



08/07/15

Technical Report for

Confluence Energy

Hebron 3-12H

Accutest Job Number: D60045

Sampling Date: 07/15/14

Report to:

rmcclure@ee3llc.com

Total number of pages in report: 72



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

A handwritten signature in black ink, appearing to read "Scott Heideman".

Scott Heideman
Laboratory Director

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Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY

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Test results relate only to samples analyzed.

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Sample Summary

Confluence Energy

Job No: D60045

Hebron 3-12H

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D60045-1	07/15/14	14:00 MJM	07/23/14	SO	Soil	HEBRON 3-12H
D60045-1A	07/15/14	14:00 MJM	07/23/14	SO	Soil	HEBRON 3-12H

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Confluence Energy

Job No D60045

Site: Hebron 3-12H

Report Date 7/30/2014 2:33:22 PM

On 07/23/2014, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 26.7 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D60045 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix SO	Batch ID: V3V1851
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59972-3MS, D60044-1DUP were used as the QC samples indicated.
- D60045-1: Sample received outside the holding time.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO	Batch ID: OP10310
------------------	--------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60078-2MS, D60078-2MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix SO	Batch ID: GGB1408
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60000-1MS, D60000-1MSD were used as the QC samples indicated.
- D60045-1: Sample received outside the holding time.

Extractables by GC By Method SW846-8015B

Matrix SO	Batch ID: OP10304
------------------	--------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D60046-1MS, D60046-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP13556

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60154-1AMS, D60154-1AMSD, D60154-1ASDL were used as the QC samples for the metals analysis.

Matrix SO

Batch ID: MP13542

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60044-1MS, D60044-1MSD, D60044-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Barium, Silver are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike duplicate (MSD) recovery(s) of Silver are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Cadmium, Lead, Barium, Nickel, Zinc are outside control limits for sample MP13542-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP13542-SD1 for Zinc, Nickel, Barium: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP13546

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60044-1MS, D60044-1MSD, D60044-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP13546-SD1. Probable cause due to sample homogeneity.
- MP13546-SD1 for Arsenic: Serial dilution indicates possible matrix interference.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP13547

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59931-1MS, D59931-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN25749

- Sample(s) D60078-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM2540G-2011 M

Matrix SO

Batch ID: GN25709

- The data for SM2540G-2011 M meets quality control requirements.

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO

Batch ID: GP13159

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D59936-7DUP, D59936-7MS, D59936-7MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 3060A/7196A M

Matrix SO

Batch ID: R22865

- The data for SW846 3060A/7196A M meets quality control requirements.
- D60045-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 9045D

Matrix SO

Batch ID: GN25718

- The following samples were run outside of holding time for method SW846 9045D: D60045-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO

Batch ID: MP13556

- D60045-1A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D60045
 Account: Confluence Energy
 Project: Hebron 3-12H
 Collected: 07/15/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

D60045-1 HEBRON 3-12H

Chrysene	44.7	5.1	2.5	ug/kg	SW846 8270C BY SIM
Fluorene	98.7	5.1	3.7	ug/kg	SW846 8270C BY SIM
Naphthalene	132	5.1	3.1	ug/kg	SW846 8270C BY SIM
Pyrene	56.4	5.1	3.0	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10) ^a	7.96 J	14	6.9	mg/kg	SW846 8015B
TPH-DRO (C10-C28)	605	8.0	6.0	mg/kg	SW846-8015B
Arsenic	5.8	0.072		mg/kg	SW846 6020A
Barium	1460	0.72		mg/kg	SW846 6010C
Cadmium	0.72	0.72		mg/kg	SW846 6010C
Chromium	12.0	0.72		mg/kg	SW846 6010C
Copper	21.5	0.72		mg/kg	SW846 6010C
Nickel	16.8	2.2		mg/kg	SW846 6010C
Zinc	48.9	2.2		mg/kg	SW846 6010C
Specific Conductivity	6110	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent ^b	12.0	1.7		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2	460			mv	ASTM D1498-76M
pH	8.38			su	SW846 9045D

D60045-1A HEBRON 3-12H

Calcium	250	2.0		mg/l	SW846 6010C
Magnesium	74.3	1.0		mg/l	SW846 6010C
Sodium	581	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^c	8.29			ratio	USDA HANDBOOK 60

(a) Sample received outside the holding time.

