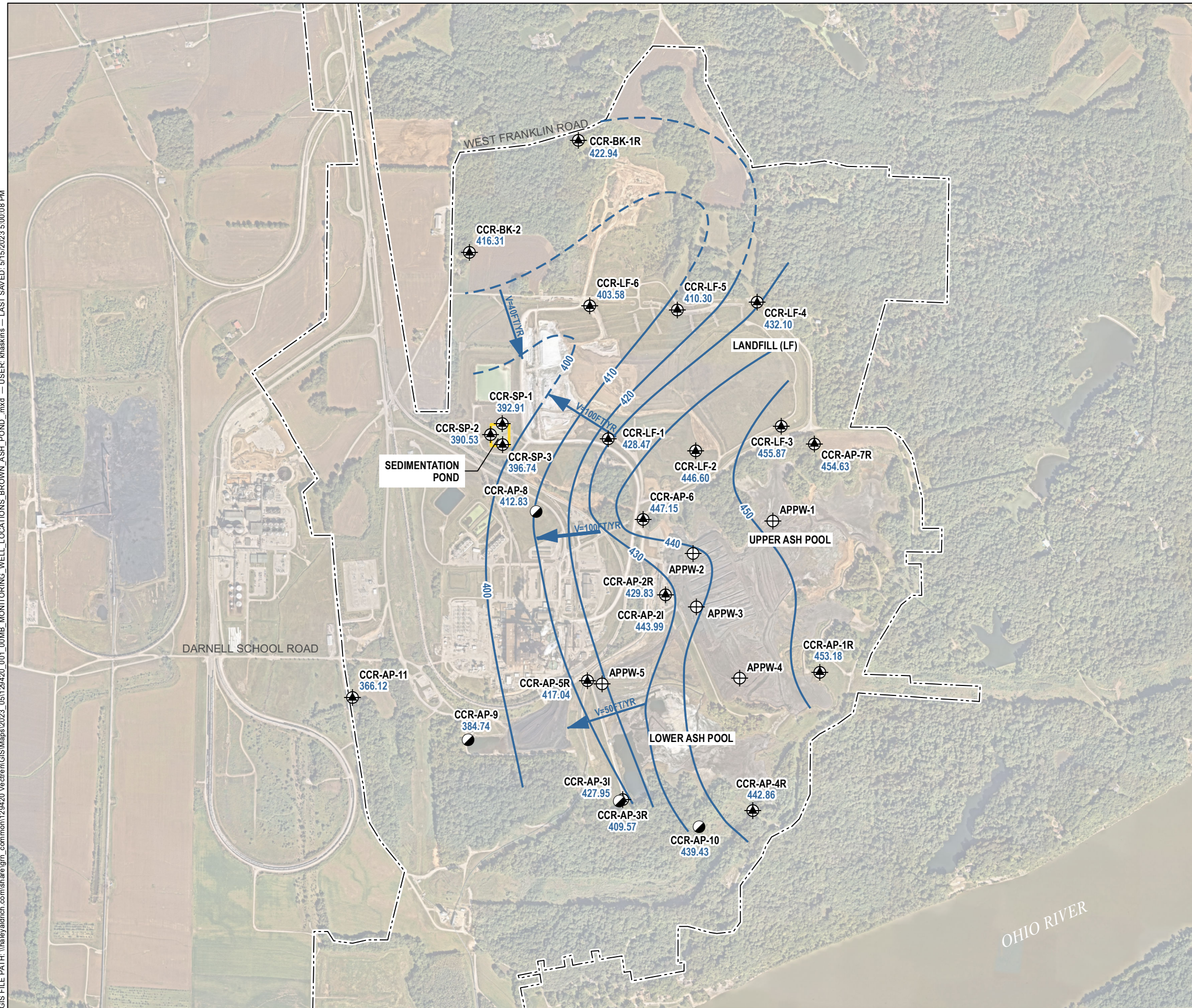
DTW= Depth to Water

TOC= Top of Casing








ATTACHMENT 2

**Updated Potentiometric Surface Map Containing Most
Recent Groundwater Elevation Data**

GIS FILE PATH: \\haleyaldrich.com\share\grn_common\129420_Vectrent\GIS\Maps\2023_05\129420_001_001\ME_MONITORING_WELL_LOCATIONS_BROWN_ASH_POND.mxd — USER: khaskins — LAST SAVED: 5/15/2023 5:00:08 PM

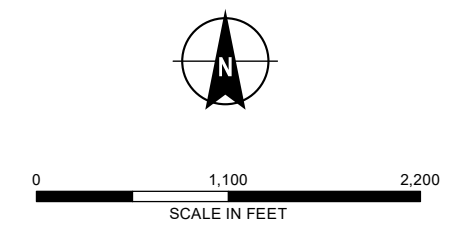


LEGEND

-  CCR MONITORING WELL
-  NATURE AND EXTENT MONITORING WELL
-  CCR PIEZOMETER WELL
-  GROUNDWATER ELEVATION CONTOUR, 10-FT INTERVAL, DASHED WHERE INFERRED
-  GROUNDWATER FLOW DIRECTION
-  APPROXIMATE UNIT BOUNDARY
-  PROPERTY BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. CCR REGULATED UNITS INCLUDE THE ASH POND, LANDFILL, AND SEDIMENTATION POND.
3. GROUNDWATER ELEVATIONS WERE MEASURED 21 MAY 2020.
4. APPROXIMATE GROUNDWATER FLOW RATE CALCULATED USING $V = \frac{k(i)}{n_e}$
WHERE:
V = GROUNDWATER FLOW VELOCITY (FT/YR)
k = HORIZONTAL HYDRAULIC CONDUCTIVITY (FT/DAY)
i = HORIZONTAL GROUNDWATER GRADIENT (FT/FT)
n_e = ASSUMED EFFECTIVE POROSITY
5. AERIAL IMAGERY SOURCE: NEARMAP, 23 SEPTEMBER 2021



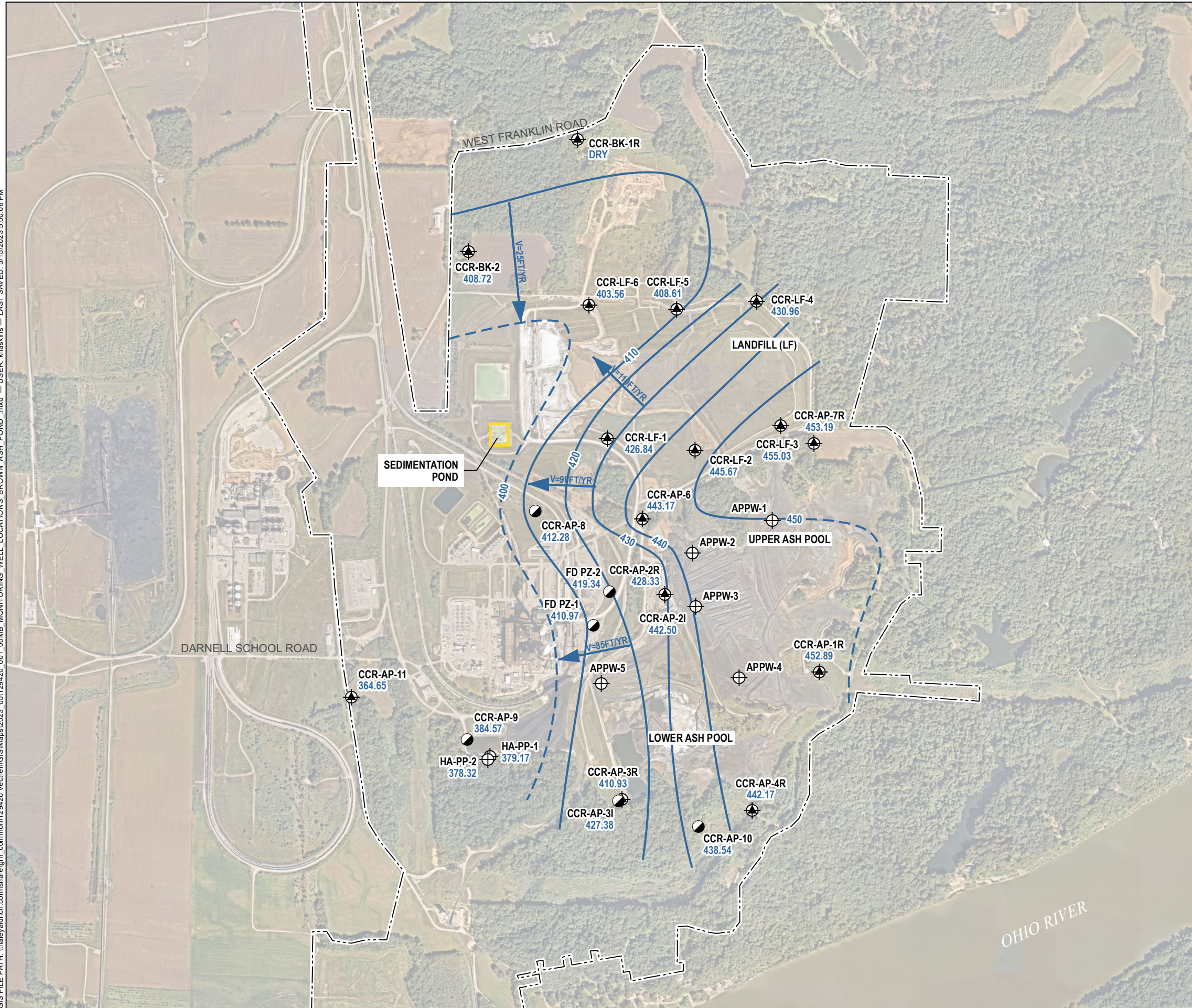
HALEY ALDRICH SOUTHERN INDIANA GAS AND ELECTRIC COMPANY
A.B. BROWN GENERATING STATION
MOUNT VERNON, INDIANA

SHALLOW GROUNDWATER ELEVATION CONTOURS - MAY 2020

JUNE 2020

FIGURE 1

GIS FILE PATH: \\haleyaldrich.com\share\grn_common\129420\Vector\GIS\Maps\2023_05\129420_001_001\ME_MONITORING_WELL_LOCATIONS_BROWN_ASH_POND.mxd — USER: khaskins — LAST SAVED: 5/15/2023 5:00:08 PM



LEGEND

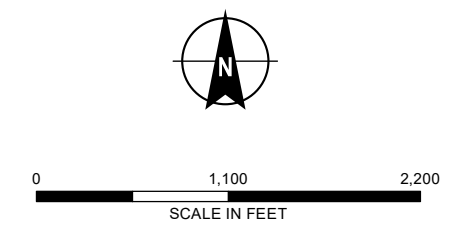
- CCR MONITORING WELL
- NATURE AND EXTENT MONITORING WELL
- CCR PIEZOMETER WELL
- GROUNDWATER ELEVATION CONTOUR, 10-FT INTERVAL, DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION
- APPROXIMATE UNIT BOUNDARY
- PROPERTY BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. CCR REGULATED UNITS INCLUDE THE ASH POND, LANDFILL, AND SEDIMENTATION POND.
3. GROUNDWATER ELEVATIONS WERE MEASURED 2 NOVEMBER 2020.
4. APPROXIMATE GROUNDWATER FLOW RATE CALCULATED USING $V = \frac{k(i)}{n_e}$

WHERE:
V = GROUNDWATER FLOW VELOCITY (FT/YR)
k = HORIZONTAL HYDRAULIC CONDUCTIVITY (FT/DAY)
i = HORIZONTAL GROUNDWATER GRADIENT (FT/FT)
n_e = ASSUMED EFFECTIVE POROSITY

5. AERIAL IMAGERY SOURCE: NEARMAP, 23 SEPTEMBER 2021



HALEY ALDRICH SOUTHERN INDIANA GAS AND ELECTRIC COMPANY
A.B. BROWN GENERATING STATION
MOUNT VERNON, INDIANA

SHALLOW GROUNDWATER ELEVATION CONTOURS - NOVEMBER 2020

ATTACHMENT 3
Laboratory Analytical Reports

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-106384-1

Client Project/Site: CCR Monitoring AB Brown Add't Analytes

For:

Vectren Corporation
PO BOX 209
Evansville, Indiana 47702

Attn: Accounts Payable



Authorized for release by:
6/29/2020 7:22:30 PM

Veronica Bortot, Senior Project Manager
(412)963-2435

veronica.bortot@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	5
Certification Summary	6
Sample Summary	9
Method Summary	10
Lab Chronicle	11
Client Sample Results	16
QC Sample Results	24
QC Association Summary	30
Chain of Custody	34
Receipt Checklists	44

Case Narrative

Client: Vectren Corporation
Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Job ID: 180-106384-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-106384-1

Comments

No additional comments.

Receipt

The samples were received on 5/29/2020 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 1.9° C, 2.4° C, 3.2° C, 4.2° C, 4.4° C and 4.6° C.

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

RAD

Method PrecSep-21: Radium 226 Prep Batch 160-472398:

The following samples were prepared at a reduced aliquot due to yellow discoloration and cloudy appearance: CCR-SP-2 (180-106384-2). Samples 180-106382-7, 180-106383-2 and 180-106383-2 DU all have a yellow discoloration. Samples 180-106382-8 and 180-106384-2 both have a cloudy appearance.

Method PrecSep_0: Radium 228 Prep Batch 160-472402:

The following samples were prepared at a reduced aliquot due to yellow discoloration and cloudy appearance: CCR-SP-2 (180-106384-2). Samples 180-106382-7, 180-106383-2 and 180-106383-2 DU all have a yellow discoloration. Samples 180-106382-8 and 180-106384-2 both have a cloudy appearance.

Methods 904.0, 9320: Radium-228 Prep Batch 160-472402

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

CCR-SP-1 (180-106384-1), CCR-SP-2 (180-106384-2), CCR-SP-3 (180-106384-3), BLIND DUPLICATE 3 (180-106384-4), FIELD BLANK 3 (180-106384-5), (LCS 160-472402/1-A), (MB 160-472402/22-A), (180-106383-A-2-B) and (180-106383-P-2-B DU)

Methods 903.0, 9315: Radium-226Prep Batch 160-472398

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

CCR-SP-1 (180-106384-1), CCR-SP-2 (180-106384-2), CCR-SP-3 (180-106384-3), BLIND DUPLICATE 3 (180-106384-4), FIELD BLANK 3 (180-106384-5), (LCS 160-472398/1-A), (MB 160-472398/22-A), (180-106383-A-2-A) and (180-106383-P-2-A DU)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

Method 9060A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with

Case Narrative

Client: Vectren Corporation
Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Job ID: 180-106384-1 (Continued)

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

analytical batch 180-317811. LCS/LCSD analyzed.

Method 9060A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 180-317968. LCS/LCSD analyzed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Definitions/Glossary

Client: Vectren Corporation
Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-26-20
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	05-23-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20 *
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Accreditation/Certification Summary

Client: Vectren Corporation
Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-20
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-20
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-20
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-20
Texas	NELAP	T104704517-18-10	08-31-20
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-20
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Accreditation/Certification Summary

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Sample Summary

Client: Vectren Corporation
Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-106384-1	CCR-SP-1	Water	05/27/20 12:40	05/29/20 08:45	
180-106384-2	CCR-SP-2	Water	05/27/20 13:50	05/29/20 08:45	
180-106384-3	CCR-SP-3	Water	05/27/20 11:20	05/29/20 08:45	
180-106384-4	BLIND DUPLICATE 3	Water	05/27/20 00:00	05/29/20 08:45	
180-106384-5	FIELD BLANK 3	Water	05/27/20 11:25	05/29/20 08:45	

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Method Summary

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
EPA 9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL PIT
EPA 9040C	pH	SW846	TAL PIT
EPA 9060A	Organic Carbon, Dissolved (DOC)	SW846	TAL PIT
EPA 9060A	Organic Carbon, Total (TOC)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
SM 3500 Fe B	Iron, Ferrous	SM	TAL CAN
SM2320 B	Alkalinity, Total	SM18	TAL PIT
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	TAL PIT
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"
- SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

- TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
- TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058
- TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: CCR-SP-1

Lab Sample ID: 180-106384-1

Date Collected: 05/27/20 12:40

Matrix: Water

Date Received: 05/29/20 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A Instrument ID: CHICS2100B		1			317666	06/06/20 15:44	MJH	TAL PIT
Total/NA	Analysis	EPA 9056A Instrument ID: CHICS2100B		10			317666	06/06/20 16:01	MJH	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Dissolved	Analysis	EPA 6020A Instrument ID: DORY		1			317672	06/05/20 22:25	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: DORY		1			317672	06/05/20 22:22	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: DORY		1			317940	06/06/20 19:34	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	317119	06/01/20 18:50	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A Instrument ID: HGZ		1			317242	06/02/20 19:15	NAM	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	317293	06/03/20 08:30	CMR	TAL PIT
Total/NA	Analysis	EPA 9034 Instrument ID: NOEQUIP		1			317431	06/03/20 13:30	CMR	TAL PIT
Total/NA	Analysis	EPA 9040C Instrument ID: NOEQUIP		1			317510	06/04/20 19:58	PMH	TAL PIT
Dissolved	Analysis	EPA 9060A Instrument ID: TOC1030		1			317968	06/09/20 17:35	TAM	TAL PIT
Total/NA	Analysis	EPA 9060A Instrument ID: TOC1030		1			317811	06/06/20 01:43	TAM	TAL PIT
Total/NA	Analysis	SM 2540C Instrument ID: NOEQUIP		1	100 mL	100 mL	316996	05/30/20 08:41	AVS	TAL PIT
Total/NA	Analysis	SM 3500 Fe B Instrument ID: OSCAR		1	50 mL	50 mL	436560	06/02/20 12:36	JMR	TAL CAN
Total/NA	Analysis	SM2320 B Instrument ID: PCTITRATOR		1			317196	06/02/20 09:40	AVS	TAL PIT
Total/NA	Prep	PrecSep-21			1000.61 mL	1.0 g	472398	06/04/20 07:34	RBR	TAL SL
Total/NA	Analysis	9315 Instrument ID: GFPCRED		1			474575	06/26/20 06:02	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.61 mL	1.0 g	472402	06/04/20 08:27	RBR	TAL SL
Total/NA	Analysis	9320 Instrument ID: GFPCORANGE		1			474544	06/25/20 09:11	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Instrument ID: NOEQUIP		1			474652	06/26/20 10:32	SMP	TAL SL