(b) Calculated as: (Chromium) - (Chromium, Hexavalent)

(c) Calculated as: (Na meq/L) / sqrt [(Ca meq/L) + (Mg meq/L)/2]

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	HEBRON 3-12H	Date Sampled:	07/15/14
Lab Sample ID:	D60045-1	Date Received:	07/23/14
Matrix:	SO - Soil	Percent Solids:	83.7
Method:	SW846 8260B		
Project:	Hebron 3-12H		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	3V31663.D	1	07/23/14	JL	n/a	n/a	V3V1851
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.02 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	69	26	ug/kg	
108-88-3	Toluene	ND	140	69	ug/kg	
100-41-4	Ethylbenzene	ND	140	26	ug/kg	
1330-20-7	Xylene (total)	ND	280	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	87%		64-130%
460-00-4	4-Bromofluorobenzene	96%		62-131%
17060-07-0	1,2-Dichloroethane-D4	99%		70-130%

(a) Sample received outside the holding time.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	HEBRON 3-12H	Date Sampled:	07/15/14
Lab Sample ID:	D60045-1	Date Received:	07/23/14
Matrix:	SO - Soil	Percent Solids:	83.7
Method:	SW846 8270C BY SIM SW846 3546		
Project:	Hebron 3-12H		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G20665.D	1	07/25/14	DC	07/25/14	OP10310	E3G1024
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	5.1	4.0	ug/kg	
120-12-7	Anthracene	ND	5.1	3.6	ug/kg	
56-55-3	Benzo(a)anthracene	ND	5.1	2.5	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	5.1	3.2	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	5.1	2.5	ug/kg	
50-32-8	Benzo(a)pyrene	ND	5.1	2.5	ug/kg	
218-01-9	Chrysene	44.7	5.1	2.5	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	5.1	2.5	ug/kg	
206-44-0	Fluoranthene	ND	5.1	2.9	ug/kg	
86-73-7	Fluorene	98.7	5.1	3.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	5.1	2.5	ug/kg	
91-20-3	Naphthalene	132	5.1	3.1	ug/kg	
129-00-0	Pyrene	56.4	5.1	3.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		11-164%
321-60-8	2-Fluorobiphenyl	81%		14-138%
1718-51-0	Terphenyl-d14	80%		35-139%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	HEBRON 3-12H	Date Sampled:	07/15/14
Lab Sample ID:	D60045-1	Date Received:	07/23/14
Matrix:	SO - Soil	Percent Solids:	83.7
Method:	SW846 8015B		
Project:	Hebron 3-12H		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	GB25825.D	1	07/23/14	EP	n/a	n/a	GGB1408
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	7.96	14	6.9	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	124%		60-140%		

(a) Sample received outside the holding time.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	HEBRON 3-12H	Date Sampled:	07/15/14
Lab Sample ID:	D60045-1	Date Received:	07/23/14
Matrix:	SO - Soil	Percent Solids:	83.7
Method:	SW846-8015B SW846 3546		
Project:	Hebron 3-12H		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI14518.D	1	07/24/14	JS	07/24/14	OP10304	GFI875
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	605	8.0	6.0	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	75%		20-130%		

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	HEBRON 3-12H	Date Sampled:	07/15/14
Lab Sample ID:	D60045-1	Date Received:	07/23/14
Matrix:	SO - Soil	Percent Solids:	83.7
Project:	Hebron 3-12H		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.8	0.072	mg/kg	5	07/28/14	07/28/14	NT	SW846 6020A ²
Barium	1460	0.72	mg/kg	1	07/28/14	07/28/14	KV	SW846 6010C ¹
Cadmium	0.72	0.72	mg/kg	1	07/28/14	07/28/14	KV	SW846 6010C ¹
Chromium	12.0	0.72	mg/kg	1	07/28/14	07/28/14	KV	SW846 6010C ¹
Copper	21.5	0.72	mg/kg	1	07/28/14	07/29/14	KV	SW846 6010C ⁴
Lead	< 3.6	3.6	mg/kg	1	07/28/14	07/28/14	KV	SW846 6010C ¹
Mercury	< 0.056	0.056	mg/kg	1	07/29/14	07/29/14	SM	SW846 7471B ³
Nickel	16.8	2.2	mg/kg	1	07/28/14	07/28/14	KV	SW846 6010C ¹
Selenium	< 3.6	3.6	mg/kg	1	07/28/14	07/28/14	KV	SW846 6010C ¹
Silver	< 2.2	2.2	mg/kg	1	07/28/14	07/28/14	KV	SW846 6010C ¹
Zinc	48.9	2.2	mg/kg	1	07/28/14	07/28/14	KV	SW846 6010C ¹

(1) Instrument QC Batch: MA5031

(2) Instrument QC Batch: MA5035

(3) Instrument QC Batch: MA5037

(4) Instrument QC Batch: MA5039

(5) Prep QC Batch: MP13542

(6) Prep QC Batch: MP13546

(7) Prep QC Batch: MP13547

RL = Reporting Limit

Report of Analysis

Client Sample ID: HEBRON 3-12H
 Lab Sample ID: D60045-1
 Matrix: SO - Soil
 Project: Hebron 3-12H

Date Sampled: 07/15/14
 Date Received: 07/23/14
 Percent Solids: 83.7

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	83.7		%	1	07/24/14	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	6110	1.0	umhos/cm	1	07/30/14	JD	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	07/29/14	AK	SW846 3060A/7196A
Chromium, Trivalent ^a	12.0	1.7	mg/kg	1	07/29/14	AK	SW846 3060A/7196A M
Redox Potential Vs H2	460		mv	1	07/28/14	JD	ASTM D1498-76M
pH	8.38		su	1	07/24/14	JB	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	HEBRON 3-12H	Date Sampled:	07/15/14
Lab Sample ID:	D60045-1A	Date Received:	07/23/14
Matrix:	SO - Soil	Percent Solids:	83.7
Project:	Hebron 3-12H		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	250	2.0	mg/l	1	07/30/14	07/30/14 KV	SW846 6010C ¹	SW846 3010A ²
Magnesium	74.3	1.0	mg/l	1	07/30/14	07/30/14 KV	SW846 6010C ¹	SW846 3010A ²
Sodium	581	2.0	mg/l	1	07/30/14	07/30/14 KV	SW846 6010C ¹	SW846 3010A ²

- (1) Instrument QC Batch: MA5039
(2) Prep QC Batch: MP13556

RL = Reporting Limit

Report of Analysis

Client Sample ID: HEBRON 3-12H
Lab Sample ID: D60045-1A
Matrix: SO - Soil
Project: Hebron 3-12H

Date Sampled: 07/15/14
Date Received: 07/23/14
Percent Solids: 83.7

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	8.29		ratio	1	07/30/14 10:04	KV	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

4.2
4

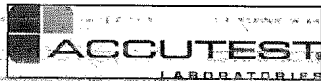
Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

PAGE ___ OF ___

4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 968-413-0031 FAX: 303-413-5524
www.acctest.com

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)										Matrix Codes						
Company Name Confluence Energy	Project Name Hebron 3-12H	Billing Information (if different from Report to)												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank						
Street Address 1809 Hwy 9 - PO Box 1387	City Kremmling Colorado	Street Address																		
Project Contact Mark	Project #	City																		
Phone # 970-724-9839	Client Purchase Order #	Attention:																		
Sampler(s) Name(s)	Project Manager																			
Field ID / Point of Collection Hebron 3-12H	MEQH/OI Vial #	Date 12/15/01	Time 2pm	Sampled by MJM	Matrix soil	# of bottles	ICI	MSDN	HDS	H2SO4	NONE	DW/WW	MEQ	BIACORE	SAR	GRO	PH	DRO	CO table 910	LAB USE ONLY
<div>Turnaround Time (Business days) <input type="checkbox"/> Std. 15 Business Days <input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input type="checkbox"/> 1 Day Emergency Emergency & Rush T/A data available VIA Lablink</div> <div>Approved By (Accutest PM) / Date: _____</div> <div>Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMON <input type="checkbox"/> COMMON+ Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial B+ = Results/QC Narrative (+ 4% stream duplicate)</div> <div>State Forms Required <input type="checkbox"/> Send Forms to State <input type="checkbox"/> Report by Fax <input type="checkbox"/> Report by PDF <input type="checkbox"/> EDD Format</div> <div>Comments / Special Instructions</div>																				
Sample Custody must be documented below each time samples change possession, including courier delivery.																				
Relinquished by Suppliers 1 mark	Date/Time: 8:00	Received By: 1	Relinquished By:	Received By: 2	Date/Time:	Received By: 3	Relinquished By:	Received By: 4	Date/Time:	Received By:										
Relinquished by Suppliers	Date/Time:	Received By:	Relinquished By:	Received By:	Date/Time:	Received By:	Relinquished By:	Received By:	Date/Time:	Received By:										

D60045: Chain of Custody

Page 1 of 1

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1851-MB	3V31649.D	1	07/23/14	JL	n/a	n/a	V3V1851

The QC reported here applies to the following samples:

Method: SW846 8260B

D60045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	19	ug/kg	
100-41-4	Ethylbenzene	ND	100	19	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	102% 64-130%
460-00-4	4-Bromofluorobenzene	95% 62-131%
17060-07-0	1,2-Dichloroethane-D4	102% 70-130%

Blank Spike Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1851-BS	3V31650.D	1	07/23/14	JL	n/a	n/a	V3V1851

The QC reported here applies to the following samples:

Method: SW846 8260B

D60045-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2620	105	70-130
100-41-4	Ethylbenzene	2500	2660	106	70-130
108-88-3	Toluene	2500	2550	102	70-130
1330-20-7	Xylene (total)	7500	7970	106	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	101%	64-130%
460-00-4	4-Bromofluorobenzene	97%	62-131%
17060-07-0	1,2-Dichloroethane-D4	98%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3V1851-BS	3V31651.D	1	07/23/14	JL	n/a	n/a	V3V1851

The QC reported here applies to the following samples:

Method: SW846 8260B

D60045-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
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CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	103%	64-130%
460-00-4	4-Bromofluorobenzene	96%	62-131%
17060-07-0	1,2-Dichloroethane-D4	102%	70-130%

* = Outside of Control Limits.