Lab Chronicle

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: CCR-SP-2

Lab Sample ID: 180-106384-2

Date Collected: 05/27/20 13:50

Matrix: Water

Date Received: 05/29/20 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A Instrument ID: CHICS2100B		1			317666	06/06/20 16:17	MJH	TAL PIT
Total/NA	Analysis	EPA 9056A Instrument ID: CHICS2100B		5			317666	06/06/20 16:33	MJH	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Dissolved	Analysis	EPA 6020A Instrument ID: DORY		1			317672	06/05/20 22:32	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: DORY		1			317672	06/05/20 22:29	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: DORY		1			317940	06/06/20 19:37	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	317119	06/01/20 18:50	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A Instrument ID: HGZ		1			317242	06/02/20 19:16	NAM	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	317293	06/03/20 08:30	CMR	TAL PIT
Total/NA	Analysis	EPA 9034 Instrument ID: NOEQUIP		1			317431	06/03/20 13:32	CMR	TAL PIT
Total/NA	Analysis	EPA 9040C Instrument ID: NOEQUIP		1			317510	06/04/20 19:59	PMH	TAL PIT
Dissolved	Analysis	EPA 9060A Instrument ID: TOC1030		1			317968	06/09/20 18:02	TAM	TAL PIT
Total/NA	Analysis	EPA 9060A Instrument ID: TOC1030		1			317811	06/06/20 02:10	TAM	TAL PIT
Total/NA	Analysis	SM 2540C Instrument ID: NOEQUIP		1	100 mL	100 mL	316996	05/30/20 08:41	AVS	TAL PIT
Total/NA	Analysis	SM 3500 Fe B Instrument ID: OSCAR		1	50 mL	50 mL	436560	06/02/20 12:36	JMR	TAL CAN
Total/NA	Analysis	SM2320 B Instrument ID: PCTITRATOR		1			317196	06/02/20 09:48	AVS	TAL PIT
Total/NA	Prep	PrecSep-21			750.23 mL	1.0 g	472398	06/04/20 07:34	RBR	TAL SL
Total/NA	Analysis	9315 Instrument ID: GFPCRED		1			474575	06/26/20 07:54	AJD	TAL SL
Total/NA	Prep	PrecSep_0			750.23 mL	1.0 g	472402	06/04/20 08:27	RBR	TAL SL
Total/NA	Analysis	9320 Instrument ID: GFPCORANGE		1			474544	06/25/20 09:11	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Instrument ID: NOEQUIP		1			474652	06/26/20 10:32	SMP	TAL SL

Lab Chronicle

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: CCR-SP-3

Lab Sample ID: 180-106384-3

Date Collected: 05/27/20 11:20

Matrix: Water

Date Received: 05/29/20 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A Instrument ID: CHICS2100B		1			317666	06/06/20 16:50	MJH	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Dissolved	Analysis	EPA 6020A Instrument ID: DORY		1			317672	06/05/20 22:39	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: DORY		1			317672	06/05/20 22:35	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: DORY		1			317940	06/06/20 19:41	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	317119	06/01/20 18:50	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A Instrument ID: HGZ		1			317242	06/02/20 19:17	NAM	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	317293	06/03/20 08:30	CMR	TAL PIT
Total/NA	Analysis	EPA 9034 Instrument ID: NOEQUIP		1			317431	06/03/20 13:34	CMR	TAL PIT
Total/NA	Analysis	EPA 9040C Instrument ID: NOEQUIP		1			317510	06/04/20 20:01	PMH	TAL PIT
Dissolved	Analysis	EPA 9060A Instrument ID: TOC1030		1			317968	06/09/20 18:28	TAM	TAL PIT
Total/NA	Analysis	EPA 9060A Instrument ID: TOC1030		1			317811	06/06/20 03:30	TAM	TAL PIT
Total/NA	Analysis	SM 2540C Instrument ID: NOEQUIP		1	100 mL	100 mL	316996	05/30/20 08:41	AVS	TAL PIT
Total/NA	Analysis	SM 3500 Fe B Instrument ID: OSCAR		1	50 mL	50 mL	436560	06/02/20 12:36	JMR	TAL CAN
Total/NA	Analysis	SM2320 B Instrument ID: PCTITRATOR		1			317196	06/02/20 09:56	AVS	TAL PIT
Total/NA	Prep	PrecSep-21			1000.51 mL	1.0 g	472398	06/04/20 07:34	RBR	TAL SL
Total/NA	Analysis	9315 Instrument ID: GFPCRED		1			474575	06/26/20 07:54	AJD	TAL SL
Total/NA	Prep	PrecSep_0			1000.51 mL	1.0 g	472402	06/04/20 08:27	RBR	TAL SL
Total/NA	Analysis	9320 Instrument ID: GFPCORANGE		1			474544	06/25/20 09:11	AJD	TAL SL
Total/NA	Analysis	Ra226_Ra228 Instrument ID: NOEQUIP		1			474652	06/26/20 10:32	SMP	TAL SL

Client Sample ID: BLIND DUPLICATE 3

Lab Sample ID: 180-106384-4

Date Collected: 05/27/20 00:00

Matrix: Water

Date Received: 05/29/20 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A Instrument ID: CHICS2100B		1			317666	06/06/20 17:06	MJH	TAL PIT

Eurofins TestAmerica, Pittsburgh

Lab Chronicle

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: BLIND DUPLICATE 3

Lab Sample ID: 180-106384-4

Date Collected: 05/27/20 00:00

Matrix: Water

Date Received: 05/29/20 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		5			317666	06/06/20 17:22	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			317672	06/05/20 22:49	RSK	TAL PIT
		Instrument ID: DORY								
Total/NA	Prep	7470A			50 mL	50 mL	317119	06/01/20 18:50	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			317242	06/02/20 19:18	NAM	TAL PIT
		Instrument ID: HGZ								
Total/NA	Analysis	EPA 9040C		1			317510	06/04/20 20:04	PMH	TAL PIT
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	316996	05/30/20 08:41	AVS	TAL PIT
		Instrument ID: NOEQUIP								
Total/NA	Prep	PrecSep-21			1000.57 mL	1.0 g	472398	06/04/20 07:34	RBR	TAL SL
Total/NA	Analysis	9315		1			474575	06/26/20 07:54	AJD	TAL SL
		Instrument ID: GFPCRED								
Total/NA	Prep	PrecSep_0			1000.57 mL	1.0 g	472402	06/04/20 08:27	RBR	TAL SL
Total/NA	Analysis	9320		1			474544	06/25/20 09:11	AJD	TAL SL
		Instrument ID: GFPCORANGE								
Total/NA	Analysis	Ra226_Ra228		1			474652	06/26/20 10:32	SMP	TAL SL
		Instrument ID: NOEQUIP								

Client Sample ID: FIELD BLANK 3

Lab Sample ID: 180-106384-5

Date Collected: 05/27/20 11:25

Matrix: Water

Date Received: 05/29/20 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			317666	06/06/20 17:39	MJH	TAL PIT
		Instrument ID: CHICS2100B								
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			317672	06/05/20 22:53	RSK	TAL PIT
		Instrument ID: DORY								
Total/NA	Prep	7470A			50 mL	50 mL	317119	06/01/20 18:50	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			317242	06/02/20 19:22	NAM	TAL PIT
		Instrument ID: HGZ								
Total/NA	Analysis	EPA 9040C		1			317510	06/04/20 20:05	PMH	TAL PIT
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	316996	05/30/20 08:41	AVS	TAL PIT
		Instrument ID: NOEQUIP								
Total/NA	Prep	PrecSep-21			1000.62 mL	1.0 g	472398	06/04/20 07:34	RBR	TAL SL
Total/NA	Analysis	9315		1			474575	06/26/20 07:54	AJD	TAL SL
		Instrument ID: GFPCRED								
Total/NA	Prep	PrecSep_0			1000.62 mL	1.0 g	472402	06/04/20 08:27	RBR	TAL SL
Total/NA	Analysis	9320		1			474544	06/25/20 09:11	AJD	TAL SL
		Instrument ID: GFPCORANGE								
Total/NA	Analysis	Ra226_Ra228		1			474652	06/26/20 10:32	SMP	TAL SL
		Instrument ID: NOEQUIP								

Eurofins TestAmerica, Pittsburgh

Lab Chronicle

Client: Vectren Corporation
Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: TAL CAN

Batch Type: Analysis
JMR = Jacob Rodgers

Lab: TAL PIT

Batch Type: Prep
CMR = Carl Reagle
KEM = Kimberly Mahoney
NAM = Nicole Marfisi

Batch Type: Analysis
AVS = Abbey Smith
CMR = Carl Reagle
MJH = Matthew Hartman
NAM = Nicole Marfisi
PMH = Paloma Hoelzle
RSK = Robert Kurtz
TAM = Tessa Mastalski

Lab: TAL SL

Batch Type: Prep
RBR = Rachael Ratcliff
Batch Type: Analysis
AJD = Audra DeMariano
SMP = Siobhan Perry



Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: CCR-SP-1

Lab Sample ID: 180-106384-1

Date Collected: 05/27/20 12:40

Matrix: Water

Date Received: 05/29/20 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	87		1.0	0.32	mg/L			06/06/20 15:44	1
Fluoride	0.15		0.10	0.026	mg/L			06/06/20 15:44	1
Sulfate	770		10	3.8	mg/L			06/06/20 16:01	10

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0030		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 22:22	1
Boron	0.38	B	0.080	0.039	mg/L		06/01/20 08:43	06/06/20 19:34	1
Barium	0.063	B	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 22:22	1
Beryllium	ND		0.0010	0.00018	mg/L		06/01/20 08:43	06/05/20 22:22	1
Calcium	210		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 22:22	1
Cadmium	ND		0.0010	0.00022	mg/L		06/01/20 08:43	06/05/20 22:22	1
Cobalt	0.0064		0.00050	0.00013	mg/L		06/01/20 08:43	06/05/20 22:22	1
Chromium	ND		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 22:22	1
Molybdenum	0.0011	J	0.0050	0.00061	mg/L		06/01/20 08:43	06/05/20 22:22	1
Lead	ND		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 22:22	1
Antimony	ND		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 22:22	1
Selenium	ND		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 22:22	1
Thallium	ND		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 22:22	1
Lithium	6.6		5.0	3.4	ug/L		06/01/20 08:43	06/05/20 22:22	1
Iron	2.4		0.050	0.020	mg/L		06/01/20 08:43	06/05/20 22:22	1
Manganese	15		0.0050	0.00087	mg/L		06/01/20 08:43	06/05/20 22:22	1
Sodium	160		0.50	0.35	mg/L		06/01/20 08:43	06/06/20 19:34	1
Potassium	0.85		0.50	0.16	mg/L		06/01/20 08:43	06/05/20 22:22	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.0060		0.00050	0.00013	mg/L		06/01/20 08:43	06/05/20 22:25	1
Iron	2100		50	20	ug/L		06/01/20 08:43	06/05/20 22:25	1
Magnesium	88000		500	83	ug/L		06/01/20 08:43	06/05/20 22:25	1
Manganese	14000		5.0	0.87	ug/L		06/01/20 08:43	06/05/20 22:25	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		06/01/20 18:50	06/02/20 19:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		3.0	2.1	mg/L		06/03/20 08:30	06/03/20 13:30	1
Total Organic Carbon - Quad	4.4		1.0	0.51	mg/L			06/06/20 01:43	1
Total Dissolved Solids	1500		10	10	mg/L			05/30/20 08:41	1
Ferrous Iron	ND	HF	0.050	0.023	mg/L			06/02/20 12:36	1
Total Alkalinity as CaCO3 to pH 4.!	360		5.0	5.0	mg/L			06/02/20 09:40	1
Bicarbonate Alkalinity as CaCO3	360		5.0	5.0	mg/L			06/02/20 09:40	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1	0.1	SU			06/04/20 19:58	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	4.6		1.0	0.51	mg/L			06/09/20 17:35	1

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: CCR-SP-1

Lab Sample ID: 180-106384-1

Date Collected: 05/27/20 12:40

Matrix: Water

Date Received: 05/29/20 08:45

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.163	U	0.140	0.141	1.00	0.202	pCi/L	06/04/20 07:34	06/26/20 06:02	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.3		40 - 110					06/04/20 07:34	06/26/20 06:02	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.364		0.237	0.240	1.00	0.362	pCi/L	06/04/20 08:27	06/25/20 09:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.3		40 - 110					06/04/20 08:27	06/25/20 09:11	1
Y Carrier	84.5		40 - 110					06/04/20 08:27	06/25/20 09:11	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.527		0.275	0.278	5.00	0.362	pCi/L		06/26/20 10:32	1

Client Sample ID: CCR-SP-2

Lab Sample ID: 180-106384-2

Date Collected: 05/27/20 13:50

Matrix: Water

Date Received: 05/29/20 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	61		1.0	0.32	mg/L			06/06/20 16:17	1
Fluoride	0.23		0.10	0.026	mg/L			06/06/20 16:17	1
Sulfate	300		5.0	1.9	mg/L			06/06/20 16:33	5

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0028		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 22:29	1
Boron	0.14	B	0.080	0.039	mg/L		06/01/20 08:43	06/06/20 19:37	1
Barium	0.10	B	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 22:29	1
Beryllium	ND		0.0010	0.00018	mg/L		06/01/20 08:43	06/05/20 22:29	1
Calcium	160		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 22:29	1
Cadmium	ND		0.0010	0.00022	mg/L		06/01/20 08:43	06/05/20 22:29	1
Cobalt	0.0019		0.00050	0.00013	mg/L		06/01/20 08:43	06/05/20 22:29	1
Chromium	ND		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 22:29	1
Molybdenum	0.0014	J	0.0050	0.00061	mg/L		06/01/20 08:43	06/05/20 22:29	1
Lead	0.00088	J	0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 22:29	1
Antimony	ND		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 22:29	1
Selenium	ND		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 22:29	1
Thallium	ND		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 22:29	1
Lithium	7.3		5.0	3.4	ug/L		06/01/20 08:43	06/05/20 22:29	1
Iron	2.6		0.050	0.020	mg/L		06/01/20 08:43	06/05/20 22:29	1

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: CCR-SP-2

Lab Sample ID: 180-106384-2

Date Collected: 05/27/20 13:50

Matrix: Water

Date Received: 05/29/20 08:45

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	1.2		0.0050	0.00087	mg/L		06/01/20 08:43	06/05/20 22:29	1
Sodium	47		0.50	0.35	mg/L		06/01/20 08:43	06/06/20 19:37	1
Potassium	0.66		0.50	0.16	mg/L		06/01/20 08:43	06/05/20 22:29	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00089		0.00050	0.00013	mg/L		06/01/20 08:43	06/05/20 22:32	1
Iron	660		50	20	ug/L		06/01/20 08:43	06/05/20 22:32	1
Magnesium	74000		500	83	ug/L		06/01/20 08:43	06/05/20 22:32	1
Manganese	810		5.0	0.87	ug/L		06/01/20 08:43	06/05/20 22:32	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		06/01/20 18:50	06/02/20 19:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		3.0	2.1	mg/L		06/03/20 08:30	06/03/20 13:32	1
Total Organic Carbon - Quad	1.7		1.0	0.51	mg/L			06/06/20 02:10	1
Total Dissolved Solids	910		10	10	mg/L			05/30/20 08:41	1
Ferrous Iron	ND	HF	0.050	0.023	mg/L			06/02/20 12:36	1
Total Alkalinity as CaCO3 to pH 4.!	400		5.0	5.0	mg/L			06/02/20 09:48	1
Bicarbonate Alkalinity as CaCO3	400		5.0	5.0	mg/L			06/02/20 09:48	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1	0.1	SU			06/04/20 19:59	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	3.3		1.0	0.51	mg/L			06/09/20 18:02	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.114	U	0.142	0.142	1.00	0.231	pCi/L	06/04/20 07:34	06/26/20 07:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		40 - 110					06/04/20 07:34	06/26/20 07:54	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.408	U	0.322	0.324	1.00	0.508	pCi/L	06/04/20 08:27	06/25/20 09:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		40 - 110					06/04/20 08:27	06/25/20 09:11	1
Y Carrier	87.5		40 - 110					06/04/20 08:27	06/25/20 09:11	1

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: CCR-SP-2

Lab Sample ID: 180-106384-2

Date Collected: 05/27/20 13:50

Matrix: Water

Date Received: 05/29/20 08:45

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Combined Radium 226 + 228	0.522		0.352	0.354	5.00	0.508	pCi/L		06/26/20 10:32	1

Client Sample ID: CCR-SP-3

Lab Sample ID: 180-106384-3

Date Collected: 05/27/20 11:20

Matrix: Water

Date Received: 05/29/20 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.6		1.0	0.32	mg/L			06/06/20 16:50	1
Fluoride	0.27		0.10	0.026	mg/L			06/06/20 16:50	1
Sulfate	3.2		1.0	0.38	mg/L			06/06/20 16:50	1

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0069		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 22:35	1
Boron	ND		0.080	0.039	mg/L		06/01/20 08:43	06/06/20 19:41	1
Barium	0.079	B	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 22:35	1
Beryllium	ND		0.0010	0.00018	mg/L		06/01/20 08:43	06/05/20 22:35	1
Calcium	87		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 22:35	1
Cadmium	ND		0.0010	0.00022	mg/L		06/01/20 08:43	06/05/20 22:35	1
Cobalt	0.00075		0.00050	0.00013	mg/L		06/01/20 08:43	06/05/20 22:35	1
Chromium	ND		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 22:35	1
Molybdenum	0.0041	J	0.0050	0.00061	mg/L		06/01/20 08:43	06/05/20 22:35	1
Lead	0.00021	J	0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 22:35	1
Antimony	ND		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 22:35	1
Selenium	ND		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 22:35	1
Thallium	ND		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 22:35	1
Lithium	ND		5.0	3.4	ug/L		06/01/20 08:43	06/05/20 22:35	1
Iron	2.4		0.050	0.020	mg/L		06/01/20 08:43	06/05/20 22:35	1
Manganese	0.55		0.0050	0.00087	mg/L		06/01/20 08:43	06/05/20 22:35	1
Sodium	15		0.50	0.35	mg/L		06/01/20 08:43	06/06/20 19:41	1
Potassium	0.39	J	0.50	0.16	mg/L		06/01/20 08:43	06/05/20 22:35	1

Method: EPA 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00074		0.00050	0.00013	mg/L		06/01/20 08:43	06/05/20 22:39	1
Iron	1900		50	20	ug/L		06/01/20 08:43	06/05/20 22:39	1
Magnesium	40000		500	83	ug/L		06/01/20 08:43	06/05/20 22:39	1
Manganese	590		5.0	0.87	ug/L		06/01/20 08:43	06/05/20 22:39	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		06/01/20 18:50	06/02/20 19:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		3.0	2.1	mg/L		06/03/20 08:30	06/03/20 13:34	1
Total Organic Carbon - Quad	1.6		1.0	0.51	mg/L			06/06/20 03:30	1

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: CCR-SP-3

Lab Sample ID: 180-106384-3

Date Collected: 05/27/20 11:20

Matrix: Water

Date Received: 05/29/20 08:45

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	500		10	10	mg/L			05/30/20 08:41	1
Ferrous Iron	ND	HF	0.050	0.023	mg/L			06/02/20 12:36	1
Total Alkalinity as CaCO3 to pH 4.!	350		5.0	5.0	mg/L			06/02/20 09:56	1
Bicarbonate Alkalinity as CaCO3	350		5.0	5.0	mg/L			06/02/20 09:56	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1	0.1	SU			06/04/20 20:01	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	2.5		1.0	0.51	mg/L			06/09/20 18:28	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.229		0.145	0.146	1.00	0.181	pCi/L	06/04/20 07:34	06/26/20 07:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110					06/04/20 07:34	06/26/20 07:54	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.316	U	0.227	0.229	1.00	0.353	pCi/L	06/04/20 08:27	06/25/20 09:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110					06/04/20 08:27	06/25/20 09:11	1
Y Carrier	83.0		40 - 110					06/04/20 08:27	06/25/20 09:11	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.545		0.269	0.272	5.00	0.353	pCi/L		06/26/20 10:32	1

Client Sample ID: BLIND DUPLICATE 3

Lab Sample ID: 180-106384-4

Date Collected: 05/27/20 00:00

Matrix: Water

Date Received: 05/29/20 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	62		1.0	0.32	mg/L			06/06/20 17:06	1
Fluoride	0.22		0.10	0.026	mg/L			06/06/20 17:06	1
Sulfate	300		5.0	1.9	mg/L			06/06/20 17:22	5