Matrix Spike Summary

Page 1 of 1

Job Number: D60045

Account: CONECOK Confluence Energy

Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59972-3MS	3V31654.D	1	07/23/14	JL	n/a	n/a	V3V1851
D59972-3	3V31652.D	1	07/23/14	JL	n/a	n/a	V3V1851
D59972-3	3V31653.D	1	07/23/14	JL	n/a	n/a	V3V1851

The QC reported here applies to the following samples:

Method: SW846 8260B

D60045-1

CAS No.	Compound	D59972-3 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	3740		4990000	4760000	95	64-139
100-41-4	Ethylbenzene	18600		4990000	4710000	94	68-136
108-88-3	Toluene	1910000 ^a		4990000	6140000	89	60-130
1330-20-7	Xylene (total)	277000 ^b		15000000	14300000	94	58-142

CAS No.	Surrogate Recoveries	MS	D59972-3	D59972-3	Limits
2037-26-5	Toluene-D8	96%	137%* ^c	98%	64-130%
460-00-4	4-Bromofluorobenzene	100%	188%* ^c	95%	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	100%	98%	70-130%

(a) Result is from Run #2.

(b) Result is from Run #3.

(c) Outside control limits due to possible matrix interference.

* = Outside of Control Limits.

Matrix Spike Summary

Page 1 of 1

Job Number: D60045

Account: CONECOK Confluence Energy

Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D59972-3MS	3V31655.D	1	07/23/14	JL	n/a	n/a	V3V1851
D59972-3	3V31652.D	1	07/23/14	JL	n/a	n/a	V3V1851
D59972-3	3V31653.D	1	07/23/14	JL	n/a	n/a	V3V1851

The QC reported here applies to the following samples:

Method: SW846 8260B

D60045-1

CAS No.	Compound	D59972-3 ug/kg	Spike Q	MS ug/kg	MS %	Limits
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CAS No.	Surrogate Recoveries	MS	D59972-3	D59972-3	Limits
2037-26-5	Toluene-D8	96%	137%* ^a	98%	64-130%
460-00-4	4-Bromofluorobenzene	97%	188%* ^a	95%	62-131%
17060-07-0	1,2-Dichloroethane-D4	103%	100%	98%	70-130%

(a) Outside control limits due to possible matrix interference.

* = Outside of Control Limits.

Duplicate Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D60044-1DUP	3V31662.D	1	07/23/14	JL	n/a	n/a	V3V1851
D60044-1 ^a	3V31661.D	1	07/23/14	JL	n/a	n/a	V3V1851

The QC reported here applies to the following samples:

Method: SW846 8260B

D60045-1

CAS No.	Compound	D60044-1 ug/kg	DUP Q	ug/kg	Q	RPD	Limits
71-43-2	Benzene	ND		ND		nc	30
100-41-4	Ethylbenzene	ND		ND		nc	30
108-88-3	Toluene	ND		ND		nc	30
1330-20-7	Xylene (total)	ND		ND		nc	30

CAS No.	Surrogate Recoveries	DUP	D60044-1	Limits
2037-26-5	Toluene-D8	88%	90%	64-130%
460-00-4	4-Bromofluorobenzene	98%	98%	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	101%	70-130%

(a) Sample received outside the holding time.

* = Outside of Control Limits.

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10310-MB	3G20656.D	1	07/25/14	DC	07/25/14	OP10310	E3G1024

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D60045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	4.3	3.3	ug/kg	
120-12-7	Anthracene	ND	4.3	3.0	ug/kg	
56-55-3	Benzo(a)anthracene	ND	4.3	2.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	4.3	2.7	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	4.3	2.1	ug/kg	
50-32-8	Benzo(a)pyrene	ND	4.3	2.1	ug/kg	
218-01-9	Chrysene	ND	4.3	2.1	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	4.3	2.1	ug/kg	
206-44-0	Fluoranthene	ND	4.3	2.4	ug/kg	
86-73-7	Fluorene	ND	4.3	3.1	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	4.3	2.1	ug/kg	
91-20-3	Naphthalene	ND	4.3	2.6	ug/kg	
129-00-0	Pyrene	ND	4.3	2.5	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	75% 11-164%
321-60-8	2-Fluorobiphenyl	84% 14-138%
1718-51-0	Terphenyl-d14	87% 35-139%

Blank Spike Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10310-BS	3G20657.D	1	07/25/14	DC	07/25/14	OP10310	E3G1024

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D60045-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	72.9	87	42-130
120-12-7	Anthracene	83.3	72.9	87	45-130
56-55-3	Benzo(a)anthracene	83.3	74.7	90	49-137
205-99-2	Benzo(b)fluoranthene	83.3	85.6	103	43-146
207-08-9	Benzo(k)fluoranthene	83.3	85.0	102	27-146
50-32-8	Benzo(a)pyrene	83.3	77.8	93	53-130
218-01-9	Chrysene	83.3	76.5	92	61-130
53-70-3	Dibenzo(a,h)anthracene	83.3	80.0	96	59-130
206-44-0	Fluoranthene	83.3	72.9	87	48-130
86-73-7	Fluorene	83.3	75.7	91	44-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	79.6	96	58-130
91-20-3	Naphthalene	83.3	75.3	90	56-130
129-00-0	Pyrene	83.3	77.5	93	53-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	83%	11-164%
321-60-8	2-Fluorobiphenyl	100%	14-138%
1718-51-0	Terphenyl-d14	98%	35-139%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10310-MS	3G20659.D	1	07/25/14	DC	07/25/14	OP10310	E3G1024
OP10310-MSD	3G20660.D	1	07/25/14	DC	07/25/14	OP10310	E3G1024
D60078-2	3G20658.D	1	07/25/14	DC	07/25/14	OP10310	E3G1024

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D60045-1

CAS No.	Compound	D60078-2 ug/kg	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND	99.1	68.4	69	99.1	63.4	64	8	10-167/30
120-12-7	Anthracene	ND	99.1	72.1	73	99.1	62.7	63	14	10-200/30
56-55-3	Benzo(a)anthracene	ND	99.1	74.7	75	99.1	63.9	64	16	10-161/30
205-99-2	Benzo(b)fluoranthene	ND	99.1	80.9	82	99.1	71.5	72	12	10-166/30
207-08-9	Benzo(k)fluoranthene	ND	99.1	80.1	81	99.1	66.9	68	18	10-152/30
50-32-8	Benzo(a)pyrene	ND	99.1	73.6	74	99.1	63.8	64	14	10-149/30
218-01-9	Chrysene	15.1	99.1	79.3	65	99.1	67.4	53	16	10-156/30
53-70-3	Dibenzo(a,h)anthracene	ND	99.1	75.3	76	99.1	67.2	68	11	11-149/30
206-44-0	Fluoranthene	ND	99.1	75.1	76	99.1	65.1	66	14	10-175/30
86-73-7	Fluorene	ND	99.1	72.2	73	99.1	65.7	66	9	10-280/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND	99.1	76.1	77	99.1	66.4	67	14	10-151/30
91-20-3	Naphthalene	ND	99.1	73.9	75	99.1	65.8	66	12	10-230/30
129-00-0	Pyrene	ND	99.1	77.3	78	99.1	67.0	68	14	10-160/30

CAS No.	Surrogate Recoveries	MS	MSD	D60078-2	Limits
4165-60-0	Nitrobenzene-d5	66%	59%	79%	11-164%
321-60-8	2-Fluorobiphenyl	74%	66%	88%	14-138%
1718-51-0	Terphenyl-d14	71%	63%	84%	35-139%

* = Outside of Control Limits.

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1408-MB	GB25819.D	1	07/23/14	EP	n/a	n/a	GGB1408

The QC reported here applies to the following samples: Method: SW846 8015B

D60045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	9.9	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	110% 60-140%

Blank Spike Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1408-BS	GB25820.D	1	07/23/14	EP	n/a	n/a	GGB1408

The QC reported here applies to the following samples:

Method: SW846 8015B

D60045-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	109	110	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	110%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D60000-1MS	GB25822.D	1	07/23/14	EP	n/a	n/a	GGB1408
D60000-1MSD	GB25823.D	1	07/23/14	EP	n/a	n/a	GGB1408
D60000-1	GB25821.D	1	07/23/14	EP	n/a	n/a	GGB1408

The QC reported here applies to the following samples:

Method: SW846 8015B

D60045-1

CAS No.	Compound	D60000-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		140	144	103	140	142	102	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D60000-1	Limits
120-82-1	1,2,4-Trichlorobenzene	112%	112%	114%	60-140%

* = Outside of Control Limits.

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10304-MB	FI14515.D	1	07/24/14	JS	07/24/14	OP10304	GF1876

The QC reported here applies to the following samples:

Method: SW846-8015B

D60045-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	6.7	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	95% 20-130%

9.1.1

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Blank Spike Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10304-BS	FI14517.D	1	07/24/14	JS	07/24/14	OP10304	GF1876

The QC reported here applies to the following samples:

Method: SW846-8015B

D60045-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	167	110	66	42-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	94%	20-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D60045
Account: CONECOK Confluence Energy
Project: Hebron 3-12H

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP10304-MS	FI14571.D	5	07/25/14	JS	07/24/14	OP10304	GFI878
OP10304-MSD	FI14573.D	5	07/25/14	JS	07/24/14	OP10304	GFI878
D60046-1	FI14575.D	5	07/25/14	JS	07/24/14	OP10304	GFI878

The QC reported here applies to the following samples:

Method: SW846-8015B

D60045-1

CAS No.	Compound	D60046-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	982		179	1100	66	179	1090	60	1	20-150/30