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0019		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 22:49	1
Boron	0.17	B	0.080	0.039	mg/L		06/01/20 08:43	06/05/20 22:49	1
Barium	0.10	B	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 22:49	1

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: BLIND DUPLICATE 3

Lab Sample ID: 180-106384-4

Date Collected: 05/27/20 00:00

Matrix: Water

Date Received: 05/29/20 08:45

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Beryllium	ND		0.0010	0.00018	mg/L		06/01/20 08:43	06/05/20 22:49	1
Calcium	160		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 22:49	1
Cadmium	ND		0.0010	0.00022	mg/L		06/01/20 08:43	06/05/20 22:49	1
Cobalt	0.0012		0.00050	0.00013	mg/L		06/01/20 08:43	06/05/20 22:49	1
Chromium	ND		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 22:49	1
Molybdenum	0.0013	J	0.0050	0.00061	mg/L		06/01/20 08:43	06/05/20 22:49	1
Lead	0.00038	J	0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 22:49	1
Antimony	ND		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 22:49	1
Selenium	ND		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 22:49	1
Thallium	ND		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 22:49	1
Lithium	6.2		5.0	3.4	ug/L		06/01/20 08:43	06/05/20 22:49	1
Iron	1.4		0.050	0.020	mg/L		06/01/20 08:43	06/05/20 22:49	1
Manganese	0.87		0.0050	0.00087	mg/L		06/01/20 08:43	06/05/20 22:49	1
Sodium	45		0.50	0.35	mg/L		06/01/20 08:43	06/05/20 22:49	1
Potassium	0.51		0.50	0.16	mg/L		06/01/20 08:43	06/05/20 22:49	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		06/01/20 18:50	06/02/20 19:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	900		10	10	mg/L			05/30/20 08:41	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1	0.1	SU			06/04/20 20:04	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.132	U	0.186	0.187	1.00	0.316	pCi/L	06/04/20 07:34	06/26/20 07:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.5		40 - 110					06/04/20 07:34	06/26/20 07:54	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.135	U	0.253	0.253	1.00	0.431	pCi/L	06/04/20 08:27	06/25/20 09:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.5		40 - 110					06/04/20 08:27	06/25/20 09:11	1
Y Carrier	83.4		40 - 110					06/04/20 08:27	06/25/20 09:11	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.267	U	0.314	0.315	5.00	0.431	pCi/L		06/26/20 10:32	1

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: FIELD BLANK 3

Lab Sample ID: 180-106384-5

Date Collected: 05/27/20 11:25

Matrix: Water

Date Received: 05/29/20 08:45

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.32	mg/L			06/06/20 17:39	1
Fluoride	0.054	J	0.10	0.026	mg/L			06/06/20 17:39	1
Sulfate	0.96	J	1.0	0.38	mg/L			06/06/20 17:39	1

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 22:53	1
Boron	0.056	J B	0.080	0.039	mg/L		06/01/20 08:43	06/05/20 22:53	1
Barium	0.0085	J B	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 22:53	1
Beryllium	ND		0.0010	0.00018	mg/L		06/01/20 08:43	06/05/20 22:53	1
Calcium	ND		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 22:53	1
Cadmium	ND		0.0010	0.00022	mg/L		06/01/20 08:43	06/05/20 22:53	1
Cobalt	ND		0.00050	0.00013	mg/L		06/01/20 08:43	06/05/20 22:53	1
Chromium	ND		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 22:53	1
Molybdenum	ND		0.0050	0.00061	mg/L		06/01/20 08:43	06/05/20 22:53	1
Lead	ND		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 22:53	1
Antimony	ND		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 22:53	1
Selenium	ND		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 22:53	1
Thallium	ND		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 22:53	1
Lithium	ND		5.0	3.4	ug/L		06/01/20 08:43	06/05/20 22:53	1
Iron	ND		0.050	0.020	mg/L		06/01/20 08:43	06/05/20 22:53	1
Manganese	ND		0.0050	0.00087	mg/L		06/01/20 08:43	06/05/20 22:53	1
Sodium	0.42	J	0.50	0.35	mg/L		06/01/20 08:43	06/05/20 22:53	1
Potassium	ND		0.50	0.16	mg/L		06/01/20 08:43	06/05/20 22:53	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		06/01/20 18:50	06/02/20 19:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	10	mg/L			05/30/20 08:41	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.8	HF	0.1	0.1	SU			06/04/20 20:05	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0560	U	0.0774	0.0775	1.00	0.209	pCi/L	06/04/20 07:34	06/26/20 07:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110					06/04/20 07:34	06/26/20 07:54	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0907	U	0.209	0.209	1.00	0.361	pCi/L	06/04/20 08:27	06/25/20 09:11	1

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Client Sample ID: FIELD BLANK 3

Lab Sample ID: 180-106384-5

Date Collected: 05/27/20 11:25

Matrix: Water

Date Received: 05/29/20 08:45

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110	06/04/20 08:27	06/25/20 09:11	1
Y Carrier	85.2		40 - 110	06/04/20 08:27	06/25/20 09:11	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Combined Radium 226 + 228	0.0347	U	0.223	0.223	5.00	0.361	pCi/L		06/26/20 10:32	1



QC Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-317666/6
Matrix: Water
Analysis Batch: 317666

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.32	mg/L			06/06/20 08:55	1
Fluoride	ND		0.10	0.026	mg/L			06/06/20 08:55	1
Sulfate	ND		1.0	0.38	mg/L			06/06/20 08:55	1

Lab Sample ID: LCS 180-317666/5
Matrix: Water
Analysis Batch: 317666

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.4		mg/L		101	80 - 120
Fluoride	2.50	2.46		mg/L		98	80 - 120
Sulfate	50.0	51.2		mg/L		102	80 - 120

Method: EPA 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-317054/1-A
Matrix: Water
Analysis Batch: 317672

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 317054

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 20:44	1
Boron	0.0647	J	0.080	0.039	mg/L		06/01/20 08:43	06/05/20 20:44	1
Barium	0.00761	J	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 20:44	1
Magnesium	ND		500	83	ug/L		06/01/20 08:43	06/05/20 20:44	1
Beryllium	ND		0.0010	0.00018	mg/L		06/01/20 08:43	06/05/20 20:44	1
Calcium	ND		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 20:44	1
Cadmium	ND		0.0010	0.00022	mg/L		06/01/20 08:43	06/05/20 20:44	1
Cobalt	ND		0.00050	0.00013	mg/L		06/01/20 08:43	06/05/20 20:44	1
Chromium	ND		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 20:44	1
Molybdenum	ND		0.0050	0.00061	mg/L		06/01/20 08:43	06/05/20 20:44	1
Lead	ND		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 20:44	1
Antimony	ND		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 20:44	1
Selenium	ND		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 20:44	1
Thallium	ND		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 20:44	1
Lithium	ND		5.0	3.4	ug/L		06/01/20 08:43	06/05/20 20:44	1
Iron	ND		0.050	0.020	mg/L		06/01/20 08:43	06/05/20 20:44	1
Manganese	ND		0.0050	0.00087	mg/L		06/01/20 08:43	06/05/20 20:44	1
Sodium	ND		0.50	0.35	mg/L		06/01/20 08:43	06/05/20 20:44	1
Potassium	ND		0.50	0.16	mg/L		06/01/20 08:43	06/05/20 20:44	1

Lab Sample ID: LCS 180-317054/2-A
Matrix: Water
Analysis Batch: 317672

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 317054

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.967		mg/L		97	80 - 120
Barium	1.00	0.956		mg/L		96	80 - 120
Magnesium	25000	24000		ug/L		96	80 - 120
Beryllium	0.500	0.475		mg/L		95	80 - 120

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QC Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-317054/2-A
 Matrix: Water
 Analysis Batch: 317672

Client Sample ID: Lab Control Sample
 Prep Type: Total Recoverable
 Prep Batch: 317054

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Calcium	25.0	26.3		mg/L		105	80 - 120
Cadmium	0.500	0.475		mg/L		95	80 - 120
Cobalt	0.500	0.466		mg/L		93	80 - 120
Chromium	0.500	0.486		mg/L		97	80 - 120
Molybdenum	0.500	0.491		mg/L		98	80 - 120
Lead	0.500	0.496		mg/L		99	80 - 120
Antimony	0.250	0.242		mg/L		97	80 - 120
Selenium	1.00	0.961		mg/L		96	80 - 120
Thallium	1.00	1.06		mg/L		106	80 - 120
Lithium	500	473		ug/L		95	80 - 120
Iron	5.00	4.89		mg/L		98	80 - 120
Manganese	0.500	0.465		mg/L		93	80 - 120
Potassium	25.0	22.5		mg/L		90	80 - 120

Lab Sample ID: LCS 180-317054/2-A
 Matrix: Water
 Analysis Batch: 317940

Client Sample ID: Lab Control Sample
 Prep Type: Total Recoverable
 Prep Batch: 317054

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Boron	1.25	1.10		mg/L		88	80 - 120
Sodium	25.0	25.0		mg/L		100	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-317119/1-A
 Matrix: Water
 Analysis Batch: 317242

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 317119

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		06/01/20 18:50	06/02/20 19:02	1

Lab Sample ID: LCS 180-317119/2-A
 Matrix: Water
 Analysis Batch: 317242

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 317119

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00250	0.00248		mg/L		99	80 - 120

Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 180-317293/1-A
 Matrix: Water
 Analysis Batch: 317431

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 317293

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		3.0	2.1	mg/L		06/03/20 08:30	06/03/20 13:18	1

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QC Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric) (Continued)

Lab Sample ID: LCS 180-317293/2-A
 Matrix: Water
 Analysis Batch: 317431

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 317293
 %Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	16.4	15.5		mg/L		94	85 - 115

Method: EPA 9040C - pH

Lab Sample ID: LCS 180-317510/1
 Matrix: Water
 Analysis Batch: 317510

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Method: EPA 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 180-317811/6
 Matrix: Water
 Analysis Batch: 317811

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Quad	ND		1.0	0.51	mg/L			06/05/20 23:02	1

Lab Sample ID: LCS 180-317811/4
 Matrix: Water
 Analysis Batch: 317811

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Quad	20.0	20.1		mg/L		101	85 - 115

Lab Sample ID: LCSD 180-317811/5
 Matrix: Water
 Analysis Batch: 317811

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Total Organic Carbon - Quad	20.0	19.0		mg/L		95	85 - 115	6	20

Method: EPA 9060A - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 180-317968/6
 Matrix: Water
 Analysis Batch: 317968

Client Sample ID: Method Blank
 Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	ND		1.0	0.51	mg/L			06/09/20 16:14	1

Lab Sample ID: LCS 180-317968/4
 Matrix: Water
 Analysis Batch: 317968

Client Sample ID: Lab Control Sample
 Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon - Quad	20.0	19.7		mg/L		99	85 - 115

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QC Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Method: EPA 9060A - Organic Carbon, Dissolved (DOC) (Continued)

Lab Sample ID: LCSD 180-317968/5
 Matrix: Water
 Analysis Batch: 317968

Client Sample ID: Lab Control Sample Dup
 Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon - Quad	20.0	18.9		mg/L		95	85 - 115	4	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-316996/2
 Matrix: Water
 Analysis Batch: 316996

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	10	mg/L			05/30/20 08:41	1

Lab Sample ID: LCS 180-316996/1
 Matrix: Water
 Analysis Batch: 316996

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	192	188		mg/L		98	80 - 120

Method: SM 3500 Fe B - Iron, Ferrous

Lab Sample ID: MB 240-436560/3
 Matrix: Water
 Analysis Batch: 436560

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ferrous Iron	ND		0.050	0.023	mg/L			06/02/20 12:36	1

Lab Sample ID: LCS 240-436560/4
 Matrix: Water
 Analysis Batch: 436560

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	1.00	1.00		mg/L		100	80 - 124

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-317196/5
 Matrix: Water
 Analysis Batch: 317196

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	ND		5.0	5.0	mg/L			06/02/20 09:08	1
Bicarbonate Alkalinity as CaCO3	ND		5.0	5.0	mg/L			06/02/20 09:08	1

QC Sample Results

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Method: SM2320 B - Alkalinity, Total (Continued)

Lab Sample ID: LCS 180-317196/4
 Matrix: Water
 Analysis Batch: 317196

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity as CaCO3 to pH 4.5	250	240		mg/L		96	90 - 110

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-472398/22-A
 Matrix: Water
 Analysis Batch: 474575

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 472398

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02403	U	0.0937	0.0938	1.00	0.186	pCi/L	06/04/20 07:34	06/26/20 07:54	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/04/20 07:34	06/26/20 07:54	1

Lab Sample ID: LCS 160-472398/1-A
 Matrix: Water
 Analysis Batch: 474575

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 472398

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.3	9.927		1.19	1.00	0.163	pCi/L	87	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	102		40 - 110						

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-472402/22-A
 Matrix: Water
 Analysis Batch: 474544

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 472402

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3500		0.214	0.217	1.00	0.323	pCi/L	06/04/20 08:27	06/25/20 09:11	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/04/20 08:27	06/25/20 09:11	1
Y Carrier	84.9		40 - 110					06/04/20 08:27	06/25/20 09:11	1

Lab Sample ID: LCS 160-472402/1-A
 Matrix: Water
 Analysis Batch: 474544

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 472402

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.72	7.257		0.879	1.00	0.374	pCi/L	83	75 - 125

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QC Sample Results

Client: Vectren Corporation
Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-472402/1-A
Matrix: Water
Analysis Batch: 474544

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 472402

Carrier	LCS		Limits
	%Yield	Qualifier	
Ba Carrier	102		40 - 110
Y Carrier	87.5		40 - 110

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QC Association Summary

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

HPLC/IC

Analysis Batch: 317666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	EPA 9056A	
180-106384-1	CCR-SP-1	Total/NA	Water	EPA 9056A	
180-106384-2	CCR-SP-2	Total/NA	Water	EPA 9056A	
180-106384-2	CCR-SP-2	Total/NA	Water	EPA 9056A	
180-106384-3	CCR-SP-3	Total/NA	Water	EPA 9056A	
180-106384-4	BLIND DUPLICATE 3	Total/NA	Water	EPA 9056A	
180-106384-4	BLIND DUPLICATE 3	Total/NA	Water	EPA 9056A	
180-106384-5	FIELD BLANK 3	Total/NA	Water	EPA 9056A	
MB 180-317666/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-317666/5	Lab Control Sample	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 317054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Dissolved	Water	3005A	
180-106384-1	CCR-SP-1	Total Recoverable	Water	3005A	
180-106384-2	CCR-SP-2	Dissolved	Water	3005A	
180-106384-2	CCR-SP-2	Total Recoverable	Water	3005A	
180-106384-3	CCR-SP-3	Dissolved	Water	3005A	
180-106384-3	CCR-SP-3	Total Recoverable	Water	3005A	
180-106384-4	BLIND DUPLICATE 3	Total Recoverable	Water	3005A	
180-106384-5	FIELD BLANK 3	Total Recoverable	Water	3005A	
MB 180-317054/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-317054/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 317119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	7470A	
180-106384-2	CCR-SP-2	Total/NA	Water	7470A	
180-106384-3	CCR-SP-3	Total/NA	Water	7470A	
180-106384-4	BLIND DUPLICATE 3	Total/NA	Water	7470A	
180-106384-5	FIELD BLANK 3	Total/NA	Water	7470A	
MB 180-317119/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-317119/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 317242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	EPA 7470A	317119
180-106384-2	CCR-SP-2	Total/NA	Water	EPA 7470A	317119
180-106384-3	CCR-SP-3	Total/NA	Water	EPA 7470A	317119
180-106384-4	BLIND DUPLICATE 3	Total/NA	Water	EPA 7470A	317119
180-106384-5	FIELD BLANK 3	Total/NA	Water	EPA 7470A	317119
MB 180-317119/1-A	Method Blank	Total/NA	Water	EPA 7470A	317119
LCS 180-317119/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	317119

Analysis Batch: 317672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Dissolved	Water	EPA 6020A	317054
180-106384-1	CCR-SP-1	Total Recoverable	Water	EPA 6020A	317054
180-106384-2	CCR-SP-2	Dissolved	Water	EPA 6020A	317054

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QC Association Summary

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Metals (Continued)

Analysis Batch: 317672 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-2	CCR-SP-2	Total Recoverable	Water	EPA 6020A	317054
180-106384-3	CCR-SP-3	Dissolved	Water	EPA 6020A	317054
180-106384-3	CCR-SP-3	Total Recoverable	Water	EPA 6020A	317054
180-106384-4	BLIND DUPLICATE 3	Total Recoverable	Water	EPA 6020A	317054
180-106384-5	FIELD BLANK 3	Total Recoverable	Water	EPA 6020A	317054
MB 180-317054/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	317054
LCS 180-317054/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	317054

Analysis Batch: 317940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total Recoverable	Water	EPA 6020A	317054
180-106384-2	CCR-SP-2	Total Recoverable	Water	EPA 6020A	317054
180-106384-3	CCR-SP-3	Total Recoverable	Water	EPA 6020A	317054
LCS 180-317054/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	317054

General Chemistry

Analysis Batch: 316996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	SM 2540C	
180-106384-2	CCR-SP-2	Total/NA	Water	SM 2540C	
180-106384-3	CCR-SP-3	Total/NA	Water	SM 2540C	
180-106384-4	BLIND DUPLICATE 3	Total/NA	Water	SM 2540C	
180-106384-5	FIELD BLANK 3	Total/NA	Water	SM 2540C	
MB 180-316996/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-316996/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 317196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	SM2320 B	
180-106384-2	CCR-SP-2	Total/NA	Water	SM2320 B	
180-106384-3	CCR-SP-3	Total/NA	Water	SM2320 B	
MB 180-317196/5	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-317196/4	Lab Control Sample	Total/NA	Water	SM2320 B	

Prep Batch: 317293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	9030B	
180-106384-2	CCR-SP-2	Total/NA	Water	9030B	
180-106384-3	CCR-SP-3	Total/NA	Water	9030B	
MB 180-317293/1-A	Method Blank	Total/NA	Water	9030B	
LCS 180-317293/2-A	Lab Control Sample	Total/NA	Water	9030B	

Analysis Batch: 317431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	EPA 9034	317293
180-106384-2	CCR-SP-2	Total/NA	Water	EPA 9034	317293
180-106384-3	CCR-SP-3	Total/NA	Water	EPA 9034	317293
MB 180-317293/1-A	Method Blank	Total/NA	Water	EPA 9034	317293
LCS 180-317293/2-A	Lab Control Sample	Total/NA	Water	EPA 9034	317293

Eurofins TestAmerica, Pittsburgh

QC Association Summary

Client: Vectren Corporation
 Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

General Chemistry

Analysis Batch: 317510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	EPA 9040C	
180-106384-2	CCR-SP-2	Total/NA	Water	EPA 9040C	
180-106384-3	CCR-SP-3	Total/NA	Water	EPA 9040C	
180-106384-4	BLIND DUPLICATE 3	Total/NA	Water	EPA 9040C	
180-106384-5	FIELD BLANK 3	Total/NA	Water	EPA 9040C	
LCS 180-317510/1	Lab Control Sample	Total/NA	Water	EPA 9040C	

Analysis Batch: 317811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	EPA 9060A	
180-106384-2	CCR-SP-2	Total/NA	Water	EPA 9060A	
180-106384-3	CCR-SP-3	Total/NA	Water	EPA 9060A	
MB 180-317811/6	Method Blank	Total/NA	Water	EPA 9060A	
LCS 180-317811/4	Lab Control Sample	Total/NA	Water	EPA 9060A	
LCSD 180-317811/5	Lab Control Sample Dup	Total/NA	Water	EPA 9060A	