CAS No.	Surrogate Recoveries	MS	MSD	D60046-1	Limits
84-15-1	o-Terphenyl	82%	88%	89%	20-130%

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13542
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.86	1.8		
Antimony	3.0	.21	.5		
Arsenic	2.5	.38	.63		
Barium	1.0	.02	.36	0.070	<1.0
Beryllium	1.0	.08	.06		
Boron	5.0	.08	.16		
Cadmium	1.0	.02	.28	-0.010	<1.0
Calcium	40	.22	6.8		
Chromium	1.0	.03	.03	0.010	<1.0
Cobalt	0.50	.04	.039		
Copper	1.0	.12	.13	0.090	<1.0
Iron	7.0	.15	1.8		
Lead	5.0	.21	.25	-0.080	<5.0
Lithium	0.50	.04	.13		
Magnesium	20	.68	1.8		
Manganese	0.50	.001	.038		
Molybdenum	1.0	.04	.13		
Nickel	3.0	.05	.07	0.070	<3.0
Phosphorus	10	1.5	1.2		
Potassium	200	9.9	12		
Selenium	5.0	.71	1.1	0.020	<5.0
Silicon	5.0	.47	1.1		
Silver	3.0	.03	.05	-0.010	<3.0
Sodium	40	.49	3.7		
Strontium	5.0	.001	.022		
Thallium	1.0	.18	.46		
Tin	5.0	1.2	2.3		
Titanium	1.0	.01	.46		
Uranium	5.0	.29	.31		
Vanadium	1.0	.04	.043		
Zinc	3.0	.04	.16	0.46	<3.0

Associated samples MP13542: D60045-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13542
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/14

Metal	RL	IDL	MDL	MB raw	final
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(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13542
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/14

Metal	D60044-1 Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	409	735	215	151.4N(a)	75-125
Beryllium					
Boron					
Cadmium	0.21	46.6	53.8	86.2	75-125
Calcium	anr				
Chromium	8.2	56.2	53.8	89.2	75-125
Cobalt					
Copper	9.3	61.8	53.8	97.5	75-125
Iron					
Lead	1.8	95.0	108	86.6	75-125
Lithium					
Magnesium	anr				
Manganese					
Molybdenum	anr				
Nickel	7.6	54.5	53.8	87.1	75-125
Phosphorus	anr				
Potassium	anr				
Selenium	0.0	94.5	108	87.8	75-125
Silicon					
Silver	0.0	16.1	21.5	74.8N(a)	75-125
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	28.4	75.0	53.8	86.6	75-125

Associated samples MP13542: D60045-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
 Account: CONECOK - Confluence Energy
 Project: Hebron 3-12H

QC Batch ID: MP13542
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 07/28/14

Metal	D60044-1 Original MS	SpikeLot ICPALL2	% Rec	QC Limits
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(N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested
 (a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13542
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/14

Metal	D60044-1 Original	MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	409	619	215	97.5	17.1	20
Beryllium						
Boron						
Cadmium	0.21	45.9	53.8	84.9	1.5	20
Calcium	anr					
Chromium	8.2	55.0	53.8	87.0	2.2	20
Cobalt						
Copper	9.3	59.3	53.8	92.9	4.1	20
Iron						
Lead	1.8	92.9	108	84.6	2.2	20
Lithium						
Magnesium	anr					
Manganese						
Molybdenum	anr					
Nickel	7.6	53.5	53.8	85.3	1.9	20
Phosphorus	anr					
Potassium	anr					
Selenium	0.0	93.6	108	87.0	1.0	20
Silicon						
Silver	0.0	15.8	21.5	73.4N(a)	1.9	20
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	28.4	75.5	53.8	87.5	0.7	20

Associated samples MP13542: D60045-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
 Account: CONECOK - Confluence Energy
 Project: Hebron 3-12H

QC Batch ID: MP13542
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 07/28/14

Metal	D60044-1 Original MSD	Spike lot ICPALL2 % Rec	MSD RPD	QC Limit
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(N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested
 (a) Spike recovery indicates possible matrix interference.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13542
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/28/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	193	200	96.5	80-120
Beryllium				
Boron				
Cadmium	47.1	50	94.2	80-120
Calcium	anr			
Chromium	47.7	50	95.4	80-120
Cobalt				
Copper	49.8	50	99.6	80-120
Iron				
Lead	95.9	100	95.9	80-120
Lithium				
Magnesium	anr			
Manganese				
Molybdenum	anr			
Nickel	45.4	50	90.8	80-120
Phosphorus	anr			
Potassium	anr			
Selenium	98.3	100	98.3	80-120
Silicon				
Silver	17.0	20	85.0	80-120
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	46.1	50	92.2	80-120

Associated samples MP13542: D60045-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

10.1.3
10

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D60045

Account: CONECOK - Confluence Energy

Project: Hebron 3-12H

QC Batch ID: MP13542

Methods: SW846 6010C

Matrix Type: SOLID

Units: mg/kg

Prep Date:

07/28/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
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(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13542
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/28/14

Metal	D60044-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	3830	4530	18.3*(a)	0-10
Beryllium				
Boron				
Cadmium	2.00	0.00	100.0(b)	0-10
Calcium	anr			
Chromium	76.6	84.0	9.7	0-10
Cobalt				
Copper	87.3	92.5	6.0	0-10
Iron				
Lead	17.2	21.0	22.1 (b)	0-10
Lithium				
Magnesium	anr			
Manganese				
Molybdenum	anr			
Nickel	71.5	84.0	17.5*(a)	0-10
Phosphorus	anr			
Potassium	anr			
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	266	315	18.2*(a)	0-10

Associated samples MP13542: D60045-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

10.1.4
10

SERIAL DILUTION RESULTS SUMMARY

Login Number: D60045
 Account: CONECOK - Confluence Energy
 Project: Hebron 3-12H

QC Batch ID: MP13542
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: ug/l

Prep Date: 07/28/14

	D60044-1		QC
Metal	Original SDL 1:5	%DIF	Limits

(anr) Analyte not requested

(a) Serial dilution indicates possible matrix interference.

(b) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13546
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 07/28/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.55	.75		
Antimony	0.20	.0011	.029		
Arsenic	0.10	.0085	.024	0.013	<0.10
Barium	1.0	.008	.16		
Beryllium	0.10	.008	.049		
Boron	20	.25	.07		
Cadmium	0.050	.018	.038		
Calcium	200	2.8	13		
Chromium	1.0	.027	.11		
Cobalt	0.10	.0025	.0085		
Copper	1.0	.03	.1		
Iron	5.0	1.8	1.8		
Lead	0.25	.004	.0075		
Magnesium	50	.65	.65		
Manganese	0.50	.06	.07		
Molybdenum	0.50	.025	.046		
Nickel	1.0	.0044	.17		
Phosphorus	30	1.3	4.9		
Potassium	100	1.5	2.5		
Selenium	0.20	.03	.13		
Silver	0.050	.00095	.01		
Sodium	250	2.5	5.5		
Strontium	10	.005	.027		
Thallium	0.10	.0012	.0075		
Tin	5.0	.032	2.3		
Titanium	1.0	.03	.085		
Uranium	0.25	.00085	.0015		
Vanadium	2.0	.019	.11		
Zinc	5.0	.11	1.4		

Associated samples MP13546: D60045-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
 Account: CONECOK - Confluence Energy
 Project: Hebron 3-12H

QC Batch ID: MP13546
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 07/28/14

Metal	D60044-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	2.1	106	108	96.5	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP13546: D60045-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

10.2.2
10

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13546
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 07/28/14

Metal	D60044-1 Original	MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	2.1	104	108	94.7	1.9	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP13546: D60045-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13546
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 07/28/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	95.2	100	95.2	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP13546: D60045-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13546
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 07/28/14

Metal	D60044-1	QC
Original	SDL 5:25	%DIF
Limits		

Aluminum				
Antimony				
Arsenic	19.8	17.4	12.2*(a)	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP13546: D60045-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13547
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 07/29/14

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.083	.00088	.0067	-0.00066	<0.083

Associated samples MP13547: D60045-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
 Account: CONECOK - Confluence Energy
 Project: Hebron 3-12H

QC Batch ID: MP13547
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 07/29/14

Metal	D59931-1 Original MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.026 0.38	0.369	96.0	75-125

Associated samples MP13547: D60045-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
 Account: CONECOK - Confluence Energy
 Project: Hebron 3-12H

QC Batch ID: MP13547
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 07/29/14

	D59931-1		Spikelot		MSD	QC
Metal	Original	MSD	HGWSR1	% Rec	RPD	Limit
Mercury	0.026	0.35	0.357	90.7	8.2	20

Associated samples MP13547: D60045-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D60045
 Account: CONECOK - Confluence Energy
 Project: Hebron 3-12H

QC Batch ID: MP13547
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 07/29/14

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
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Mercury	0.32	0.333	96.0	80-120
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Associated samples MP13547: D60045-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13556
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 07/30/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	43	210		
Antimony	150	16	95		
Arsenic	130	26	28		
Barium	50	7	7		
Beryllium	50	4	6		
Boron	250	34	33		
Cadmium	50	2	1.8		
Calcium	2000	11	210	3.5	<2000
Chromium	50	2	2		
Cobalt	25	2	2.9		
Copper	50	6	9.5		
Iron	350	11	48		
Lead	250	18	110		
Lithium	25	9.5	14		
Magnesium	1000	70	95	-54	<1000
Manganese	25	.05	2.3		
Molybdenum	50	4	4.2		
Nickel	150	4.5	4.4		
Phosphorus	500	75	100		
Potassium	5000	650	1400		
Selenium	250	44	55		
Silicon	250	26	26		
Silver	150	2	3		
Sodium	2000	25	850	107	<2000
Strontium	25	.05	.6		
Thallium	50	15	20		
Tin	250	65	80		
Titanium	50	.75	11		
Uranium	250	19	28		
Vanadium	50	2	2		
Zinc	150	3	16		