Analysis Batch: 317968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Dissolved	Water	EPA 9060A	
180-106384-2	CCR-SP-2	Dissolved	Water	EPA 9060A	
180-106384-3	CCR-SP-3	Dissolved	Water	EPA 9060A	
MB 180-317968/6	Method Blank	Dissolved	Water	EPA 9060A	
LCS 180-317968/4	Lab Control Sample	Dissolved	Water	EPA 9060A	
LCSD 180-317968/5	Lab Control Sample Dup	Dissolved	Water	EPA 9060A	

Analysis Batch: 436560

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	SM 3500 Fe B	
180-106384-2	CCR-SP-2	Total/NA	Water	SM 3500 Fe B	
180-106384-3	CCR-SP-3	Total/NA	Water	SM 3500 Fe B	
MB 240-436560/3	Method Blank	Total/NA	Water	SM 3500 Fe B	
LCS 240-436560/4	Lab Control Sample	Total/NA	Water	SM 3500 Fe B	

Rad

Prep Batch: 472398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	PrecSep-21	
180-106384-2	CCR-SP-2	Total/NA	Water	PrecSep-21	
180-106384-3	CCR-SP-3	Total/NA	Water	PrecSep-21	
180-106384-4	BLIND DUPLICATE 3	Total/NA	Water	PrecSep-21	
180-106384-5	FIELD BLANK 3	Total/NA	Water	PrecSep-21	
MB 160-472398/22-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-472398/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 472402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-1	CCR-SP-1	Total/NA	Water	PrecSep_0	
180-106384-2	CCR-SP-2	Total/NA	Water	PrecSep_0	
180-106384-3	CCR-SP-3	Total/NA	Water	PrecSep_0	
180-106384-4	BLIND DUPLICATE 3	Total/NA	Water	PrecSep_0	

Eurofins TestAmerica, Pittsburgh

QC Association Summary

Client: Vectren Corporation
Project/Site: CCR Monitoring AB Brown Add't Analytes

Job ID: 180-106384-1

Rad (Continued)

Prep Batch: 472402 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106384-5	FIELD BLANK 3	Total/NA	Water	PrecSep_0	
MB 160-472402/22-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-472402/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

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Chain of Custody Record

Client Information Client Contact: Angela Casbon Scheller Company: Vectren Corporation Address: PO BOX 209 City: Evansville State, Zip: IN, 47702 Phone: 864-214-8750(Tel) Email: acscheller@vectren.com Project Name: CCR Groundwater Monitoring - AB Brown Site: AB Brown		Lab PM: Borlot, Veronica E-Mail: veronica.borlot@testamericainc.com Due Date Requested: TAT Requested (days): PO #: Purchase Order Requested WO #: Project #: 18016014 SSOW#:		Sampler: Jacob Winsett Phone: (317) 671-3730		Carrier Tracking No(s): COC No: 180-49738-8017.1 Page: Page 1 of 1 Job #: 17060900																																																																																																																																																					
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input checked="" type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Identification <table border="1"> <thead> <tr> <th>Sample ID</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=comp, G=grab)</th> <th>Preservation Code</th> <th>Matrix (Water, Solid, On-waste/soil, BT=Tissue, A=Air)</th> </tr> </thead> <tbody> <tr> <td>CCR-SP-1</td> <td>5-27-20</td> <td>1140</td> <td>G</td> <td></td> <td>Water</td> </tr> <tr> <td>CCR-SP-2</td> <td></td> <td>1350</td> <td></td> <td></td> <td>Water</td> </tr> <tr> <td>CCR-SP-3</td> <td></td> <td>1120</td> <td></td> <td></td> <td>Water</td> </tr> <tr> <td>Blind Duplicate 3</td> <td></td> <td></td> <td></td> <td></td> <td>Water</td> </tr> <tr> <td>Field Blank 3</td> <td></td> <td>1125</td> <td></td> <td></td> <td>Water</td> </tr> </tbody> </table>		Sample ID	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Preservation Code	Matrix (Water, Solid, On-waste/soil, BT=Tissue, A=Air)	CCR-SP-1	5-27-20	1140	G		Water	CCR-SP-2		1350			Water	CCR-SP-3		1120			Water	Blind Duplicate 3					Water	Field Blank 3		1125			Water	Analysis Requested <table border="1"> <thead> <tr> <th>Analysis</th> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>D</th> <th>N</th> <th>D</th> <th>N</th> <th>D</th> <th>N</th> <th>2540C_Calcd - TDS</th> <th>Total Metals</th> <th>Dissolved Metals</th> <th>Ferrous Iron Sulfide</th> <th>Dissolved Organic Carbonate</th> <th>Total Organic Carbonate</th> <th>Total Number of Containers</th> </tr> </thead> <tbody> <tr> <td>Alkaline Bicarbonate</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Total Metals</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Dissolved Metals</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Ferrous Iron Sulfide</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Dissolved Organic Carbonate</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>Total Organic Carbonate</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> </tbody> </table>		Analysis	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	D	N	D	N	D	N	2540C_Calcd - TDS	Total Metals	Dissolved Metals	Ferrous Iron Sulfide	Dissolved Organic Carbonate	Total Organic Carbonate	Total Number of Containers	Alkaline Bicarbonate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Metals	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Dissolved Metals	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Ferrous Iron Sulfide	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Dissolved Organic Carbonate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Organic Carbonate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Special Instructions/Note: Appendix B & Appendix IV Analytes needed: NO 56, V6, P	
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Empty Kit Relinquished by: Jacob Winsett Relinquished by: Jacob Winsett Relinquished by:		Date: 5-28-20 0900 Date/Time:		Date: 5-29-20 Date/Time:		Date: 8/5 Date/Time:		Date:		Date/Time:		Date/Time:		Date/Time:																																																																																																																																													
Custody Seal No.: Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Relinquished by: Jacob Winsett Company: Vectren Corporation		Relinquished by: Jacob Winsett Company: Vectren Corporation		Relinquished by: Jacob Winsett Company: Vectren Corporation		Relinquished by: Jacob Winsett Company: Vectren Corporation		Relinquished by: Jacob Winsett Company: Vectren Corporation		Relinquished by: Jacob Winsett Company: Vectren Corporation		Relinquished by: Jacob Winsett Company: Vectren Corporation																																																																																																																																													



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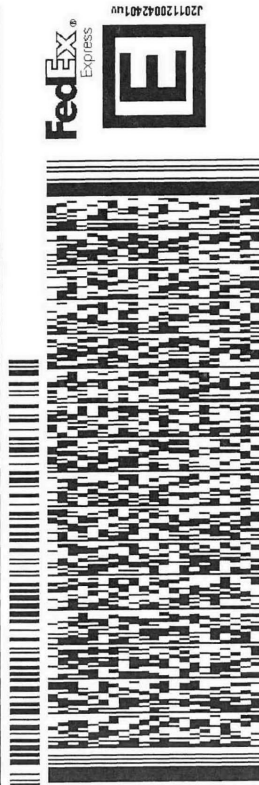
ORIGIN ID:EVVA (812) 477-1176 SHIP DATE: 28MAY20
 BRIAN KLEEMAN ACTWGT: 50.00 LB
 CAD: 106997842/INET4220
 DIMS: 24x16x15 IN
 BILL SENDER

TO VERONICA BORTOT
 TESTAMERICA
 301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF: 170LFC0900
 INV: 170LFC0900 DEPT:
 PO: 170LFC0900

56BJ3/2925FE4A



FRI - 29 MAY 3:00P
 STANDARD OVERNIGHT

3 of 6
 MPS# 7705 6608 2632
 Mstr# 7705 6608 2210

0201

15238
 PIT

PA-US



Uncorrected temp 4.4 °C
 Thermometer ID 17
 CF 0 Initials JS
 PT-WI-SR-001 effective 7/26/13

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 be responsible for any claim in excess of \$100 per package, whether it
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 authorized declared value. Recovery cannot exceed actual documented
 precious metals, negotiable instruments and other items listed in our Se
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ORIGIN ID:EVVA (812) 477-1176
BRIAN KLEEMAN

1149 WEDEKING AVENUE
BUILDING D, SUITE 2
EVANSVILLE, IN 47715
UNITED STATES US

SHIP DATE: 28MAY20
ACTWGT: 50.00 LB
CAD: 106997842/INET4220
DIMS: 24x16x15 IN

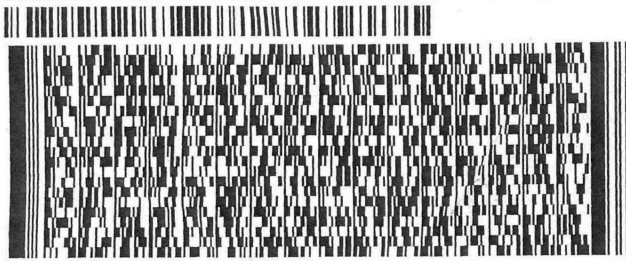
BILL SENDER

TO VERONICA BORTOT
TESTAMERICA
301 ALPHA DRIVE

PITTSBURGH PA 15238

(412) 963-7058 REF: 170LF00900
INV: 170LF00900
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FedEx Express



4 of 6

FRI - 29 MAY 3:00P
STANDARD OVERNIGHT

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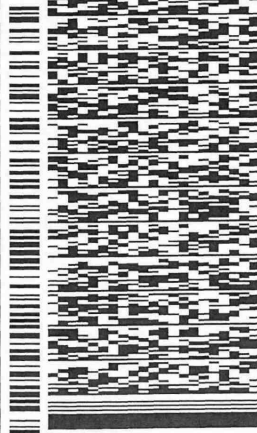
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ORIGIN ID:EVVA (812) 477-1176
 BRIAN KLEEMAN
 1149 WEDEKING AVENUE
 BUILDING D, SUITE 2
 EVANSVILLE, IN 47715
 UNITED STATES US

TO **VERONICA BORTOT**
TESTAMERICA
301 ALPHA DRIVE

PITTSBURGH PA 15238

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 INV: 170LF00900 DEPT:
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6 of 6

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0263

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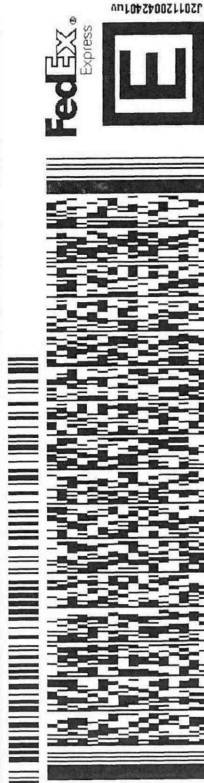
ORIGIN ID:EVVA (812) 477-1176
 BRIAN KLEEMAN
 1149 WEDEKING AVENUE
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 EVANSVILLE, IN 47715
 UNITED STATES US

SHIP DATE: 28MAY20
 ACTWGT: 50.00 LB
 CAD: 106997842/IN/ET4220
 DIMS: 24x16x15 IN
 BILL SENDER

56BJ3J2925/FE4A

TO **VERONICA BORTOT**
TESTAMERICA
301 ALPHA DRIVE

PITTSBURGH PA 15238
 (412) 963-7058 REF: 170LF00900
 INV: 170LF00900
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2 of 6
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 0263
Mstr# 7705 6608 2210
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BRIAN KLEEMAN
1149 WEDEKING AVENUE
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EVANSVILLE, IN 47715
UNITED STATES US

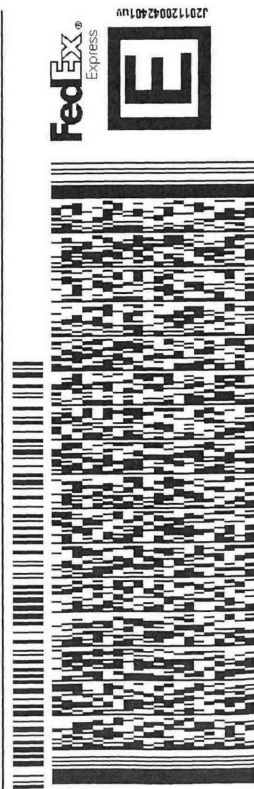
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TO VERONICA BORTOT
TESTAMERICA
301 ALPHA DRIVE

56B J3/2925/FE4A

PITTSBURGH PA 15238

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PO: 170LF00900



1 of 6
FRI - 29 MAY 3:00P
STANDARD OVERNIGHT

TRK# 7705 6608 2210
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MASTER

NA AGCA PA-US 15238 PIT



Uncorrected temp 24 °C
Thermometer ID 17

CF O Initials B

PT-WI-SR-001 effective 7/26/13

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Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record



Environment Testing
America

Client Information (Sub Contract Lab)
 Client Contact: **Bortol, Veronica**
 Shipping/Receiving: **veronica.bortol@testamericainc.com**
 Company: **TestAmerica Laboratories, Inc.**
 Address: **4101 Shuffel Street NW**
 City: **North Canton**
 State, Zip: **OH, 44720**
 Phone: **330-497-9396(Tel) 330-497-0772(Fax)**
 Email:
 Project Name: **CCR Monitoring AB Brown Add'l Analytes**
 Site:
 Due Date Requested: **6/11/2020**
 TAT Requested (days):
 PO #:
 WO #:
 Project #: **18016014**
 SSO/HR:

Lab PM: **Bortol, Veronica**
 E-Mail: **veronica.bortol@testamericainc.com**
 State of Origin: **Indiana**
 Carrier Tracking Note:
 Accreditations Required (See note):
 COC No: **180-396062.1**
 Page: **Page 1 of 1**
 Job #: **180-106384-1**
 Preservation Codes:
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - NiOH
 G - Amchlor
 H - Ascorbic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDA
 Other:
 M - Hexane
 N - None
 O - AsNaO2
 P - Na2OAS
 Q - Na2SO3
 R - Na2S2O3
 S - H2SO4
 T - TSP Dodecalhydrate
 U - Acetone
 V - MCAA
 W - pH 4-5
 Z - other (specify)

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Oil, etc.)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	3500_F+2_B_Calc	Total Number of Containers	Special Instructions/Note:
CCR-SP-1 (180-106384-1)	5/27/20	12:40 Eastern	Water	Water	X	X		1	107
CCR-SP-2 (180-106384-2)	5/27/20	13:50 Eastern	Water	Water	X	X		1	
CCR-SP-3 (180-106384-3)	5/27/20	11:20 Eastern	Water	Water	X	X		1	

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____
 Primary Deliverable Rank: 2
 Date: **6/17/20** Time: **12:00 PM**
 Relinquished by: *[Signature]* Company: **Company**
 Relinquished by: *[Signature]* Company: **Company**
 Relinquished by: _____ Company: _____
 Custody Seals Intact: Yes No
 Custody Seal No.: _____
 Cooler Temperature(s) °C and Other Remarks:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client
 Disposal By Lab
 Special Instructions/IOC Requirements:
 Method of Shipment: _____
 Date/Time: **6-28-20** **1000**
 Date/Time: _____
 Date/Time: _____
 Company: **Company**
 Company: **Company**
 Company: **Company**



Eurofins TestAmerica Canton Sample Receipt Form/Narrative Login # : _____

Canton Facility

Client ETA Pittsburgh Site Name _____ Cooler unpacked by: _____

Cooler Received on 6-2-20 Opened on 6-2-20

FedEx: 1st Grd UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time _____ **Storage Location** _____

TestAmerica Cooler # 712 Foam Box Client Cooler Box Other


Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #IR-11 (CF +0.9 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No
 4. Did custody papers accompany the sample(s)? Yes No
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Could all bottle labels be reconciled with the COC? Yes No
 9. Were correct bottle(s) used for the test(s) indicated? Yes No
 10. Sufficient quantity received to perform indicated analyses? Yes No
 11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.

12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC902937
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials? Yes No NA  Larger than this.
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
 16. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: _____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login Sample Receipt Checklist

Client: Vectren Corporation

Job Number: 180-106384-1

Login Number: 106384

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Vectren Corporation

Job Number: 180-106384-1

Login Number: 106384

List Number: 3

Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis

List Creation: 06/03/20 01:52 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-113377-1

Client Project/Site: CCR Groundwater Monitoring AB Brown

For:

Vectren Corporation
PO BOX 209
Evansville, Indiana 47702

Attn: Accounts Payable



Authorized for release by:
1/12/2021 10:46:15 PM

Veronica Bortot, Senior Project Manager
(412)963-2435

Veronica.Bortot@Eurofinset.com

LINKS

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results through
TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416



Table of Contents

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	4
Certification Summary	5
Sample Summary	7
Method Summary	8
Lab Chronicle	9
Client Sample Results	13
QC Sample Results	19
QC Association Summary	23
Chain of Custody	26
Receipt Checklists	28

Case Narrative

Client: Vectren Corporation
Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Job ID: 180-113377-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-113377-1

Comments

No additional comments.

Receipt

The samples were received on 11/7/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.6° C.

Receipt Exceptions

The containers received for each of the following samples did not match the information listed on the Chain-of-Custody (COC): CCR-SP-1 (180-113377-1), CCR-SP-2 (180-113377-2), CCR-SP-3 (180-113377-3), BLIND DUPLICATE 3 (180-113377-4) and FIELD BLANK 3 (180-113377-5). The COC does not list the TDS or PH analysis; however a 500 ml and 250 ml container was received with the tests written on the labels. The tests were added and the PM did confirm with the client .

GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

RAD

Methods 903.0, 9315: 903/9315 prep batch 160-490023

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

CCR-SP-1 (180-113377-1), CCR-SP-2 (180-113377-2), CCR-SP-3 (180-113377-3), BLIND DUPLICATE 3 (180-113377-4), FIELD BLANK 3 (180-113377-5), (180-113376-B-4-A) and (180-113376-I-4-A DU)

Methods 904.0, 9320: Radium-228 prep batch 160-493728:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. CCR-SP-1 (180-113377-1), CCR-SP-2 (180-113377-2), CCR-SP-3 (180-113377-3), BLIND DUPLICATE 3 (180-113377-4), FIELD BLANK 3 (180-113377-5), (LCS 160-493728/1-A), (MB 160-493728/19-A), (180-113376-B-4-C) and (180-113376-I-4-C DU)

Method PrecSep_0: Radium 228 Prep Batch 1600-493728:

The following samples were prepared at a reduced aliquot due to re extract of the samples: CCR-SP-1 (180-113377-1), CCR-SP-2 (180-113377-2), CCR-SP-3 (180-113377-3), BLIND DUPLICATE 3 (180-113377-4) and FIELD BLANK 3 (180-113377-5).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Vectren Corporation
Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	12-21-20
Illinois	NELAP	004375	12-21-20
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	12-21-20
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	12-21-20
New Jersey	NELAP	PA005	12-21-20
New York	NELAP	11182	12-21-20
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	12-21-20
Pennsylvania	NELAP	02-00416	12-21-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	11-23-20
Texas	NELAP	T104704528	12-21-20
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	12-21-20
Virginia	NELAP	10043	12-21-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-21
California	Los Angeles County Sanitation Districts	10259	06-30-21
California	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-21
HI - RadChem Recognition	State	n/a	06-30-21
Illinois	NELAP	004553	11-30-21
Iowa	State	373	12-01-22
Kansas	NELAP	E-10236	10-31-21
Kentucky (DW)	State	KY90125	12-31-20 *
Louisiana	NELAP	04080	06-30-21
Louisiana (DW)	State	LA011	12-31-21
Maryland	State	310	09-30-21
MI - RadChem Recognition	State	9005	06-30-21
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-21
Texas	NELAP	T104704193-19-13	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Vectren Corporation
Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-113377-1	CCR-SP-1	Water	11/05/20 11:20	11/07/20 10:00	
180-113377-2	CCR-SP-2	Water	11/05/20 09:55	11/07/20 10:00	
180-113377-3	CCR-SP-3	Water	11/05/20 08:50	11/07/20 10:00	
180-113377-4	BLIND DUPLICATE 3	Water	11/05/20 00:00	11/07/20 10:00	
180-113377-5	FIELD BLANK 3	Water	11/05/20 08:30	11/07/20 10:00	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Method Summary

Client: Vectren Corporation
Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Method	Method Description	Protocol	Laboratory
EPA 9056A	Anions, Ion Chromatography	SW846	TAL PIT
EPA 6020A	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
EPA 9040C	pH	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Client Sample ID: CCR-SP-1

Lab Sample ID: 180-113377-1

Date Collected: 11/05/20 11:20

Matrix: Water

Date Received: 11/07/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A Instrument ID: CHIC2100A		1			337754	11/19/20 17:38	SAT	TAL PIT
Total/NA	Analysis	EPA 9056A Instrument ID: INTEGRION		1	1 mL	1.0 mL	337505	11/18/20 13:45	EPS	TAL PIT
Total/NA	Analysis	EPA 9056A Instrument ID: INTEGRION		10			337505	11/18/20 14:05	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	337076	11/13/20 14:59	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: A		1			337943	11/19/20 19:21	TAM	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	337076	11/13/20 14:59	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: A		1			338070	11/20/20 17:16	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	336708	11/11/20 09:42	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A Instrument ID: HGY		1			336987	11/12/20 16:12	KEM	TAL PIT
Total/NA	Analysis	EPA 9040C Instrument ID: NOEQUIP		1			337983	11/20/20 09:50	AVS	TAL PIT
Total/NA	Analysis	SM 2540C Instrument ID: NOEQUIP		1	100 mL	100 mL	336974	11/12/20 18:22	GRB	TAL PIT
Total/NA	Prep	PrecSep-21			999.68 mL	1.0 g	490023	11/24/20 09:30	KMP	TAL SL
Total/NA	Analysis	9315 Instrument ID: GFPCBLUE		1			493325	12/29/20 17:28	FLC	TAL SL
Total/NA	Prep	PrecSep_0			749.31 mL	1.0 g	493728	01/04/21 09:54	AVB	TAL SL
Total/NA	Analysis	9320 Instrument ID: GFPCORANGE		1			494240	01/07/21 13:12	GRW	TAL SL
Total/NA	Analysis	Ra226_Ra228 Instrument ID: NOEQUIP		1			494577	01/11/21 13:59	GRW	TAL SL

Client Sample ID: CCR-SP-2

Lab Sample ID: 180-113377-2

Date Collected: 11/05/20 09:55

Matrix: Water

Date Received: 11/07/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A Instrument ID: CHIC2100A		1			337754	11/19/20 17:54	SAT	TAL PIT
Total/NA	Analysis	EPA 9056A Instrument ID: INTEGRION		1			337505	11/18/20 13:03	EPS	TAL PIT
Total/NA	Analysis	EPA 9056A Instrument ID: INTEGRION		5			337505	11/18/20 13:24	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	337076	11/13/20 14:59	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: A		1			337943	11/19/20 19:24	TAM	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	337076	11/13/20 14:59	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: A		1			338070	11/20/20 17:20	RSK	TAL PIT

Eurofins TestAmerica, Pittsburgh

Lab Chronicle

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Client Sample ID: CCR-SP-2

Lab Sample ID: 180-113377-2

Date Collected: 11/05/20 09:55

Matrix: Water

Date Received: 11/07/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			50 mL	50 mL	336708	11/11/20 09:42	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A		1			336987	11/12/20 16:13	KEM	TAL PIT
		Instrument ID: HGY								
Total/NA	Analysis	EPA 9040C		1			337983	11/20/20 09:50	AVS	TAL PIT
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	336974	11/12/20 18:22	GRB	TAL PIT
		Instrument ID: NOEQUIP								
Total/NA	Prep	PrecSep-21			999.92 mL	1.0 g	490023	11/24/20 09:30	KMP	TAL SL
Total/NA	Analysis	9315		1			493325	12/29/20 17:28	FLC	TAL SL
		Instrument ID: GFPCBLUE								
Total/NA	Prep	PrecSep_0			750.26 mL	1.0 g	493728	01/04/21 09:54	AVB	TAL SL
Total/NA	Analysis	9320		1			494240	01/07/21 13:12	GRW	TAL SL
		Instrument ID: GFPCORANGE								
Total/NA	Analysis	Ra226_Ra228		1			494577	01/11/21 13:59	GRW	TAL SL
		Instrument ID: NOEQUIP								

Client Sample ID: CCR-SP-3

Lab Sample ID: 180-113377-3

Date Collected: 11/05/20 08:50

Matrix: Water

Date Received: 11/07/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A		1			337754	11/19/20 18:11	SAT	TAL PIT
		Instrument ID: CHIC2100A								
Total/NA	Analysis	EPA 9056A		1			337505	11/18/20 20:42	EPS	TAL PIT
		Instrument ID: INTEGRION								
Total Recoverable	Prep	3005A			50 mL	50 mL	337076	11/13/20 14:59	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			337943	11/19/20 19:27	TAM	TAL PIT
		Instrument ID: A								
Total Recoverable	Prep	3005A			50 mL	50 mL	337076	11/13/20 14:59	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			338070	11/20/20 17:23	RSK	TAL PIT
		Instrument ID: A								
Total/NA	Prep	7470A			50 mL	50 mL	336708	11/11/20 09:42	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A		1			336987	11/12/20 16:14	KEM	TAL PIT
		Instrument ID: HGY								
Total/NA	Analysis	EPA 9040C		1			337983	11/20/20 09:50	AVS	TAL PIT
		Instrument ID: NOEQUIP								
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	336974	11/12/20 18:22	GRB	TAL PIT
		Instrument ID: NOEQUIP								
Total/NA	Prep	PrecSep-21			1000.37 mL	1.0 g	490023	11/24/20 09:30	KMP	TAL SL
Total/NA	Analysis	9315		1			493325	12/29/20 19:47	FLC	TAL SL
		Instrument ID: GFPCBLUE								
Total/NA	Prep	PrecSep_0			750.20 mL	1.0 g	493728	01/04/21 09:54	AVB	TAL SL
Total/NA	Analysis	9320		1			494240	01/07/21 13:12	GRW	TAL SL
		Instrument ID: GFPCORANGE								

Eurofins TestAmerica, Pittsburgh

Lab Chronicle

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Client Sample ID: CCR-SP-3

Lab Sample ID: 180-113377-3

Date Collected: 11/05/20 08:50

Matrix: Water

Date Received: 11/07/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1			494577	01/11/21 13:59	GRW	TAL SL

Client Sample ID: BLIND DUPLICATE 3

Lab Sample ID: 180-113377-4

Date Collected: 11/05/20 00:00

Matrix: Water

Date Received: 11/07/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A Instrument ID: CHIC2100A		1			337754	11/19/20 18:27	SAT	TAL PIT
Total/NA	Analysis	EPA 9056A Instrument ID: INTEGRION		1	1 mL	1.0 mL	337505	11/18/20 14:26	EPS	TAL PIT
Total/NA	Analysis	EPA 9056A Instrument ID: INTEGRION		10	1 mL	1.0 mL	337505	11/18/20 14:47	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	337076	11/13/20 14:59	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: A		1			337943	11/19/20 19:31	TAM	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	337076	11/13/20 14:59	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A Instrument ID: A		1			338070	11/20/20 17:26	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	336708	11/11/20 09:42	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A Instrument ID: HGY		1			336987	11/12/20 16:15	KEM	TAL PIT
Total/NA	Analysis	EPA 9040C Instrument ID: NOEQUIP		1			337983	11/20/20 09:50	AVS	TAL PIT
Total/NA	Analysis	SM 2540C Instrument ID: NOEQUIP		1	100 mL	100 mL	336974	11/12/20 18:22	GRB	TAL PIT
Total/NA	Prep	PrecSep-21			999.96 mL	1.0 g	490023	11/24/20 09:30	KMP	TAL SL
Total/NA	Analysis	9315 Instrument ID: GFPCBLUE		1			493325	12/29/20 19:48	FLC	TAL SL
Total/NA	Prep	PrecSep_0			749.77 mL	1.0 g	493728	01/04/21 09:54	AVB	TAL SL
Total/NA	Analysis	9320 Instrument ID: GFPCORANGE		1			494240	01/07/21 13:13	GRW	TAL SL
Total/NA	Analysis	Ra226_Ra228 Instrument ID: NOEQUIP		1			494577	01/11/21 13:59	GRW	TAL SL

Client Sample ID: FIELD BLANK 3

Lab Sample ID: 180-113377-5

Date Collected: 11/05/20 08:30

Matrix: Water

Date Received: 11/07/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 9056A Instrument ID: CHIC2100A		1			337754	11/19/20 18:44	SAT	TAL PIT
Total/NA	Analysis	EPA 9056A Instrument ID: INTEGRION		1			337505	11/18/20 11:39	EPS	TAL PIT

Eurofins TestAmerica, Pittsburgh

Lab Chronicle

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Client Sample ID: FIELD BLANK 3

Lab Sample ID: 180-113377-5

Date Collected: 11/05/20 08:30

Matrix: Water

Date Received: 11/07/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	337076	11/13/20 14:59	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			337943	11/19/20 19:34	TAM	TAL PIT
Instrument ID: A										
Total Recoverable	Prep	3005A			50 mL	50 mL	337076	11/13/20 14:59	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020A		1			338070	11/20/20 17:30	RSK	TAL PIT
Instrument ID: A										
Total/NA	Prep	7470A			50 mL	50 mL	336708	11/11/20 09:42	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A		1			336987	11/12/20 16:16	KEM	TAL PIT
Instrument ID: HGY										
Total/NA	Analysis	EPA 9040C		1			337983	11/20/20 09:50	AVS	TAL PIT
Instrument ID: NOEQUIP										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	336974	11/12/20 18:22	GRB	TAL PIT
Instrument ID: NOEQUIP										
Total/NA	Prep	PrecSep-21			999.12 mL	1.0 g	490023	11/24/20 09:30	KMP	TAL SL
Total/NA	Analysis	9315		1			493325	12/29/20 19:48	FLC	TAL SL
Instrument ID: GFPCBLUE										
Total/NA	Prep	PrecSep_0			749.71 mL	1.0 g	493728	01/04/21 09:54	AVB	TAL SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	494240	01/07/21 13:13	GRW	TAL SL
Instrument ID: GFPCORANGE										
Total/NA	Analysis	Ra226_Ra228		1			494577	01/11/21 13:59	GRW	TAL SL
Instrument ID: NOEQUIP										

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: TAL PIT

Batch Type: Prep

MM1 = Mary Beth Miller

TJO = Tyler Oliver

Batch Type: Analysis

AVS = Abbey Smith

EPS = Evan Scheuer

GRB = Gabriel Berghe

KEM = Kimberly Mahoney

RSK = Robert Kurtz

SAT = Stephen Tallam

TAM = Tessa Mastalski

Lab: TAL SL

Batch Type: Prep

AVB = Amber Bleem

KMP = Karen Phillips

Batch Type: Analysis

FLC = Fernando Cruz

GRW = George Witt

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Client Sample ID: CCR-SP-1

Lab Sample ID: 180-113377-1

Date Collected: 11/05/20 11:20

Matrix: Water

Date Received: 11/07/20 10:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	92		1.0	0.32	mg/L			11/18/20 13:45	1
Fluoride	0.25		0.10	0.044	mg/L			11/19/20 17:38	1
Sulfate	860		10	3.8	mg/L			11/18/20 14:05	10

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0039		0.0010	0.00031	mg/L		11/13/20 14:59	11/19/20 19:21	1
Boron	0.48		0.080	0.039	mg/L		11/13/20 14:59	11/20/20 17:16	1
Barium	0.075	B	0.010	0.0016	mg/L		11/13/20 14:59	11/19/20 19:21	1
Beryllium	ND		0.0010	0.00018	mg/L		11/13/20 14:59	11/19/20 19:21	1
Calcium	210		0.50	0.13	mg/L		11/13/20 14:59	11/19/20 19:21	1
Cadmium	ND		0.0010	0.00022	mg/L		11/13/20 14:59	11/19/20 19:21	1
Cobalt	0.0065		0.00050	0.00013	mg/L		11/13/20 14:59	11/19/20 19:21	1
Chromium	ND		0.0020	0.0015	mg/L		11/13/20 14:59	11/19/20 19:21	1
Molybdenum	0.0011	J	0.0050	0.00061	mg/L		11/13/20 14:59	11/19/20 19:21	1
Lead	ND		0.0010	0.00013	mg/L		11/13/20 14:59	11/19/20 19:21	1
Antimony	ND		0.0020	0.00038	mg/L		11/13/20 14:59	11/19/20 19:21	1
Selenium	ND		0.0050	0.0015	mg/L		11/13/20 14:59	11/19/20 19:21	1
Thallium	ND		0.0010	0.00015	mg/L		11/13/20 14:59	11/19/20 19:21	1
Lithium	0.0053		0.0050	0.0034	mg/L		11/13/20 14:59	11/19/20 19:21	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/11/20 09:42	11/12/20 16:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1600		10	10	mg/L			11/12/20 18:22	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1	0.1	SU			11/20/20 09:50	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.310	U	0.301	0.302	1.00	0.476	pCi/L	11/24/20 09:30	12/29/20 17:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					11/24/20 09:30	12/29/20 17:28	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.164	U	0.426	0.426	1.00	0.730	pCi/L	01/04/21 09:54	01/07/21 13:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.1		40 - 110					01/04/21 09:54	01/07/21 13:12	1
Y Carrier	80.4		40 - 110					01/04/21 09:54	01/07/21 13:12	1

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Client Sample ID: CCR-SP-1

Lab Sample ID: 180-113377-1

Date Collected: 11/05/20 11:20

Matrix: Water

Date Received: 11/07/20 10:00

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Combined Radium 226 + 228	0.474	U	0.522	0.522	5.00	0.730	pCi/L		01/11/21 13:59	1

Client Sample ID: CCR-SP-2

Lab Sample ID: 180-113377-2

Date Collected: 11/05/20 09:55

Matrix: Water

Date Received: 11/07/20 10:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	70		1.0	0.32	mg/L			11/18/20 13:03	1
Fluoride	0.33		0.10	0.044	mg/L			11/19/20 17:54	1
Sulfate	310		5.0	1.9	mg/L			11/18/20 13:24	5

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0034		0.0010	0.00031	mg/L		11/13/20 14:59	11/19/20 19:24	1
Boron	0.15		0.080	0.039	mg/L		11/13/20 14:59	11/20/20 17:20	1
Barium	0.10	B	0.010	0.0016	mg/L		11/13/20 14:59	11/19/20 19:24	1
Beryllium	ND		0.0010	0.00018	mg/L		11/13/20 14:59	11/19/20 19:24	1
Calcium	170		0.50	0.13	mg/L		11/13/20 14:59	11/19/20 19:24	1
Cadmium	ND		0.0010	0.00022	mg/L		11/13/20 14:59	11/19/20 19:24	1
Cobalt	0.0015		0.00050	0.00013	mg/L		11/13/20 14:59	11/19/20 19:24	1
Chromium	ND		0.0020	0.0015	mg/L		11/13/20 14:59	11/19/20 19:24	1
Molybdenum	0.0013	J	0.0050	0.00061	mg/L		11/13/20 14:59	11/19/20 19:24	1
Lead	0.00043	J	0.0010	0.00013	mg/L		11/13/20 14:59	11/19/20 19:24	1
Antimony	ND		0.0020	0.00038	mg/L		11/13/20 14:59	11/19/20 19:24	1
Selenium	ND		0.0050	0.0015	mg/L		11/13/20 14:59	11/19/20 19:24	1
Thallium	ND		0.0010	0.00015	mg/L		11/13/20 14:59	11/19/20 19:24	1
Lithium	0.0063		0.0050	0.0034	mg/L		11/13/20 14:59	11/19/20 19:24	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/11/20 09:42	11/12/20 16:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1000		10	10	mg/L			11/12/20 18:22	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1	0.1	SU			11/20/20 09:50	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
			Uncert.	Uncert.						
			(2σ+/-)	(2σ+/-)						
Radium-226	0.118	U	0.271	0.272	1.00	0.484	pCi/L	11/24/20 09:30	12/29/20 17:28	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.5		40 - 110	11/24/20 09:30	12/29/20 17:28	1

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Client Sample ID: CCR-SP-2

Lab Sample ID: 180-113377-2

Date Collected: 11/05/20 09:55

Matrix: Water

Date Received: 11/07/20 10:00

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.123	U	0.355	0.356	1.00	0.615	pCi/L	01/04/21 09:54	01/07/21 13:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.8		40 - 110					01/04/21 09:54	01/07/21 13:12	1
Y Carrier	80.0		40 - 110					01/04/21 09:54	01/07/21 13:12	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.241	U	0.447	0.448	5.00	0.615	pCi/L		01/11/21 13:59	1

Client Sample ID: CCR-SP-3

Lab Sample ID: 180-113377-3

Date Collected: 11/05/20 08:50

Matrix: Water

Date Received: 11/07/20 10:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.9		1.0	0.32	mg/L			11/18/20 20:42	1
Fluoride	0.52		0.10	0.044	mg/L			11/19/20 18:11	1
Sulfate	3.6		1.0	0.38	mg/L			11/18/20 20:42	1

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0085		0.0010	0.00031	mg/L		11/13/20 14:59	11/19/20 19:27	1
Boron	0.043	J	0.080	0.039	mg/L		11/13/20 14:59	11/20/20 17:23	1
Barium	0.075	B	0.010	0.0016	mg/L		11/13/20 14:59	11/19/20 19:27	1
Beryllium	ND		0.0010	0.00018	mg/L		11/13/20 14:59	11/19/20 19:27	1
Calcium	88		0.50	0.13	mg/L		11/13/20 14:59	11/19/20 19:27	1
Cadmium	ND		0.0010	0.00022	mg/L		11/13/20 14:59	11/19/20 19:27	1
Cobalt	0.00063		0.00050	0.00013	mg/L		11/13/20 14:59	11/19/20 19:27	1
Chromium	ND		0.0020	0.0015	mg/L		11/13/20 14:59	11/19/20 19:27	1
Molybdenum	0.0043	J	0.0050	0.00061	mg/L		11/13/20 14:59	11/19/20 19:27	1
Lead	ND		0.0010	0.00013	mg/L		11/13/20 14:59	11/19/20 19:27	1
Antimony	ND		0.0020	0.00038	mg/L		11/13/20 14:59	11/19/20 19:27	1
Selenium	ND		0.0050	0.0015	mg/L		11/13/20 14:59	11/19/20 19:27	1
Thallium	ND		0.0010	0.00015	mg/L		11/13/20 14:59	11/19/20 19:27	1
Lithium	ND		0.0050	0.0034	mg/L		11/13/20 14:59	11/19/20 19:27	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/11/20 09:42	11/12/20 16:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	390		10	10	mg/L			11/12/20 18:22	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			11/20/20 09:50	1

Eurofins TestAmerica, Pittsburgh

Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Client Sample ID: CCR-SP-3

Lab Sample ID: 180-113377-3

Date Collected: 11/05/20 08:50

Matrix: Water

Date Received: 11/07/20 10:00

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.228	U	0.280	0.280	1.00	0.462	pCi/L	11/24/20 09:30	12/29/20 19:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.1		40 - 110					11/24/20 09:30	12/29/20 19:47	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0184	U	0.354	0.354	1.00	0.630	pCi/L	01/04/21 09:54	01/07/21 13:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.2		40 - 110					01/04/21 09:54	01/07/21 13:12	1
Y Carrier	83.4		40 - 110					01/04/21 09:54	01/07/21 13:12	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.210	U	0.451	0.451	5.00	0.630	pCi/L		01/11/21 13:59	1

Client Sample ID: BLIND DUPLICATE 3

Lab Sample ID: 180-113377-4

Date Collected: 11/05/20 00:00

Matrix: Water

Date Received: 11/07/20 10:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	91		1.0	0.32	mg/L			11/18/20 14:26	1
Fluoride	0.24		0.10	0.044	mg/L			11/19/20 18:27	1
Sulfate	710		10	3.8	mg/L			11/18/20 14:47	10

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0039		0.0010	0.00031	mg/L		11/13/20 14:59	11/19/20 19:31	1
Boron	0.44		0.080	0.039	mg/L		11/13/20 14:59	11/20/20 17:26	1
Barium	0.076	B	0.010	0.0016	mg/L		11/13/20 14:59	11/19/20 19:31	1
Beryllium	ND		0.0010	0.00018	mg/L		11/13/20 14:59	11/19/20 19:31	1
Calcium	210		0.50	0.13	mg/L		11/13/20 14:59	11/19/20 19:31	1
Cadmium	ND		0.0010	0.00022	mg/L		11/13/20 14:59	11/19/20 19:31	1
Cobalt	0.0066		0.00050	0.00013	mg/L		11/13/20 14:59	11/19/20 19:31	1
Chromium	ND		0.0020	0.0015	mg/L		11/13/20 14:59	11/19/20 19:31	1
Molybdenum	0.0011	J	0.0050	0.00061	mg/L		11/13/20 14:59	11/19/20 19:31	1
Lead	ND		0.0010	0.00013	mg/L		11/13/20 14:59	11/19/20 19:31	1
Antimony	ND		0.0020	0.00038	mg/L		11/13/20 14:59	11/19/20 19:31	1
Selenium	ND		0.0050	0.0015	mg/L		11/13/20 14:59	11/19/20 19:31	1
Thallium	ND		0.0010	0.00015	mg/L		11/13/20 14:59	11/19/20 19:31	1
Lithium	0.0053		0.0050	0.0034	mg/L		11/13/20 14:59	11/19/20 19:31	1

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Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Client Sample ID: BLIND DUPLICATE 3

Lab Sample ID: 180-113377-4

Date Collected: 11/05/20 00:00

Matrix: Water

Date Received: 11/07/20 10:00

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/11/20 09:42	11/12/20 16:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1700		10	10	mg/L			11/12/20 18:22	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.0	HF	0.1	0.1	SU			11/20/20 09:50	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.170	U	0.156	0.157	1.00	0.391	pCi/L	11/24/20 09:30	12/29/20 19:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110					11/24/20 09:30	12/29/20 19:48	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.149	U	0.334	0.334	1.00	0.574	pCi/L	01/04/21 09:54	01/07/21 13:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.9		40 - 110					01/04/21 09:54	01/07/21 13:13	1
Y Carrier	83.7		40 - 110					01/04/21 09:54	01/07/21 13:13	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0208	U	0.369	0.369	5.00	0.574	pCi/L		01/11/21 13:59	1

Client Sample ID: FIELD BLANK 3

Lab Sample ID: 180-113377-5

Date Collected: 11/05/20 08:30

Matrix: Water

Date Received: 11/07/20 10:00

Method: EPA 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.32	mg/L			11/18/20 11:39	1
Fluoride	ND		0.10	0.044	mg/L			11/19/20 18:44	1
Sulfate	ND		1.0	0.38	mg/L			11/18/20 11:39	1

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00031	mg/L		11/13/20 14:59	11/19/20 19:34	1
Boron	ND		0.080	0.039	mg/L		11/13/20 14:59	11/20/20 17:30	1
Barium	ND		0.010	0.0016	mg/L		11/13/20 14:59	11/19/20 19:34	1
Beryllium	ND		0.0010	0.00018	mg/L		11/13/20 14:59	11/19/20 19:34	1
Calcium	ND		0.50	0.13	mg/L		11/13/20 14:59	11/19/20 19:34	1
Cadmium	ND		0.0010	0.00022	mg/L		11/13/20 14:59	11/19/20 19:34	1

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Client Sample Results

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Client Sample ID: FIELD BLANK 3

Lab Sample ID: 180-113377-5

Date Collected: 11/05/20 08:30

Matrix: Water

Date Received: 11/07/20 10:00

Method: EPA 6020A - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	ND		0.00050	0.00013	mg/L		11/13/20 14:59	11/19/20 19:34	1
Chromium	ND		0.0020	0.0015	mg/L		11/13/20 14:59	11/19/20 19:34	1
Molybdenum	ND		0.0050	0.00061	mg/L		11/13/20 14:59	11/19/20 19:34	1
Lead	ND		0.0010	0.00013	mg/L		11/13/20 14:59	11/19/20 19:34	1
Antimony	ND		0.0020	0.00038	mg/L		11/13/20 14:59	11/19/20 19:34	1
Selenium	ND		0.0050	0.0015	mg/L		11/13/20 14:59	11/19/20 19:34	1
Thallium	ND		0.0010	0.00015	mg/L		11/13/20 14:59	11/19/20 19:34	1
Lithium	ND		0.0050	0.0034	mg/L		11/13/20 14:59	11/19/20 19:34	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/11/20 09:42	11/12/20 16:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	10	mg/L			11/12/20 18:22	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.7	HF	0.1	0.1	SU			11/20/20 09:50	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0575	U	0.189	0.189	1.00	0.406	pCi/L	11/24/20 09:30	12/29/20 19:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.0		40 - 110					11/24/20 09:30	12/29/20 19:48	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0459	U	0.397	0.397	1.00	0.703	pCi/L	01/04/21 09:54	01/07/21 13:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.8		40 - 110					01/04/21 09:54	01/07/21 13:13	1
Y Carrier	83.4		40 - 110					01/04/21 09:54	01/07/21 13:13	1

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0115	U	0.440	0.440	5.00	0.703	pCi/L		01/11/21 13:59	1

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QC Sample Results

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Method: EPA 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 180-337505/6
Matrix: Water
Analysis Batch: 337505

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0	0.32	mg/L			11/18/20 07:13	1
Sulfate	ND		1.0	0.38	mg/L			11/18/20 07:13	1

Lab Sample ID: LCS 180-337505/5
Matrix: Water
Analysis Batch: 337505

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	52.3		mg/L		105	80 - 120
Sulfate	50.0	51.6		mg/L		103	80 - 120

Lab Sample ID: MB 180-337754/6
Matrix: Water
Analysis Batch: 337754

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	ND		0.10	0.044	mg/L			11/19/20 10:44	1

Lab Sample ID: LCS 180-337754/5
Matrix: Water
Analysis Batch: 337754

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	2.50	2.47		mg/L		99	80 - 120

Method: EPA 6020A - Metals (ICP/MS)

Lab Sample ID: MB 180-337076/1-A
Matrix: Water
Analysis Batch: 337943

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 337076

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00031	mg/L		11/13/20 14:59	11/19/20 17:58	1
Barium	0.00223	J	0.010	0.0016	mg/L		11/13/20 14:59	11/19/20 17:58	1
Beryllium	ND		0.0010	0.00018	mg/L		11/13/20 14:59	11/19/20 17:58	1
Calcium	ND		0.50	0.13	mg/L		11/13/20 14:59	11/19/20 17:58	1
Cadmium	ND		0.0010	0.00022	mg/L		11/13/20 14:59	11/19/20 17:58	1
Cobalt	ND		0.00050	0.00013	mg/L		11/13/20 14:59	11/19/20 17:58	1
Chromium	ND		0.0020	0.0015	mg/L		11/13/20 14:59	11/19/20 17:58	1
Molybdenum	ND		0.0050	0.00061	mg/L		11/13/20 14:59	11/19/20 17:58	1
Lead	ND		0.0010	0.00013	mg/L		11/13/20 14:59	11/19/20 17:58	1
Antimony	ND		0.0020	0.00038	mg/L		11/13/20 14:59	11/19/20 17:58	1
Selenium	ND		0.0050	0.0015	mg/L		11/13/20 14:59	11/19/20 17:58	1
Thallium	ND		0.0010	0.00015	mg/L		11/13/20 14:59	11/19/20 17:58	1
Lithium	ND		0.0050	0.0034	mg/L		11/13/20 14:59	11/19/20 17:58	1

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QC Sample Results

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Method: EPA 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-337076/1-A
Matrix: Water
Analysis Batch: 338070

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 337076

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	ND		0.080	0.039	mg/L		11/13/20 14:59	11/20/20 16:08	1

Lab Sample ID: LCS 180-337076/2-A
Matrix: Water
Analysis Batch: 337943

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 337076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.980		mg/L		98	80 - 120
Barium	1.00	1.01		mg/L		101	80 - 120
Beryllium	0.500	0.498		mg/L		100	80 - 120
Calcium	25.0	27.8		mg/L		111	80 - 120
Cadmium	0.500	0.491		mg/L		98	80 - 120
Cobalt	0.500	0.484		mg/L		97	80 - 120
Chromium	0.500	0.490		mg/L		98	80 - 120
Molybdenum	0.500	0.501		mg/L		100	80 - 120
Lead	0.500	0.497		mg/L		99	80 - 120
Antimony	0.250	0.247		mg/L		99	80 - 120
Selenium	1.00	1.02		mg/L		102	80 - 120
Thallium	1.00	1.03		mg/L		103	80 - 120
Lithium	0.500	0.482		mg/L		96	80 - 120

Lab Sample ID: LCS 180-337076/2-A
Matrix: Water
Analysis Batch: 338070

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 337076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.25	1.06		mg/L		84	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-336708/1-A
Matrix: Water
Analysis Batch: 336987

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 336708

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.00013	mg/L		11/11/20 09:42	11/12/20 15:53	1

Lab Sample ID: LCS 180-336708/2-A
Matrix: Water
Analysis Batch: 336987

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 336708

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00266		mg/L		106	80 - 120

QC Sample Results

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Method: EPA 9040C - pH

Lab Sample ID: LCS 180-337983/1
 Matrix: Water
 Analysis Batch: 337983

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH	7.00	7.0		SU		100	99 - 101

Lab Sample ID: 180-113377-4 DU
 Matrix: Water
 Analysis Batch: 337983

Client Sample ID: BLIND DUPLICATE 3
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.0	HF	7.0		SU		0.3	2

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-336974/2
 Matrix: Water
 Analysis Batch: 336974

Client Sample ID: Method Blank
 Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10	10	mg/L			11/12/20 18:22	1

Lab Sample ID: LCS 180-336974/1
 Matrix: Water
 Analysis Batch: 336974

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	714	714		mg/L		100	80 - 120

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-490023/20-A
 Matrix: Water
 Analysis Batch: 493325

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 490023

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.09216	U	0.202	0.202	1.00	0.366	pCi/L	11/24/20 09:30	12/29/20 19:49	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.5		40 - 110					11/24/20 09:30	12/29/20 19:49	1

Lab Sample ID: LCS 160-490023/1-A
 Matrix: Water
 Analysis Batch: 493325

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 490023

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.3	9.595		1.32	1.00	0.441	pCi/L	85	75 - 125
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	82.7		40 - 110						

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QC Sample Results

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-493728/19-A
Matrix: Water
Analysis Batch: 494240

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 493728

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	-0.02813	U	0.289	0.289	1.00	0.527	pCi/L	01/04/21 09:54	01/07/21 13:13	1
Carrier	MB MB		Limits				Prepared		Analyzed	Dil Fac
	%Yield	Qualifier								
Ba Carrier	89.6		40 - 110				01/04/21 09:54		01/07/21 13:13	1
Y Carrier	86.7		40 - 110				01/04/21 09:54		01/07/21 13:13	1

Lab Sample ID: LCS 160-493728/1-A
Matrix: Water
Analysis Batch: 494240

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 493728

Analyte	LCS LCS		Spike	LCS	LCS	Total	RL	MDC	Unit	%Rec	%Rec. Limits
	%Yield	Qualifier	Added	Result	Qual	Uncert. (2σ+/-)					
Radium-228			10.0	12.34		1.48	1.00	0.592	pCi/L	123	75 - 125
Carrier	LCS LCS		Limits								
	%Yield	Qualifier									
Ba Carrier	89.3		40 - 110								
Y Carrier	83.0		40 - 110								

QC Association Summary

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

HPLC/IC

Analysis Batch: 337505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total/NA	Water	EPA 9056A	
180-113377-1	CCR-SP-1	Total/NA	Water	EPA 9056A	
180-113377-2	CCR-SP-2	Total/NA	Water	EPA 9056A	
180-113377-2	CCR-SP-2	Total/NA	Water	EPA 9056A	
180-113377-3	CCR-SP-3	Total/NA	Water	EPA 9056A	
180-113377-4	BLIND DUPLICATE 3	Total/NA	Water	EPA 9056A	
180-113377-4	BLIND DUPLICATE 3	Total/NA	Water	EPA 9056A	
180-113377-5	FIELD BLANK 3	Total/NA	Water	EPA 9056A	
MB 180-337505/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-337505/5	Lab Control Sample	Total/NA	Water	EPA 9056A	

Analysis Batch: 337754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total/NA	Water	EPA 9056A	
180-113377-2	CCR-SP-2	Total/NA	Water	EPA 9056A	
180-113377-3	CCR-SP-3	Total/NA	Water	EPA 9056A	
180-113377-4	BLIND DUPLICATE 3	Total/NA	Water	EPA 9056A	
180-113377-5	FIELD BLANK 3	Total/NA	Water	EPA 9056A	
MB 180-337754/6	Method Blank	Total/NA	Water	EPA 9056A	
LCS 180-337754/5	Lab Control Sample	Total/NA	Water	EPA 9056A	

Metals

Prep Batch: 336708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total/NA	Water	7470A	
180-113377-2	CCR-SP-2	Total/NA	Water	7470A	
180-113377-3	CCR-SP-3	Total/NA	Water	7470A	
180-113377-4	BLIND DUPLICATE 3	Total/NA	Water	7470A	
180-113377-5	FIELD BLANK 3	Total/NA	Water	7470A	
MB 180-336708/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-336708/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 336987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total/NA	Water	EPA 7470A	336708
180-113377-2	CCR-SP-2	Total/NA	Water	EPA 7470A	336708
180-113377-3	CCR-SP-3	Total/NA	Water	EPA 7470A	336708
180-113377-4	BLIND DUPLICATE 3	Total/NA	Water	EPA 7470A	336708
180-113377-5	FIELD BLANK 3	Total/NA	Water	EPA 7470A	336708
MB 180-336708/1-A	Method Blank	Total/NA	Water	EPA 7470A	336708
LCS 180-336708/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	336708

Prep Batch: 337076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total Recoverable	Water	3005A	
180-113377-2	CCR-SP-2	Total Recoverable	Water	3005A	
180-113377-3	CCR-SP-3	Total Recoverable	Water	3005A	
180-113377-4	BLIND DUPLICATE 3	Total Recoverable	Water	3005A	
180-113377-5	FIELD BLANK 3	Total Recoverable	Water	3005A	
MB 180-337076/1-A	Method Blank	Total Recoverable	Water	3005A	

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QC Association Summary

Client: Vectren Corporation
 Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Metals (Continued)

Prep Batch: 337076 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-337076/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 337943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total Recoverable	Water	EPA 6020A	337076
180-113377-2	CCR-SP-2	Total Recoverable	Water	EPA 6020A	337076
180-113377-3	CCR-SP-3	Total Recoverable	Water	EPA 6020A	337076
180-113377-4	BLIND DUPLICATE 3	Total Recoverable	Water	EPA 6020A	337076
180-113377-5	FIELD BLANK 3	Total Recoverable	Water	EPA 6020A	337076
MB 180-337076/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	337076
LCS 180-337076/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	337076

Analysis Batch: 338070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total Recoverable	Water	EPA 6020A	337076
180-113377-2	CCR-SP-2	Total Recoverable	Water	EPA 6020A	337076
180-113377-3	CCR-SP-3	Total Recoverable	Water	EPA 6020A	337076
180-113377-4	BLIND DUPLICATE 3	Total Recoverable	Water	EPA 6020A	337076
180-113377-5	FIELD BLANK 3	Total Recoverable	Water	EPA 6020A	337076
MB 180-337076/1-A	Method Blank	Total Recoverable	Water	EPA 6020A	337076
LCS 180-337076/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020A	337076

General Chemistry

Analysis Batch: 336974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total/NA	Water	SM 2540C	
180-113377-2	CCR-SP-2	Total/NA	Water	SM 2540C	
180-113377-3	CCR-SP-3	Total/NA	Water	SM 2540C	
180-113377-4	BLIND DUPLICATE 3	Total/NA	Water	SM 2540C	
180-113377-5	FIELD BLANK 3	Total/NA	Water	SM 2540C	
MB 180-336974/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-336974/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 337983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total/NA	Water	EPA 9040C	
180-113377-2	CCR-SP-2	Total/NA	Water	EPA 9040C	
180-113377-3	CCR-SP-3	Total/NA	Water	EPA 9040C	
180-113377-4	BLIND DUPLICATE 3	Total/NA	Water	EPA 9040C	
180-113377-5	FIELD BLANK 3	Total/NA	Water	EPA 9040C	
LCS 180-337983/1	Lab Control Sample	Total/NA	Water	EPA 9040C	
180-113377-4 DU	BLIND DUPLICATE 3	Total/NA	Water	EPA 9040C	

Rad

Prep Batch: 490023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total/NA	Water	PrecSep-21	
180-113377-2	CCR-SP-2	Total/NA	Water	PrecSep-21	
180-113377-3	CCR-SP-3	Total/NA	Water	PrecSep-21	
180-113377-4	BLIND DUPLICATE 3	Total/NA	Water	PrecSep-21	

Eurofins TestAmerica, Pittsburgh

QC Association Summary

Client: Vectren Corporation
Project/Site: CCR Groundwater Monitoring AB Brown

Job ID: 180-113377-1

Rad (Continued)

Prep Batch: 490023 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-5	FIELD BLANK 3	Total/NA	Water	PrecSep-21	
MB 160-490023/20-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-490023/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 493728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113377-1	CCR-SP-1	Total/NA	Water	PrecSep_0	
180-113377-2	CCR-SP-2	Total/NA	Water	PrecSep_0	
180-113377-3	CCR-SP-3	Total/NA	Water	PrecSep_0	
180-113377-4	BLIND DUPLICATE 3	Total/NA	Water	PrecSep_0	
180-113377-5	FIELD BLANK 3	Total/NA	Water	PrecSep_0	
MB 160-493728/19-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-493728/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Chain of Custody Record 495482



Environment Testing
TestAmerica

Address:

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact
 Company Name: vevion Corporation
 Address: 8511 Wellborn Road
 City/State/Zip: My. Vernon / IN / 47060
 Phone: 317 513 4082
 Fax: _____
 Project Name: CCR Groundwater Monitoring
 Site: AB Brown
 P O # _____

Project Manager: Wendy Haisfield Date: 11-6-20
 Site Contact: Angela Scheller Carrier: Fedex
 Lab Contact: Wendy Haisfield

COC No: _____ of _____ COCs
 Sampler: Jacob Wang
 For Lab Use Only:
 Walk-in Client: _____
 Lab Sampling: _____
 Job / SDG No.: _____

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below
 2 weeks
 1 week
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Gab)	Matrix	# of Cont.	Sample Specific Notes:
CCR-SP-1	11-5	0830	G	WT	5	Flouride (9056A) EPA App IV Total Metals (10204) Mercury (Total) Radion 226/228 EPA 903.0/904.0
CCR-SP-2	↓	0955	↓	↓	↓	
CCR-SP-3	↓	0850	↓	↓	↓	
Blank Duplicate 3	11-5	0830	↓	↓	↓	
Field Blank 3						



Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Instructions/QC Requirements & Comments:
 Hazard Flammable Skin Irritant Poison B Unknown
 Received by: Angela Scheller Date/Time: 11-6-20/1300
 Received by: ATC Date/Time: 11-6-20/1300
 Received in Laboratory by: _____ Date/Time: _____
 Company: _____ Company: _____
 Cooler Temp. (°C): Obs'd: _____ Therm ID No.: _____
 Date/Time: 11-7-20 1000
 Company: _____ Company: _____
 Date/Time: _____ Date/Time: _____



- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

11/6/2020

PT-W1-SR-001 effective 7/26/13

CF Initials


Uncorrected temp

Thermometer ID

3.6 °C

14

75



15238 PTT PA-US

X0 AGCA

TRK# 0201
 7720 1356 4746
 ## MASTER ##
 1 of 3
 SATURDAY 12:00P
 PRIORITY OVERNIGHT

FedEx Ship Manager - Print Your Label(s)



180-113377 Waybill



599J3610918766

(412) 963-7058
 INV: 170LF00900
 PO: 170LF00900
 REF: 170LF00900
PITTSBURGH PA 15238

TO
VERONICA BORTOT
TESTAMÉRICA
301 ALPHA DRIVE

SHIP DATE: 06NOV20
 ACTWGT: 50.00 LB
 CAD: 106997842/NET4280
 DIMS: 22x15x14 IN
 BILL SENDER

ORIGIN ID: EVVA
 BRIAN KLEEMAN
 (812) 477-1176
 1149 WEDEKING AVENUE
 BUILDING D, SUITE 2
 EVANSVILLE, IN 47715
 UNITED STATES US

Login Sample Receipt Checklist

Client: Vectren Corporation

Job Number: 180-113377-1

Login Number: 113377

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Vectren Corporation

Job Number: 180-113377-1

Login Number: 113377

List Number: 2

Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis

List Creation: 11/12/20 02:13 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



ATTACHMENT 4
Statistical Analyses



HALEY & ALDRICH, INC.
400 Augusta Street
Suite 130
Greenville, SC 29601
864.214.8750

24 February 2020
File No. 129420

TO: Southern Indiana Gas and Electric Company

FROM: Haley & Aldrich, Inc.
[Steven F. Putrich, P.E., Project Principal
Mark Miesfeldt, P.G., Lead Hydrogeologist]

SUBJECT: Notification of Statistically Significant Levels of Appendix IV Constituents
Pursuant to 40 CFR § 257.95(g) and 40 CFR § 257.105(h)(8)
A.B. Brown Generating Station – Sedimentation Pond - West Franklin,
Indiana

Southern Indiana Gas and Electric Company (SIGECO) is implementing the 17 April 2015 United States Environmental Protection Agency (U.S. EPA) Federal Coal Combustion Residuals (CCR) Rule (40 CFR § 257 and 261) for the A.B. Brown Generating Station, in Posey County near West Franklin, Indiana. Detection monitoring events occurred in 2016 and 2017. The results of the sampling events were compared to background using appropriate statistical methods to determine if Appendix III constituents were present at concentrations above background. The result of the statistical analysis identified a statistically significant increase (SSI) downgradient of the Sedimentation Pond thereby triggering Assessment Monitoring and respective notification of the same.

During the Assessment Monitoring phase, groundwater samples were collected from the downgradient monitoring wells. Samples were collected in June, and August 2018 and analyzed for the Appendix III and Appendix IV constituents as required by 40 CFR § 257.95(b) and 40 CFR § 257.95(d)(1). Concurrent with the second assessment sampling round, and as required by 40 CFR § 257.95(h), groundwater protection standards (GWPS) were established for the detected Appendix IV constituents. The assessment monitoring sampling results were compared to the GWPS and statistically significant levels (SSL) of Appendix IV constituents were not identified downgradient of the Sedimentation Pond at that time.

As required by 40 CFR § 257.95(b) and 40 CFR § 257.95(d)(1), semiannual groundwater sampling and analysis continued for the Sedimentation Pond in 2019. The second round of semiannual groundwater sampling was conducted in October 2019. For the Sedimentation Pond, which continued in Assessment Monitoring in 2019, a statistical analysis of the October 2019 analytical results was conducted, and downgradient wells were compared to each respective GWPS.

If the detected constituent was greater than the GWPS for that Unit, pursuant to 40 CFR § 257.93 (f)(5), the confidence interval method was used to evaluate if that Appendix IV constituent was present at an SSL. Based on the comparisons outlined above, the results of the statistical analyses conducted for those detected Appendix IV constituents confirm that Appendix IV constituents are not present at SSLs above GWPSs downgradient of the Sedimentation Pond.

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A.B. Brown Generating Station
Sedimentation Pond
Detection Monitoring Statistical Analysis Summary
Prepared: February 24, 2020

Location Id	Frequency of Detection	Percent Non-Detects	Range of Non-Detect	Mean	50th Percentile (Median)	95th Percentile	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL/RSL	Report Result Unit	Detection Exceedances (Y/N)	Number of Detection Exceedances	Outlier Detected	Outlier Removed	Trend	Distribution Group*	Distribution Well*	Inter-well Analysis				SSL		
																				October 2019 Concentrations	Lower Confidence Limits	Upper Tolerance Limit	Background Limit (Higher of MCL/RSL or Upper Tolerance Limit)		² Exceedance above Background at Individual Well	
CCR Appendix-IV: Arsenic, Total (mg/L)																										
CCR-BK-1	12/13	8%	0.001-0.001	0.000914	0.00095	0.0019	0.0025	3.888E-07	0.0006236	0.6823	0.01	mg/L	N	0	Y	N	Stable	Non-parametric	Normal			0.004	0.010			
CCR-BK-2	7/13	46%	0.001-0.001	0.00117	0.001	0.00308	0.0035	8.959E-07	0.0009465	0.8122	0.01	mg/L	N	0	Y	N	Stable		Log-transformed							N
CCR-SP-1	13/13	0%	-	0.00541	0.0046	0.00904	0.013	0.000005811	0.002411	0.4458	0.01	mg/L	Y	1	Y	N	Stable		Non-parametric	0.0045					N	FALSE
CCR-SP-2	12/13	8%	0.001-0.001	0.00163	0.0013	0.00482	0.0077	0.000003833	0.001958	1.199	0.01	mg/L	N	0	N	N	Stable		Log-transformed	0.0029					N	FALSE
CCR-SP-3	13/13	0%	-	0.0179	0.017	0.0382	0.043	0.0001566	0.01251	0.7006	0.01	mg/L	Y	9	N	N	Stable		Normal	0.0058					N	FALSE
CCR Appendix-IV: Barium, Total (mg/L)																										
CCR-BK-1	13/13	0%	-	0.0411	0.038	0.0622	0.082	0.0001889	0.01374	0.3346	2	mg/L	N	0	Y	N	Stable	Non-parametric	Non-parametric			0.150	2.0			
CCR-BK-2	13/13	0%	-	0.0464	0.036	0.0888	0.15	0.0009994	0.03161	0.6816	2	mg/L	N	0	Y	N	Stable		Non-parametric							N
CCR-SP-1	13/13	0%	-	0.0872	0.087	0.108	0.12	0.0002683	0.01638	0.1879	2	mg/L	N	0	N	N	Stable		Normal	0.053					N	FALSE
CCR-SP-2	13/13	0%	-	0.116	0.12	0.14	0.14	0.000414	0.02035	0.1758	2	mg/L	N	0	N	N	Increase		Normal	0.100					N	FALSE
CCR-SP-3	13/13	0%	-	0.0732	0.072	0.0908	0.11	0.0001536	0.0124	0.1694	2	mg/L	N	0	Y	N	Stable		Non-parametric	0.074					N	FALSE
CCR Appendix-IV: Chromium, Total (mg/L)																										
CCR-BK-1	11/13	15%	0.002-0.002	0.00246	0.0025	0.00484	0.0076	0.000003119	0.001766	0.7188	0.1	mg/L	N	0	Y	N	Increase	Non-parametric	Normal			0.009	0.100			
CCR-BK-2	5/13	62%	0.002-0.002	0.00297	0.002	0.0063	0.0087	0.000004274	0.002067	0.6969	0.1	mg/L	N	0	Y	N	Stable		Non-parametric							N
CCR-SP-1	2/13	85%	0.0017-0.002	0.00199	0.002	0.0022	0.0025	3.577E-08	0.0001891	0.09493	0.1	mg/L	N	0	N	N	NA		NA	0.0017					N	FALSE
CCR-SP-2	7/13	46%	0.002-0.0021	0.00171	0.002	0.00214	0.0022	2.552E-07	0.0005052	0.2962	0.1	mg/L	N	0	N	N	Stable		Non-parametric	0.0016					N	FALSE
CCR-SP-3	3/13	77%	0.002-0.0022	0.00267	0.002	0.0054	0.0096	0.000004369	0.00209	0.7831	0.1	mg/L	N	0	Y	N	Stable		Non-parametric	0.0023					N	FALSE
CCR Appendix-IV: Cobalt, Total (mg/L)																										
CCR-BK-1	12/13	8%	0.0005-0.0005	0.000909	0.00076	0.00244	0.0028	0.00000613	0.0007829	0.8611	0.006	mg/L	N	0	Y	N	Stable	Non-parametric	Log-transformed			0.006	0.0062			
CCR-BK-2	8/13	38%	0.0005-0.0005	0.000946	0.0005	0.00338	0.0062	0.000002669	0.001634	1.726	0.006	mg/L	Y	1	Y	N	Stable		Log-transformed							N
CCR-SP-1	13/13	0%	-	0.00432	0.0032	0.00744	0.0078	0.000004119	0.002029	0.4694	0.006	mg/L	Y	4	Y	N	Stable		Non-parametric	0.00670	0.00280				N	FALSE
CCR-SP-2	13/13	0%	-	0.000958	0.00084	0.00168	0.0021	1.994E-07	0.0004465	0.4662	0.006	mg/L	N	0	N	N	Stable		Normal	0.00110					N	FALSE
CCR-SP-3	13/13	0%	-	0.00107	0.00075	0.00282	0.0054	0.00000174	0.001319	1.23	0.006	mg/L	N	0	Y	N	Decrease		Non-parametric	0.00075					N	FALSE
CCR Appendix-III: Fluoride (mg/L)																										
CCR-BK-1	12/13	8%	0.23-0.23	1.264	1.28	1.51	1.52	0.01066	0.20648	0.6532	4	mg/L	N	0	N	N	Stable	Non-parametric	Normal			0.380	4.0			
CCR-BK-2	12/13	8%	0.12-0.12	0.576	0.56	0.8	0.8	0.004452	0.13344	0.9276	4	mg/L	N	0	N	N	Decrease			Normal						N
CCR-SP-1	11/13	15%	0.1-0.2	1.132	1.08	2.62	3.12	0.09572	0.6188	2.1856	4	mg/L	N	0	Y	N	Stable		Non-parametric	0.10					N	FALSE
CCR-SP-2	13/13	0%	-	1.352	1.36	1.52	1.52	0.003894	0.1248	0.36876	4	mg/L	N	0	N	N	Stable		Normal	0.27					N	FALSE
CCR-SP-3	12/13	8%	0.25-0.25	1.364	1.52	1.64	1.64	0.017756	0.26652	0.782	4	mg/L	N	0	N	N	Stable		Normal	0.21					N	FALSE
CCR Appendix-IV: Lead, Total (mg/L)																										
CCR-BK-1	12/13	8%	0.001-0.001	0.000583	0.00063	0.00104	0.0011	1.452E-07	0.000381	0.653	0.015	mg/L	N	0	N	N	Stable	Non-parametric	Normal			0.011	0.015			
CCR-BK-2	5/13	62%	0.001-0.001	0.00191	0.001	0.00608	0.011	0.000007969	0.002823	1.48	0.015	mg/L	N	0	Y	N	Stable		Non-parametric							N
CCR-SP-1	3/13	77%	0.001-0.001	0.000801	0.001	0.001	0.0002	0.000000143	0.0003782	0.472	0.015	mg/L	N	0	N	N	Stable		Non-parametric	0.00100					N	FALSE
CCR-SP-2	10/13	23%	0.001-0.001	0.000668	0.0008	0.001	0.00097	1.122E-07	0.0003349	0.501	0.015	mg/L	N	0	N	N	Stable		Normal	0.00037					N	FALSE
CCR-SP-3	7/13	46%	0.001-0.001	0.00101	0.001	0.00304	0.0061	0.000002517	0.001587	1.571	0.015	mg/L	N	0	Y	N	Stable		Non-parametric	0.00039					N	FALSE
CCR Appendix-IV: Lithium, Total (mg/L)																										
CCR-BK-1	3/13	77%	0.005-0.05	0.033	0.05	0.05	0.0086	0.0005044	0.02246	0.6814	0.04	mg/L	N	0	N	N	Stable	Non-parametric	Non-parametric			0.050	0.050			
CCR-BK-2	0/13	100%	0.005-0.05	0.04	0.05	0.05		0.000365	0.01911	0.4781	0.04	mg/L	N	0	N	N	Stable		Non-parametric							N
CCR-SP-1	3/13	77%	0.0064-0.05	0.0364	0.05	0.05	0.0062	0.0004489	0.02119	0.5816	0.04	mg/L	N	0	Y	N	Stable		Non-parametric	0.0062					N	FALSE
CCR-SP-2	4/13	69%	0.0073-0.05	0.0337	0.05	0.05	0.011	0.0004595	0.02144	0.6354	0.04	mg/L	N	0	N	N	Stable		Non-parametric	0.0064					N	FALSE
CCR-SP-3	2/13	85%	0.005-0.05	0.0359	0.05	0.05	0.004	0.0004827	0.02197	0.6115	0.04	mg/L	N	0	Y	N	Stable		Non-parametric	0.0050					N	FALSE
CCR Appendix-IV: Molybdenum, Total (mg/L)																										
CCR-BK-1	11/13	15%	0.005-0.005	0.00218	0.0015	0.005	0.0034	0.000002146	0.001465	0.6734	0.1	mg/L	N	0	N	N	Decrease	Non-parametric	Normal			0.005	0.100			
CCR-BK-2	5/13	62%	0.005-0.005	0.00354	0.005	0.005	0.0025	0.000003951	0.001988	0.5616	0.1	mg/L	N	0	N	N	Stable		Non-parametric							N
CCR-SP-1	12/13	8%	0.005-0.005	0.00175	0.0014	0.00326	0.0021	0.000001043	0.001021	0.5822	0.1	mg/L	N	0	Y	N	Stable		Non-parametric	0.0011					N	FALSE
CCR-SP-2	11/13	15%	0.005-0.005	0.0019	0.0014	0.005	0.0016	0.000001912	0.001383	0.7277	0.1	mg/L	N	0	Y	N	Stable		Non-parametric	0.0013					N	FALSE
CCR-SP-3	12/13	8%	0.005-0.005	0.00424	0.005	0.0059	0.0062	0.000002118	0.001455	0.3433	0.1	mg/L	N	0	N	N	Stable		Normal	0.0028					N	FALSE
CCR Appendix-IV: Radium-226 & 228 (pCi/L)																										
CCR-BK-1	8/13	38%	0.366-5	1.21	0.486	5	0.795	2.847	1.687	1.389	5	pCi/L	N	0	Y	N	Stable	Non-parametric	Normal			0.005	5.0			
CCR-BK-2	4/13	69%	0.356-5	3.24	5	5	3.13	4.453	2.11	0.652	5	pCi/L	N	0	N	N	Stable		Non-parametric							N
CCR-SP-1	7/13	46%	0.46-5	1.9	0.525	5	0.737	4.64	2.154	1.135	5	pCi/L	N	0	N	N	Stable		Non-parametric	5.0					N	FALSE
CCR-SP-2	9/13	31%	0.376-5	1.05	0.647	2.852	1.42	1.488	1.22	1.157	5	pCi/L	N	0	Y	N	Stable		Non-parametric	0.5					N	FALSE
CCR-SP-3	3/13	77%	0.384-5	2.59	1.02	5	0.483	5.399	2.324	0.8956	5	pCi/L	N	0	N	N	Stable		Non-parametric	5.0					N	FALSE

µg/L - micrograms per liter

N/A - Not available

NT- Not tested



HALEY & ALDRICH, INC.
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24 September 2020

File No. 129420

TO: Southern Indiana Gas and Electric Company

FROM: Haley & Aldrich, Inc.
[Steven F. Putrich, P.E., Project Principal
Mark Miesfeldt, Lead Hydrogeologist]

SUBJECT: May 2020 Sampling Results and Assessment Monitoring Statistical Analysis Summary
Pursuant to 40 CFR § 257.95
A.B. Brown Generating Station – Sedimentation Pond – West Franklin, Indiana

Southern Indiana Gas and Electric Company (SIGECO) is implementing the 17 April 2015 United States Environmental Protection Agency Federal Coal Combustion Residuals (CCR) Rule (40 CFR § 257 and 261) for the A.B. Brown Generating Station, in Posey County near West Franklin, Indiana. Detection monitoring events occurred in 2016 and 2017. The results of the sampling events were compared to background using appropriate statistical methods to determine if Appendix III constituents were present at concentrations above background. The result of the statistical analysis identified statistically significant increases of Appendix III constituents downgradient of the Sedimentation Pond thereby triggering Assessment Monitoring and respective notification of the same.

During the Assessment Monitoring phase, groundwater samples were collected from the downgradient monitoring wells. Samples were collected in June, and August 2018 and analyzed for the Appendix III and Appendix IV constituents as required by 40 CFR § 257.95(b) and 40 CFR § 257.95(d)(1). Concurrent with the second assessment sampling round, and as required by 40 CFR § 257.95(h), groundwater protection standards (GWPS) were established for the detected Appendix IV constituents. The assessment monitoring sampling results were compared to the GWPS and statistically significant levels (SSL) of Appendix IV constituents were not identified downgradient of the Sedimentation Pond at that time.

As required by 40 CFR § 257.95(b) and 40 CFR § 257.95(d)(1), semiannual groundwater sampling and analysis continued for the Sedimentation Pond in 2020. The first round of semiannual groundwater sampling was conducted in May 2020. Analytical results for the May 2020 semiannual sampling event are summarized in Table I. For the Sedimentation Pond, statistical analysis of the May 2020 analytical results was finalized within 90-days of completion of sampling and analysis as required by 40 CFR § 257.93(g). Downgradient wells were compared to each constituents' respective GWPS. The assessment monitoring statistical analysis summary is provided in Table II.

If the detected constituent was greater than the GWPS for that Unit, pursuant to 40 CFR § 257.93 (f)(5), the confidence interval method was used to evaluate if that Appendix IV constituent was present at a SSL. Based on the comparisons outlined above, the results of the statistical analyses conducted for

those detected Appendix IV constituents did not identify Appendix IV constituents downgradient of the Sedimentation Pond at statistically significant levels above GWPS. This information is being provided for SIGECO's records. Since no Appendix IV constituents were identified at SSLs above the GWPS, notifications associated with the statistical analysis of the May 2020 sampling results are not required.

Attachments:

Table I - Summary of Analytical Results – May 2020

Table II - Assessment Monitoring Statistical Analysis Summary – May 2020

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Table II
A.B. Brown Generating Station
Sedimentation Pond
Detection Monitoring Statistical Analysis Summary
Prepared: September 24, 2020

Location Id	Frequency of Detection	Percent Non-Detects	Range of Non-Detect	Mean	50th Percentile (Median)	95th Percentile	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL/RSL	Report Result Unit	Detection Exceedances (Y/N)	Number of Detection Exceedances	Outlier Detected	Outlier Removed	Trend	Distribution Group*	Distribution Well*	Inter-well Analysis		SSL		
																				May 2020 Concentrations	Detect?		Upper Tolerance Limit	Background Limit (Higher of MCL/RSL or Upper Tolerance Limit)
CCR Appendix-IV: Antimony, Total (mg/L)																								
CCR-BK-1	2/13	85%	0.002-0.002	0.00346	0.004	0.004	0.0009	8.388E-07	0.0012952	0.7482	0.006	mg/L	N	0	N	N	Stable	Non-parametric	Non-parametric		0.002	0.006		
CCR-BK-2	1/13	92%	0.002-0.002	0.00376	0.004	0.004	0.00096	3.412E-07	0.0008262	0.4388	0.006	mg/L	N	0	N	N	Stable	Non-parametric	Non-parametric					
CCR-SP-1	0/12	100%	0.002-0.002	0.004	0.004	0.004		0	0	0	0.006	mg/L	N	0	N	N	NA		NA	0.002	N		N	FALSE
CCR-SP-2	0/12	100%	0.002-0.002	0.004	0.004	0.004		0	0	0	0.006	mg/L	N	0	N	N	NA		NA	0.002	N		N	FALSE
CCR-SP-3	0/12	100%	0.002-0.002	0.004	0.004	0.004		0	0	0	0.006	mg/L	N	0	N	N	NA		NA	0.002	N		N	FALSE
CCR Appendix-IV: Arsenic, Total (mg/L)																								
CCR-BK-1	12/14	14%	0.001-0.001	0.00184	0.00195	0.0043	0.005	6.922E-07	0.0011766	1.279	0.01	mg/L	N	0	Y	N	Stable	Non-parametric	Normal		0.004	0.010		
CCR-BK-2	7/14	50%	0.001-0.001	0.0023	0.002	0.00651	0.007	1.5966E-06	0.001787	1.549	0.01	mg/L	N	0	Y	N	Stable	Non-parametric	Log-transformed					
CCR-SP-1	14/14	0%	-	0.01048	0.0091	0.02138	0.026	0.000011128	0.004718	0.901	0.01	mg/L	Y	2	Y	N	Stable		Non-parametric	0.0030	1.000		N	FALSE
CCR-SP-2	13/14	7%	0.001-0.001	0.00344	0.0027	0.01204	0.0154	0.000007002	0.003742	2.182	0.01	mg/L	N	0	N	N	Stable		Log-transformed	0.0028	1.000		N	FALSE
CCR-SP-3	14/14	0%	-	0.0342	0.033	0.0804	0.086	0.000295	0.02428	1.4222	0.01	mg/L	Y	18	N	N	Decrease		Normal	0.0069	1.000		N	FALSE
CCR Appendix-IV: Barium, Total (mg/L)																								
CCR-BK-1	14/14	0%	-	0.0808	0.075	0.1409	0.164	0.0003498	0.02646	0.6554	2	mg/L	N	0	Y	N	Stable	Non-parametric	Non-parametric		0.150	2.0		
CCR-BK-2	14/14	0%	-	0.0916	0.073	0.2286	0.3	0.0017864	0.05978	1.3056	2	mg/L	N	0	Y	N	Stable		Non-parametric					
CCR-SP-1	14/14	0%	-	0.1708	0.172	0.226	0.24	0.0005572	0.03338	0.3908	2	mg/L	N	0	N	N	Stable		Normal	0.063	1.000		N	FALSE
CCR-SP-2	14/14	0%	-	0.23	0.24	0.28	0.28	0.0007702	0.03924	0.3424	2	mg/L	N	0	N	N	Increase		Normal	0.100	1.000		N	FALSE
CCR-SP-3	14/14	0%	-	0.1472	0.144	0.1983	0.22	0.0002778	0.02358	0.3204	2	mg/L	N	0	Y	N	Stable		Non-parametric	0.079	1.000		N	FALSE
CCR Appendix-IV: Beryllium, Total (mg/L)																								
CCR-BK-1	1/13	92%	0.001-0.001	0.001864	0.002	0.002	0.00024	1.1438E-07	0.0004782	0.513	0.004	mg/L	N	0	N	N	Stable	Non-parametric	Non-parametric		0.001	0.004		
CCR-BK-2	2/13	85%	0.001-0.001	0.001782	0.002	0.002	0.0008	1.4036E-07	0.0005298	0.5948	0.004	mg/L	N	0	N	N	Stable		Non-parametric					
CCR-SP-1	0/12	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.004	mg/L	N	0	N	N	NA		NA	0.001	0.000		N	FALSE
CCR-SP-2	0/12	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.004	mg/L	N	0	N	N	NA		NA	0.001	0.000		N	FALSE
CCR-SP-3	1/12	92%	0.001-0.001	0.001882	0.002	0.002	0.00058	8.036E-08	0.000401	0.4262	0.004	mg/L	N	0	N	N	Stable		Non-parametric	0.001	0.000		N	FALSE
CCR Appendix-IV: Cadmium, Total (mg/L)																								
CCR-BK-1	0/14	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.005	mg/L	N	0	N	N	Stable	Non-parametric	Non-parametric		0.001	0.005		
CCR-BK-2	0/14	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.005	mg/L	N	0	N	N	Stable		Non-parametric					
CCR-SP-1	0/12	100%	0.001-0.001	0.002	0.002	0.002		0	0	0	0.005	mg/L	N	0	N	N	NA		NA	0.001	0.000		N	FALSE
CCR-SP-2	2/12	83%	0.001-0.001	0.001702	0.002	0.002	0.00022	2.328E-07	0.0006822	0.802	0.005	mg/L	N	0	N	N	Stable		Non-parametric	0.001	0.000		N	FALSE
CCR-SP-3	1/12	92%	0.001-0.001	0.001858	0.002	0.002	0.0003	1.1518E-07	0.00048	0.5166	0.005	mg/L	N	0	N	N	Stable		Non-parametric	0.001	0.000		N	FALSE
CCR Appendix-IV: Chromium, Total (mg/L)																								
CCR-BK-1	11/14	21%	0.002-0.002	0.00484	0.0045	0.01198	0.0152	0.000005574	0.003338	1.3772	0.1	mg/L	N	0	Y	N	Increase	Non-parametric	Normal		0.009	0.100		
CCR-BK-2	5/14	64%	0.002-0.002	0.0058	0.004	0.0146	0.0174	0.000007726	0.00393	1.3568	0.1	mg/L	N	0	Y	N	Stable		Non-parametric					
CCR-SP-1	1/14	93%	0.0017-0.002	0.00402	0.004	0.00465	0.005	4.994E-08	0.000316	1.569	0.1	mg/L	N	0	N	N	NA		NA	0.0020	0.000		N	FALSE
CCR-SP-2	6/14	57%	0.002-0.0021	0.00352	0.004	0.00433	0.0044	4.726E-07	0.0009722	0.554	0.1	mg/L	N	0	N	N	Stable		Non-parametric	0.0020	0.000		N	FALSE
CCR-SP-3	2/14	86%	0.002-0.0023	0.00524	0.004	0.0143	0.0192	0.000007828	0.003956	1.5094	0.1	mg/L	N	0	Y	N	Stable		Non-parametric	0.0020	0.000		N	FALSE
CCR Appendix-IV: Cobalt, Total (mg/L)																								
CCR-BK-1	13/14	7%	0.0005-0.0005	0.000855	0.00069	0.00241	0.0028	0.00000607	0.0007791	0.9112	0.006	mg/L	N	0	Y	N	Stable	Non-parametric	Log-transformed		0.006	0.0062		
CCR-BK-2	8/14	43%	0.0005-0.0005	0.000915	0.0005	0.003145	0.0062	0.000002478	0.001574	1.721	0.006	mg/L	Y	1	Y	N	Stable		Log-transformed					
CCR-SP-1	14/14	0%	-	0.00447	0.00325	0.00741	0.0078	0.00000411	0.002027	0.4534	0.006	mg/L	Y	5	Y	N	Increase		Non-parametric	0.00640	1.000		N	FALSE
CCR-SP-2	14/14	0%	-	0.00102	0.00085	0.00197	0.0021	2.475E-07	0.0004975	0.4853	0.006	mg/L	N	0	N	N	Stable		Normal	0.00190	1.000		N	FALSE
CCR-SP-3	14/14	0%	-	0.00105	0.00075	0.002605	0.0054	0.000001613	0.00127	1.21	0.006	mg/L	N	0	Y	N	Decrease		Non-parametric	0.00075	1.000		N	FALSE
CCR Appendix-III: Fluoride (mg/L)																								
CCR-BK-1	13/14	7%	0.23-0.23	2.56	2.68	3.04	3.04	0.020944	0.40936	1.2792	4	mg/L	N	0	N	N	Stable	Non-parametric	Normal		0.380	4.0		
CCR-BK-2	13/14	7%	0.12-0.12	1.192	1.12	1.68	1.68	0.010456	0.2892	1.9464	4	mg/L	N	0	N	N	Decrease		Normal					
CCR-SP-1	11/14	21%	0.1-0.2	2.192	2.16	6.24	6.24	0.1836	1.212	4.4296	4	mg/L	N	0	Y	N	Stable		Non-parametric	0.15	0.000		N	FALSE
CCR-SP-2	14/14	0%	-	2.648	2.68	3.04	3.04	0.013432	0.32784	0.9912	4	mg/L	N	0	N	N	Decrease		Normal	0.23	1.000		N	FALSE
CCR-SP-3	13/14	7%	0.25-0.25	2.688	2.88	3.28	3.28	0.034992	0.52912	1.576	4	mg/L	N	0	N	N	Decrease		Normal	0.27	1.000		N	FALSE
CCR Appendix-IV: Lead, Total (mg/L)																								
CCR-BK-1	13/14	7%	0.001-0.001	0.001116	0.00115	0.00213	0.0022	2.752E-07	0.000742	1.3292	0.015	mg/L	N	0	N	N	Stable	Non-parametric	Normal		0.011	0.015		
CCR-BK-2	5/14	64%	0.001-0.001	0.00368	0.002	0.01626	0.022	0.00001428	0.005344	2.9	0.015	mg/L	N	0	Y	N	Stable		Non-parametric					
CCR-SP-1	3/14	79%	0.001-0.001	0.001632	0.002	0.002	0.0004	2.598E-07	0.0007208	0.8838	0.015	mg/L	N	0	N	N	Stable		Non-parametric	0.00100	0.000		N	FALSE
CCR-SP-2	11/14	21%	0.001-0.001	0.001368	0.00166	0.002	0.00194	2.056E-07	0.0006412	0.938	0.015	mg/L	N	0	N	N	Stable		Normal	0.00088	1.000		N	FALSE
CCR-SP-3	8/14	43%	0.001-0.001	0.001906	0.00139	0.00863	0.0122	0.000004562	0.00302	3.172	0.015	mg/L	N	0	Y	N	Stable		Non-parametric	0.00021	1.000		N	FALSE
CCR Appendix-IV: Lithium, Total (mg/L)																								
CCR-BK-1	3/14	79%	0.005-0.05	0.031	0.05	0.05	0.0086	0.0005215	0.02284	0.7375	0.04	mg/L	N	0	N	N	Stable	Non-parametric	Non-parametric		0.050	0.050		
CCR-BK-2	1/14	93%	0.005-0.05	0.0374	0.05	0.05	0.0036	0.0004314	0.02077	0.5559	0.04	mg/L	N	0	N	N	Stable		Non-parametric					
CCR-SP-1	4/14	71%	0.0064-0.05	0.0343	0.05	0.05	0.0066	0.0004779	0.02186	0.6374	0.04	mg/L	N	0	Y	N	Stable		Non-parametric	0.0066	1.000		N	FALSE
CCR-SP-2	5/14	64%	0.0073-0.05	0.0319	0.05	0.05	0.011	0.0004741	0.02177	0.6836	0.04	mg/L	N	0	N	N	Stable		Non-parametric	0.0073	1.000		N	FALSE
CCR-SP-3	2/14	86%	0.005-0.05	0.0337	0.05	0.05	0.004	0.0005139	0.02267	0.6723	0.04	mg/L												

CCR Appendix-IV: Mercury, Total (mg/L)																									
CCR-BK-1	0/13	100%	0.0002-0.0002	0.0004	0.0004	0.0004		6.776E-23	1.1642E-11	5.82E-08	0.002	mg/L	N	0	N	N	Stable	Non-parametric	Normal			0.0002	0.002		
CCR-BK-2	2/13	85%	0.0002-0.0002	0.000384	0.0004	0.0004	0.0004	1.477E-09	0.00005434	0.2826	0.002	mg/L	N	0	N	N	Stable		Non-parametric						
CCR-SP-1	0/12	100%	0.0002-0.0002	0.0004	0.0004	0.0004		3.682E-23	8.582E-12	4.292E-08	0.002	mg/L	N	0	Y	N	Stable		Non-parametric	0.0002	0.000			N	FALSE
CCR-SP-2	0/12	100%	0.0002-0.0002	0.0004	0.0004	0.0004		3.682E-23	8.582E-12	4.292E-08	0.002	mg/L	N	0	Y	N	Stable		Non-parametric	0.0002	0.000			N	FALSE
CCR-SP-3	0/12	100%	0.0002-0.0002	0.0004	0.0004	0.0004		3.682E-23	8.582E-12	4.292E-08	0.002	mg/L	N	0	N	N	Stable		Normal	0.0002	0.000			N	FALSE
CCR Appendix-IV: Molybdenum, Total (mg/L)																									
CCR-BK-1	12/14	14%	0.005-0.005	0.00208	0.0015	0.005	0.0034	0.000002118	0.001455	0.7009	0.1	mg/L	N	0	N	N	Decrease	Non-parametric	Normal			0.005	0.100		
CCR-BK-2	6/14	57%	0.005-0.005	0.00339	0.005	0.005	0.0025	0.000003944	0.001986	0.5852	0.1	mg/L	N	0	N	N	Stable		Non-parametric						
CCR-SP-1	13/14	7%	0.005-0.005	0.00171	0.0014	0.003115	0.0021	0.000000993	0.0009965	0.5837	0.1	mg/L	N	0	Y	N	Decrease		Non-parametric	0.0011	1.000			N	FALSE
CCR-SP-2	12/14	14%	0.005-0.005	0.00186	0.0014	0.005	0.0016	0.000001782	0.001335	0.7161	0.1	mg/L	N	0	Y	N	Stable		Non-parametric	0.0014	1.000			N	FALSE
CCR-SP-3	13/14	7%	0.005-0.005	0.00423	0.0048	0.005875	0.0062	0.000001956	0.001399	0.3307	0.1	mg/L	N	0	N	N	Decrease		Normal	0.0041	1.000			N	FALSE
CCR Appendix-IV: Radium-226 & 228 (pCi/L)																									
CCR-BK-1	8/14	43%	0.366-5	2.96	1.001	10	1.59	7.032	3.75	2.526	5	pCi/L	N	0	Y	N	Increase	Non-parametric	Normal			0.005	5.0		
CCR-BK-2	4/14	71%	0.356-5	6.72	10	10	6.26	8.344	4.086	1.2148	5	pCi/L	N	0	N	N	Stable		Non-parametric						
CCR-SP-1	8/14	43%	0.46-5	3.6	1.052	10	1.474	8.508	4.124	2.292	5	pCi/L	N	0	N	N	Stable		Non-parametric	0.5	1.000			N	FALSE
CCR-SP-2	10/14	29%	0.376-5	2.04	1.226	7.494	2.84	2.684	2.318	2.28	5	pCi/L	N	0	Y	N	Stable		Non-parametric	0.5	1.000			N	FALSE
CCR-SP-3	4/14	71%	0.384-5	4.9	1.565	10	1.09	10.176	4.512	1.843	5	pCi/L	N	0	N	N	Stable		Non-parametric	0.5	1.000			N	FALSE
CCR Appendix-IV: Selenium, Total (mg/L)																									
CCR-BK-1	3/14	79%	0.005-0.005	0.00808	0.01	0.01	0.00134	0.000007026	0.003748	0.928	0.05	mg/L	N	0	N	N	Stable	Non-parametric	Non-parametric			0.005	0.050		
CCR-BK-2	2/14	86%	0.005-0.005	0.00878	0.01	0.01	0.00196	0.00000466	0.003054	0.6956	0.05	mg/L	N	0	Y	N	Stable		Non-parametric						
CCR-SP-1	1/12	92%	0.005-0.005	0.00922	0.01	0.01	0.00072	0.000003432	0.00262	0.568	0.05	mg/L	N	0	N	N	Stable		Non-parametric	0.005	0.000			N	FALSE
CCR-SP-2	1/12	92%	0.005-0.005	0.00928	0.01	0.01	0.00126	0.000003044	0.002468	0.5322	0.05	mg/L	N	0	N	N	Stable		Non-parametric	0.005	0.000			N	FALSE
CCR-SP-3	1/12	92%	0.005-0.005	0.00924	0.01	0.01	0.00084	0.000003344	0.002586	0.56	0.05	mg/L	N	0	N	N	Stable		Non-parametric	0.005	0.000			N	FALSE
CCR Appendix-IV: Thallium, Total (mg/L)																									
CCR-BK-1	1/13	92%	0.001-0.001	0.001852	0.002	0.002	0.000076	1.3668E-07	0.0005228	0.5646	0.002	mg/L	N	0	N	N	Stable	Non-parametric	Non-parametric			0.001	0.002		
CCR-BK-2	1/13	92%	0.001-0.001	0.001856	0.002	0.002	0.000118	1.3078E-07	0.0005114	0.5514	0.002	mg/L	N	0	N	N	Stable		Non-parametric						
CCR-SP-1	2/12	83%	0.001-0.001	0.001686	0.002	0.002	0.000186	2.568E-07	0.0007166	0.8498	0.002	mg/L	N	0	N	N	Stable		Non-parametric	0.001	0.000			N	FALSE
CCR-SP-2	1/12	92%	0.001-0.001	0.001842	0.002	0.002	0.000098	1.4418E-07	0.000537	0.5832	0.002	mg/L	N	0	N	N	Stable		Non-parametric	0.001	0.000			N	FALSE
CCR-SP-3	2/12	83%	0.001-0.001	0.001694	0.002	0.002	0.00028	2.454E-07	0.0007006	0.8272	0.002	mg/L	N	0	N	N	Stable		Non-parametric	0.001	0.000			N	FALSE

µg/L - micrograms per liter

N/A - Not available

NT- Not tested