Associated samples MP13556: D60045-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

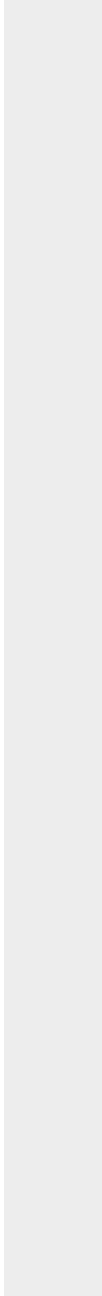
QC Batch ID: MP13556
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 07/30/14

Metal	RL	IDL	MDL	MB raw	final
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(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
 Account: CONECOK - Confluence Energy
 Project: Hebron 3-12H

QC Batch ID: MP13556
 Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
 Units: ug/l

Prep Date: 07/30/14

Metal	D60154-1A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	588000	714000	125000	100.8	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	665000	814000	125000	119.2	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	690000	837000	125000	117.6	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP13556: D60045-1A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

10.4.2
10

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
 Account: CONECOK - Confluence Energy
 Project: Hebron 3-12H

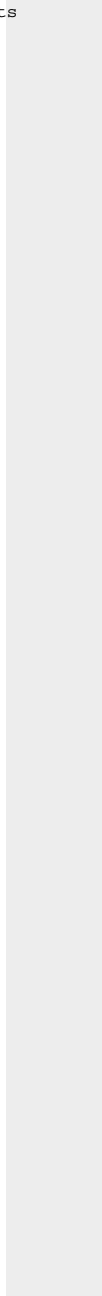
QC Batch ID: MP13556
 Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
 Units: ug/l

Prep Date: 07/30/14

Metal	D60154-1A Original MS	Spikelot ICPALL2	% Rec	QC Limits
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(N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested



10.4.2
10

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13556
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 07/30/14

Metal	D60154-1A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	588000	746000	125000	126.4(a)	4.4	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	665000	823000	125000	126.4(a)	1.1	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	690000	846000	125000	124.8	1.1	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP13556: D60045-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D60045
 Account: CONECOK - Confluence Energy
 Project: Hebron 3-12H

QC Batch ID: MP13556
 Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
 Units: ug/l

Prep Date: 07/30/14

Metal	D60154-1A Original MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
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(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13556
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 07/30/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	130000	125000	104.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	131000	125000	104.8	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	130000	125000	104.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP13556: D60045-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

10.4.3
10

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 07/30/14

Metal	BSP Result	Spikelot ICPALL2 % Rec	QC Limits
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(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

QC Batch ID: MP13556
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 07/30/14

Metal	D60154-1A Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	118000	119000	1.4	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	133000	130000	2.5	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	138000	135000	2.1	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP13556: D60045-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

10.4.4
10

SERIAL DILUTION RESULTS SUMMARY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

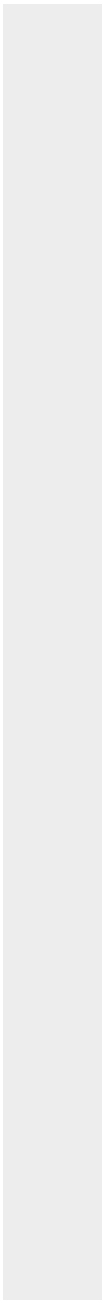
QC Batch ID: MP13556
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 07/30/14

Metal	D60154-1A	QC
	Original SDL 1:5	%DIF Limits

(anr) Analyte not requested



10.4.4
10

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP13159/GN25771	1.0	0.0	mg/kg	205	199	97.0	80-120%
Specific Conductivity	GP13160/GN25772			umhos/cm	10000	9940	99.4	90-110%
pH	GN25718			su	8.00	7.97	99.7	99.1-100.9%

Associated Samples:
Batch GN25718: D60045-1
Batch GP13159: D60045-1
Batch GP13160: D60045-1
(*) Outside of QC limits

11.1
11

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP13159/GN25771	D59936-7	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN25749	D60078-1	mv	482	475	1.5	0-20%

Associated Samples:
Batch GN25749: D60045-1
Batch GP13159: D60045-1
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP13159/GN25771	D59936-7	mg/kg	0.0	40	40.4	101.0	75-125%

Associated Samples:

Batch GP13159: D60045-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D60045
Account: CONECOK - Confluence Energy
Project: Hebron 3-12H

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP13159/GN25771	D59936-7	mg/kg	0.0	40	40.0	1.0	20%

Associated Samples:
Batch GP13159: D60045-1
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits